



TEXAS HIPLEX 1979  
FIELD OPERATIONS SUMMARY  
LP-112

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By:

William O. Alexander

and

Robert F. Riggio

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Texas Department of Water Resources  
P.O. Box 13087, Capitol Station  
Austin, Texas 78711

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SECTION I: INTRODUCTION

## INTRODUCTION

This report is designed to fulfill the Department's responsibility to document daily operational activities during the 1979 Texas HIPLEX field season in the Big Spring-Snyder area of West Texas. It provides information as to when and where cloud sampling and/or seeding was performed, and when aircraft, radar, rawinsonde and special surface data were collected. Daily weather summaries, weather observations (both surface and airborne), and equipment status are also included.

Each Texas HIPLEX day, from May 21 to July 20, is listed chronologically. The daily summaries include a daily surface statewide weather map, a weather summary, and surface observations. On those days in which sampling and/or seeding missions were flown, aircraft notes are recorded. These data and records appear in the Appendix.

A summary of the 1979 Texas HIPLEX field season is listed in Table 1. Table 2 summarizes aircraft flight operations for the field season, and Table 3 summarizes all Texas HIPLEX-related cloud-seeding activities.

SECTION II: OPERATIONS

WEATHER SUMMARIES

AIRCRAFT

EQUIPMENT



## WEATHER SUMMARIES

As in previous Texas HIPLEX field seasons, the Texas Department of Water Resources forecaster was responsible for providing an operational forecast for each day during the Texas HIPLEX field season and for making hourly surface weather observations on a routine basis. A summary was prepared after each day which described significant synoptic weather features and summarized the weather observed in the Texas HIPLEX operational area during the forecast period.

Following each daily weather summary is a log of observed weather conditions for that day over the operational area, as observed from the Big Spring Meteorological Facility. These observations were generally made hourly from 0800 to 1700 CDT, but the frequency of observations varied due to daily workload and operational needs. Standard observational data were collected during each observation with the exception of cloud base heights (for which data collecting instrumentation was not available). These observations were considered to be representative of the entire operational area inasmuch as the relatively flat terrain allowed for a clear line-of-sight view of clouds over the entire region.

## AIRCRAFT

Three aircraft participated in the 1979 Texas HIPLEX field program. These aircraft included a turbocharged and pressurized Navajo and a normally operated Aztec owned by the Colorado River Municipal Water District (CRMWD) and a turbocharged Navajo operated by Meteorology Research, Incorporated (MRI). The p-Navajo was used for on-top seeding and cloud data collection, the MRI Navajo was used for cloud physics measurements between  $\pm 0$  and -5C level and the Aztec was used for cloud base seeding and observations.

All seeding was performed with silver iodide flares. The p-Navajo used a fuselage-attached flare rack from which 30 gram ejectable flares were dispensed at the -10C level, while the Aztec was equipped with wing-mounted flare racks on which either 20 gram short duration (approximately 45 seconds) or 70 gram long duration (7 to 9 minutes) non-ejectable flares were burned at cloud base.

The primary consideration of the Texas HIPLEX field study was the sampling and/or seeding of semi-isolated growing cumuli which had penetrated the -10C level. Of secondary consideration was the seeding of growing turrets associated with convective complexes. The latter was seeded and sampled in a manner similar to the semi-isolated growing cumuli.

The debriefing sessions were semi-informal gatherings of all crews which participated in the mission, as well as the Project Manager and Chief Scientist. The cloud sampling (MRI) Navajo crew was routinely debriefed first, followed by the cloud base aircraft crew and the p-Navajo aircraft crew.

## EQUIPMENT

During the 1979 Texas HIPLEX field program, atmospheric and cloud physics data were collected and processed by surface and airborne instrumentation and equipment.

### Surface Instrumentation

A network of 25 solar-powered automatic weather stations was installed over and adjacent to the Texas HIPLEX operational area for use during the 1979 field season. These stations provided hourly readouts of temperature, relative humidity, pressure, wind speed and direction, and precipitation (as well as battery voltage). These data were transmitted to an orbiting satellite which retransmitted this information to the Bureau of Reclamation CYBER-74 computer in Denver. In-house data terminals provided by the Bureau allowed Texas HIPLEX personnel to access these data in both raw and spatially or temporarily analyzed form within one-half hour of real-time.

A total of 81 fencepost and 106 Belfort recording raingages were used during the 1979 field program. The 81 fencepost gages were read each day precipitation fell within the network. The recording units had seven-day graphs which were changed weekly.

Atmospheric soundings were made at three hourly intervals from a network of seven automatic tracking rawinsonde units placed over and adjacent to the HIPLEX operational area. Of these seven units, five were manned by Texas A&M University technicians (Seagraves, Post, Lamesa, Sterling City, and Snyder), one by CRMWD technicians at Big Spring, and the final sounding was purchased from the National Weather Service at Midland Air Terminal.

Used in conjunction with the rawinsonde units were seven TI-59 mini-computers. These units were programmed to process the raw baseline, wind, temperature, pressure, and moisture data provided by the soundings within 1½ hours of balloon launch.

The Bureau's Skywater SWR-75 five cm. radar was located at Howard County Industrial Park. Digital data were recorded on magnetic tape. Additionally, PPI scope imagery data were recorded on video tape cassette and were used during the daily stand-up briefings. The radar PPI scope imagery also displayed the positions of the aircraft.

The FPS-77 five cm. radar located at the Big Spring Meteorological Facility was used as a backup for the Skywater unit.

Satellite imagery was collected from the GOES East and West satellites at 30 minute intervals via in-house Harris Lasarfax equipment operated by Texas Tech University personnel. These data were reviewed during the stand-up briefings and were also archived for a detailed analysis at a later date.

Synoptic data including surface and upper air data from faximile and teletype circuitry was collected and archived routinely at the Meteorological Facility by Department staff. These data were similarly archived by Texas A&M University at College Station.

#### Airborne Instrumentation

A number of cloud physics and environmental sensing devices were used on the p-Navajo aircraft during the field season. These equipment and their functions are listed in Tables 1 and 2.

Table I. Variables measured by CRMWD Navajo.

---

Meteorological Sensors

Air temperature: 2 sensors--Rosemount model 102CD2U and reverse flow housing (NCAR design) with MINCO platinum element  
Dew point temperature: EG&G Model 137-C3  
Liquid water content: 2 sensors--Johnson--Williams hot wire and copy of Merceret-Schricker hot wire  
Ice particle concentration: CIC/Lawson cross-polarized laser device

Aircraft Sensors

Aircraft position: VOR/DME from aircraft avionics  
Static pressure: Cognition, Inc. Model aP3005  
Differential pressure: Cognition, Inc. Model dP3105

Microprocessor/Display/Recorder

Microprocessor/16K core: Z-80 with S-100 boards  
Display: Castell 5-inch cathode ray tube (CRT)  
Recorder: Pertec 9-track incremental recorder  
Playback: JC Penny audio cassette recorder and Axion digital printer

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Table II: Variables measured by MRI Navajo

Variable Measured	Instrumentation
Particle Size/Distribution	PMS Axially Scattering Spectrometer Probe (3 to 45 microns) PMS Cloud Particle Spectrometer Probe (20 to 300 microns) PMS Precipitation Particle Spectrometer (300 to 4500 microns)
Ice Particle Concentration	Continuous Ice Crystal Counter (Turner-Radke type) (100 to 600 microns); 0 to 5000 particles per second
Particle Imaging	2-D Cloud Particle Imaging Probe (25 to 800 microns)
Liquid Water Content	J-W Liquid Water Content Indicator
Cloud Life Cycle	Recording Bendix RDR-130, X-band Weather Radar; Super-8 mm Time-Lapse Movie Camera
Air Temperature	Rosemount 102 Total Temperature Probe (+50°) MRI Axial Flow Vortex Thermometer (-30°C to +50°C)
Dew Point	EG&G Model 137-CI Hygrometer (-57°D to +71°C) MRI Lyman-Alpha Hygrometer (-35°C to +30°C)
Turbulence	MRI Universal Indicating Turbulence System (0 to 10 R units)
Altitude	Validyne Absolute Pressure Transducer (0 to 14.7 psi)
Airspeed	Validyne Differential Pressure Transducer (0.0 to 0.7 Δpsi)
Rate-of-climb	Ball Brothers Variometer (+ 1500 fpm)
Navigation	Dual Digital VOR/DME (0 to 359 degrees and 0 to 100 nautical miles); Scanning DME

(continued)

Table II: Variables measured by MRI Navajo (continued)

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Variable measured	:	Instrumentation
Compass Heading	:	Humphrey's DG04 North-seeking Gyro Compass (0 to 359 degrees)
Vertical Air Speed	:	Ball Brothers Variometer (1)
Rainfall Rate	:	PMS probes (1)
Radar Reflectivity	:	PMS probes (1)

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(1)--data computations acquired real-time via on-board MRI microprocessor

## DATA

### Radar

Data from the SKYWATER radar were collected principally in digital form on nine-track magnetic tapes. A total of 172 tapes were written, corresponding to a total of 202.4 hours during which digital data were recorded. The digital data were all collected in one of four scanning modes (see Table A). The monitoring mode was used for recording 118 tapes, which covered 175.4 hours of observations. This mode was used when the aircraft were not operating a HIPLEX mission. The ZR mode was used in conjunction with aircraft flying near cloud base with the aim of collecting data that will relate radar reflectivity with rainfall rate. Five tapes covering 3.9 hours of observations were recorded using the ZR scanning mode. When the aircraft were flying HIPLEX missions and treating clouds within 50 km of the radar, the Aircraft Close In scanning mode was used. Forty-two tapes covering 20.0 hours of observations were recorded using the Aircraft Close In mode. When the aircraft were flying HIPLEX missions and treating clouds more than 50 km from the radar, the Aircraft Far Out scanning mode was used. Seven tapes covering 3.1 hours of observations were recorded using the Aircraft Far Out scanning mode. All 172 digital tapes have been edited and processed (RADPROC) without incident at the University of North Dakota. Weekly (during the experiment) calibration tapes have been processed by the Bureau.



In addition to the digital radar data a 16 mm movie camera took a color photograph of the color television display of the radar data for each rotation of the antenna during the scan sequences for which digital data was recorded. These color movies are available to supplement the analysis of 161 of the 172 digital tapes.

A video tape recorder was used to record the color television display for use in the field at briefings and debriefings. When particularly interesting data were recorded, the video tapes were set aside for later analysis rather than reused. Twenty-six one-hour video tapes were set aside in this way. Each records one hour of radar data as it was displayed in real time on the color television screen.

#### Other

Additional data concerning non-radar aspects of the 1979 Texas HIPLEX Field Program follow. Among these data are a listing of HIPLEX and mesoscale operations, rawinsonde operations, and precipitation data. These data following in tabular format. Numerous additional data, such as satellite and photographic records, are documented in the 1979 Texas HIPLEX Data Inventory and are not recorded here.

TABLE III: SUMMARY OF 1979 TEXAS HIPLEX FIELD OPERATIONS

(\* a "partial" mesoscale day; number in parentheses expressed in "Totals" is number of partial mesoscale days conducted.)

MONTH/DATE	MESOSCALE DAY		HIPLEX OPERATIONAL DAY			
	Go	No-Go	Mission Performed	No-Mission	Sampling/Recon Only	Tower Fly-By
MAY 21	x			x		
22		x		x		
23		x		x		
24		x		x		
25		x		x		
26	x			x		
27	x			x		
28	x				x	
29		x		x		
30		x		x		
31		x			x	
JUNE 1	x			x		
2		x		x		
3		x		x		
4	x		(2)			
5	x				x	
6		x		x		
7		x		x		x
8	x			x		
9		x		x		
10		x		x		
11		x		x		
12		x		x		
13		x		x		
14		x		x		
15		x		x		
16		x		x		
17		x		x		
18		x		x		
19		x		x		
20		x		x		
21		x		x		
22		x		x		
23		x		x		
24		x			x	
25		x	(1)			
26		x			x	
27		x		x		
28		x		x		
29		x		x		
30		x		x		

Table III (continued)

MONTH/DATE	MESOSCALE DAY		Mission Performed	HIPLEX OPERATIONAL DAY		Tower Fly-By
	Go	No-Go		No-Mission	Sampling/Recon Only	
JULY	1			X		
	2	X*			X	
	3	X	(2)			
	4	X*			X	
	5	X*	(2)			
	6	X		X		
	7	X*			X	
	8		(1)			
	9				X	
	10			X		
	11			X		
	12			X	X	
	13			X		
	14	X*		X		
	15		(1)			
	16	X			X	
	17	X			X	
	18	X		X		
	19			X		
	20			X		





TABLE V. Texas HIPLEX 1979 Precipitation Data (Inches)--fencepost and Belfort recording types. For key to gage locations, see 1979-1980 Texas HIPLEX Work Plan.

GAGE	(MAY)										TOTAL	
	DAY OF MONTH											
	1	3	10	20	21	26	27	28	31			
1	.10	.7	.50	.60	.05				.55			1.80
2	.10	.10	.40	.50	.05		.10		.50			1.75
3	.10	.40	.20	.30			.30		.40			1.70
4	.40	.60	.20	.50		.10	.30		.30			2.40
5	.20	.50	.10	.40		.10	.40		.30			2.00
6	.20	.30	.10	.30			.60		.25			1.75
7	.10	.20	.20	.60	.05		.50		.15			1.80
8	.10	.10	.10	.90	.05		1.20	.10	.30			2.85
9	.10	.10	.10	1.20	.10		.60	.10	.50			2.80
10	.10	.40	.10	1.30	.60		.90	.20	.40			4.00
11	.20	.7	.20	1.60	.50		1.20	.7	.60			4.30
12	.25	.10	.20	1.80	.50		1.00		.60			4.45
13	.40		.15	2.00	.30	.10	1.15		.25			4.35
14	.60	.7	.10	1.20	.20	.20	1.30	.7	.75			4.35
15	.70		.10	1.00	.40	.20	1.60	.05	.70			4.75
16	1.20		.15	1.60	.20	.40	.50		1.05			5.10
17	1.10		.7	2.30	.20	.40	.40		.85			5.25
18	.70		.7	2.90	.50	.40	.40		.75			5.65
19	.50	.7	.05	1.80	.30	.40	.60		.40			4.05
20	.40			1.80	.60	.30	.90		.20			4.20
21	.40	.10	.10	.90	.40	.30	.60		.25			3.05
22	.40	.30	.10	1.30	.20	.20	.50		.60			3.60
23	.40	.10	.20	.30	.20	.20	.30		1.10			2.80
24	.30	.10	.20	.40	.50	.10	.20		1.10			2.90
25	.25	.40	.30	.70	.70	.10	.30		.80			3.55
26	.25	.7	.10	.70	.30	.10	.30		1.15			2.90
27	.20	.7	.15	.60	.60	.20	.40		.60			2.75
28	.30		.10	1.00	.30	.20	.70		.40			3.00
29	.15	.10	.10	1.20	.60	.20	.70		.20			3.25
30	.10	.20	.7	2.00	.60	.10	.20		.20			3.40
31	.10			3.00	.50	.10	.10		.15			3.85
32	.10	.30	.7	3.60	.40		.50		.20			5.10
33	.20		.10	3.30	.50		.30		.20			4.60
34	.15	.7	.10	1.90	.40		.90		.15			3.60

GAGE	(MAY) DAY OF MONTH										TOTAL
	1	3	10	20	21	26	27	28	31		
35	.10	.10	.10	.70	.40		.30		.30		2.00
36	.20	.10	.10	.80	.20		.40		.10		1.90
37	.10	T.	.20	.60	.20		.40		.20		1.70
38	.10		.40	.60			.10		.10		1.30
39	T.	T.	.40	.50					.20		1.10
40			.50	.50	.05				.50		1.55
41	.25		T.	.90	.70	.10	.15		.80		2.90
42	.20	.10		.30	.90	.10	.20		1.30		3.10
43	.20			.40	.80	.10	.60		.85		2.95
44	.20			.40	1.10	.10	.20		.80		2.80
45	.30			.30	1.40	.20	.10		1.30		3.60
46	.20			.40	1.00	.20	.30		1.15		3.25
47	.20			.60	.80	.20	.30		1.50		3.60
48	.20			.70	.30	.10	.30		1.40		3.00
49	.15			.70	.50	.10	.20		2.30		3.95
50	.40	T.	.20	.60	2.60		2.20	.60	.20		6.80
51	.30	T.	.30	.45	2.15		1.20	.10	1.10		5.60
52	.30	.20	.15	.40	1.30		.90	.10	1.30		4.65
53	.50	.30	.30	.40	1.30		.40	.15	.70		4.05
54	.80	.50	.25	.40	.10		.60	T.	.50		3.15
55	.80	.40	.10	.50	.50		.40	T.	.10		2.80
56	.70	.20	.10	.30	.40		.50	.10	.15		2.45
57	.40	.20	.10	.30	.50		.50		.20		2.20
58	.40	.40		.20	.50		.30		.60		2.40
59	.20	.10		.20	.50		.30		1.40		2.70
60	.20	.20		.30	.40		.20		.20		1.50
61	.50	.20		.50	.40			T.	.30		1.90
62	.30	.50		1.00	.20			T.	.30		2.30
63	.50	.80		.70	.20				.20		2.40
73	.10	.20	.80	1.00	.20				.60		2.90
74	.10		.85	1.10					.50		2.55
75	.10		.90	1.20	.10				.40		2.70
76	T.		.45	.90	.10				.40		1.85
77	.10		.50	1.10	.10		.05		.30		2.15

(MAY)		DAY OF MONTH											TOTAL		
GAGE	1	3	10	20	21	26	27	28	31						TOTAL
78	.10		.60	.70			.10		.10						1.60
79	.20		.40	.70			.30	.05	.50						2.15
80	.20	T	.45	.50			.20	.05	.70						2.10
81	.20		.20	.40			.30		.35						1.45
82	.30		.10	.20	.10		.50		.40						1.60
83	.40	T	.10	.50	.10		.30		.35						1.75
84	.70	.10	.10	.60	.40		.30		.30						2.50
85	.60	.40	.20	.90	.20		1.00	T	.50						3.80
90	.20	.10	T	.40	.10		.30		.20						1.30
91	.10	T		.30			.40		.20						1.00
92	.20	.10		.50			.30		.30						1.40
93	.20	T		.30			.30		.35						1.15
94	.10	T		.20			.10		.20						0.60
GAGE	1	2	3	10	11	20	21	27	28	29	31				TOTAL
A1	.10			.85		.42	.23				.31				1.91
A2	.04			.24		.13	.11				.20				.72
A3	.01			.15		.21	.09				.08				.54
A4	.05					.83	1.26	.03							2.17
A5	.29	.14		.17		.43	1.24	.60			.11				2.98
A6	.15	.01		.05		.38	.19				.21				.99
A7	.08	.03	.01	.55		.40	.63				.20				1.90
A8	.04			.42		.19	.48				.09				1.22
A9	.03			.15		.34	.30	.65			.09				1.56
B1	.04			.02		1.66	1.54	.03			.04				3.33
B2	.23	.07		.06		.86	1.03	1.07			.05				3.37
B3	.12	.02		.12		.26	1.43	.77			.16				2.88
B4	.19					.24	1.39	.37			.27				2.46
B5	.25			.18		.21	.83	.13			.27				1.87
B6	.12	.02				.13	1.14	.06			.15				1.65
B7	.12	.02				2.38	1.19	.16		.05	.09				4.01
B8	.10	.03		.03		.69	.85	.34			.05				2.09
B9	.09			.52		.28	.25				.12				1.26
C1	.26			.20	.01	.50	.10				.11				1.18



(MAY)	DAY OF MONTH											TOTAL	
GAGE	1	2	3	10	11	20	21	27	28	29	30		
C2	.18			.38		.23	.18				.88		1.05
C3	.07	.04		.37		.20	1.35	.14			.11		2.28
C4	.12	.46		.12		.20	.25	.23			.12		1.50
C5	.19					.98	1.35	.35		.06	.06		2.99
C6	.05			.02		2.33	1.10	.42		.02	.09		4.03
C7	.11	.05		.12		.37	1.27	.35		.01	.13		2.41
C8	.23			.10		.19	.82	.08			.16		1.49
C9				.04		.42	.66	.19			.49		1.80
D1	.97			.07		.08	.84	.07		.06	.17		2.26
D2	.36	.19		.15		.20	.62	.04		.05	.15		1.74
D3	.20	.02		.04		.30	.70	.41		.02	.22		1.91
D4	.01		.09			2.21	1.77	.21		.01	.06		4.36
D5	.18	.01				.53	.54	.61			.07		1.94
D6	.15	.22		.18		.34	.49	.69			.11		2.18
D7	.17	.06		.39	.01	.34	.24	.14			.11		1.46
D8	.02			.18		.09	.12	.35		.02	.05		.83
D9	.15		.01	.08	.01		.09	.20			.10		.64
E1	.27	.05		.09	.02		.15	.17			.11		.85
E2	.02		.04	.05		.06	.22	.19		.02	.04		.64
E3	.44			.35	.03	.21	.30	.23		.02	.20		1.78
E4	.10	.01		.20		.60	1.05	.23			.38		2.57
E5	.03	.02				.30	.57	.11		.01	.14		1.18
E6	.08					1.36	1.43	1.32			.13		4.32
E7	.36		.04	.06		.57	.80	.61		.01	.14		2.59
E8	.67	.11	.02	.14		.16	.33			.10	.09		1.62
E9	1.25	.11	.04	.21		.08	.26	.07			.13		2.15
F1	1.07			.03		.78	.64	.97		.01	.09		3.59
F2	.37					1.60	1.23	1.57		.02	.17		4.96
F3	.10	.05		.03		.87	1.31				.10		2.46
F4	.12		.01	.32	.01	.39	.55	.23	.07		.29		1.99
F5	.47	.01	.03	.05		.18	.35	.17		.03	.09		1.38
F6	.18		.05	.08	.02	.17	.19	.49					1.18
F7	.42		.07	.04			.33	.49	.03		.04		1.42
F8	.33		.15	.02			.53	.44			.02		1.49

(MAY)	DAY OF MONTH											TOTAL		
GAGE	1	2	3	10	11	20	21	27	28	29	31			
F9	.57	.36	.06	.09	.02	.24	.33	.72		.02				2.41
G1	.54		.05	.25		.13	1.69	.15	.05	.08	.38			3.32
G2	.35					.44	.98	1.08	.11		.17			3.13
G3	.24			.15		.53	2.14	.90	.03		.23			4.22
G4	.77			.09		.83	.41	.74			.10			2.94
G5	1.40	.02		.02		.86	.48	1.43		.03	.14			2.38
G6	.90	.01	.03	.02		.28	1.04	1.30	.05	.04	.10			3.77
G7	.48			.26		.27	2.41	2.07	.27		.13			5.89
G8	.89		1.07	.33		.37	3.20	1.38	.27		.12			6.63
G9	.54		.05	.18	.03	.30	1.53	.18	.09		.36			3.26
H1	.96	.14	.13	.11		.02	1.03	.31		.03	.01			2.74
H2	.55	.01	.05	.06			.44	.34		.03	.04			1.52
H3	.06	.05		.09		.43	1.05	.66			.10			2.44
H4	.14	.02		.13		.44	.27	.57		.02	.06			1.65
H5				.04	.01		.09			.01	.08			.23
H6	.11		.13	.17		.28	.39				.49			1.57
H7	.10	.09		.04		.44	1.65	.41			.15			2.88
H8	.12			.10		.13	1.03	.44			.43			2.25
H9	.32			.09		.15	.30	.32			2.42			3.60
I1	.47			.11		.21	.35	.10			1.30			2.54
I2	1.12	.04		.25		.08	.26			.01	.09			.73
I3	2.00	.11		.16		.11	.52	.15			.11			3.16
I4	.91	.02		.11		.23	.29	.03		.04	.18			1.81
I5	1.22			.05		1.37	.82	.52		.03	.10			3.11
I6	1.00			.17		.12	.34	.22		.02	.48			2.35
I7	.70	.02	.08	.31		.15	.23	.05		.10	.20			1.89
I8	.85	.12		.24		.18	.54	.26		.01	.15			2.35
I9	.28	.05		.10		.09	.28			.17				.97
J1	.03	.04				.61	1.00	.59		.01	.12			2.40
J2	.01					1.29	2.03	.95		.02	.10			4.40
J3	.01					1.16	1.37	1.02			.14			3.70
J4	.13					1.40	1.41	2.05			.12			5.11
J5	.21			.01		1.39	1.36	1.35			.15			4.47
J6	.53	.02				1.57	1.14	.95			.09			4.30



(JUNE)	DAY OF MONTH									TOTAL	
GAGE	1	4	9	20	23	25	26	29			
13	.50	.70	.20			.20					1.60
14	.70	.70	.30			.50					2.20
15	.70	.50	.30			.50					2.00
16	.50	.35	.60			.70					2.15
17	.50	.40	.70			.35					1.95
18	1.40	1.60	.70			.10					3.80
19	.40	.90	.70								2.00
20	.40	.80	1.00								2.20
21	.50	.90	1.40								2.80
22	.50	2.25	1.40								4.15
23	.60	1.40	1.30								3.30
24	.60	1.00	1.60								3.20
25	.60	1.60	1.50		.10						3.80
26	.60	.80	2.20		.10						3.70
27	1.00	.60	1.90		.10						3.60
28	.10	.60	2.00		.10						2.80
29	.60	1.60	1.70		.10						4.00
30	.60	2.70	1.50		.10						4.90
31	.10	2.60	1.30		.10						4.10
32	.10	3.50	1.50		.10						5.20
33	.80	2.70	1.30		.10						4.90
34	.80	3.30	1.40		.10						5.60
35	.80	1.80	1.00								3.60
36	.70	1.20	1.20		.7						3.10
37	.70	.20	1.30		.15						2.35
38	.70	.10	1.00		.10						1.90
39	.60	.10	.60								1.30
40	.40	.30	.70								1.40
41	.90	.70	2.40		.10	.10					4.20
42	.60	.40	2.40		.10	.15					3.65
43	.90	.40	2.10		.10	.10					3.60
44	1.00	.50	2.40		.10						4.00
45	1.10	.20	1.90		.20						3.40
46	.90	.20	1.70		.20						3.00

GAGE	(JUNE) DAY OF MONTH								TOTAL	
	1	4	9	20	23	25	26	29		
47	.70	.80	1.90		.20					3.60
48	.40	.10	2.10		.20					2.80
49	.70	.90	2.10		.20					3.90
50	.60	1.50	.10		.70					2.90
51	.65	1.60	.10		.20					2.55
52	.70	1.40	.10		.30					2.50
53	.85	3.55	.10		.10					4.60
54	.75	4.90+	.10							5.75
55	1.00	5.00+				.40				6.40
56	.70	1.25				.10				2.05
57	.75	.30				.50				1.55
58	1.00	.20				.10				1.30
59	1.15	.20				.10				1.45
60	1.05	.20				.30				1.55
61	1.00	.30				.40				1.70
62	1.10	.40				.30				1.80
63	.95	.50				1.10				2.55
73	.30	.60	.30			.05				1.25
74	.65	1.15	.20				.15			2.15
75	1.40	.25	.20			.10	.10			2.05
76	1.50	.10	.40				.30			2.30
77	1.55	.10	.20			.20	.75			2.80
78	.95	.35	.10			.30	.30			2.00
79	1.50	.60	.20			.05	.10			2.45
80	1.30	.80	.10			.15	.10			2.45
81	1.15	2.75	.10			.10	.10			4.20
82	.95	4.00					.10			5.05
83	.85	4.50	.10							5.45
84	.75	4.60	.20							5.55
85	1.25	5.00+								6.25
90	1.15	4.40				.30	.10			5.95
91	1.30	1.80				2.90	.10			6.10
92	1.80	1.00				.90				3.70
93	1.65	.90				3.00				5.55
94	1.50	.20				.80				2.50

(JUNE)	DAY OF MONTH													TOTAL
GAGE	1	2	4	5	6	8	9	20	23	24	25	26	29	TOTAL
A1	.73	.11					.42				.70			1.96
A2	.78	.03					.85							1.66
A3	.65		.69				1.37		.05	.02	.69	.09		3.56
A4	.99	.28	.04				1.53		.12	.02				2.98
A5	.83		.27			.04	1.43		.16	.02				2.75
A6	.74	.37					.10				.37			1.58
A7	.78		.03				.32				.27	.15		1.55
A8	.84	.08					.59				.03	.01		1.55
A9	.72		1.26				1.28				.07	.06		3.39
B1	.98	.04	1.29				1.35		.09	.06				3.81
B2	.83	.03	.59				1.53		.04	.05				3.07
B3	.83	.07	.21			.36	1.26		.03	.08				2.84
B4	1.26	.02	.36	.05		.40	1.33		.08	.02				3.52
B5	1.17		.29			.30	1.02		.18	.02				2.98
B6	2.01		.05	.30		.56	1.51		.03					4.46
B7	.47	.06	2.15				1.29			.03	.02			4.02
B8	.63	.06	2.31				.80			.03				3.83
B9	.42	.16	.34				.49							1.41
C1	.55	.77	.05	.02	.01		.22				.19	.07		1.88
C2	.48	1.05	.40	.01			.07				.04	1.25		3.30
C3	.54	.65	.24				.52							1.95
C4	.41	.19	1.14				.79				.01			2.54
C5	.37		1.72				.61			.01				2.71
C6	.52	.05	2.67				.99		.02	.02				4.27
C7	.47		1.65				1.43			.01				3.58
C8	1.58	.03	.89			.43	1.89		.01	.02				4.85
C9	.07					.46	1.51		.08	.03				2.15
D1	1.26		1.08			.62	1.18		.03	.03				4.20
D2	1.62	.04	.65			.04	1.56		.01					3.92
D3	.94	.12	1.05				1.12			.01				3.24
D4	.47	.13	.50				.72							1.82
D5	.29	.15	1.13				.58							2.07
D6	.32	.46	.53				.40							1.71
D7	.41	.57	.87	.02			.44							2.31

(JUNE)	DAY OF MONTH													TOTAL
GAGE	1	2	4	5	6	8	9	20	23	24	25	26	29	
D8	.56	.88	1.41	.01			.01				.04	3.12		6.03
D9	.60	.56	.19								.05			1.40
E1	.68	1.04	.87	.02							.04	.40		3.05
E2	.73	.69	2.83								.04	.93		5.22
E3	.52	.47	.97	.09			.34					2.75		5.14
E4	.61	.42	1.18	.02			.28							2.51
E5	.44	.39	.31				.30	.03			.49			1.96
E6	.48	.20	.20				.47							1.35
E7	.46	.15	.59				1.10							2.30
E8	.98	.07	.47				1.40		.01	.02				2.95
E9	.95	.07	.33				1.45		.01	.01				2.82
F1	.67	.10	.93				.68				.08			2.46
F2	.45	.28	.30				.42				.07			1.52
F3	.42	.46	.77	.05			.14	.03				.01	.40	2.28
F4	.70	.45	1.60				.17	.08			.06		.05	3.11
F5	.38	.38	2.27	.01			.17				.40			3.61
F6	.75	.42	4.17		.05						.33			5.72
F7	.89	.51	1.16								.91	.10		3.57
F8	.60	.44	.15								.33	.37		1.89
F9	.48	.39	5.82								.32			7.01
G1	.36	.40	5.06			.03	.05				.02	.13		6.05
G2	1.05	.28	1.90			.10	.02				.09		.02	3.46
G3	.90	.48				.14	.04				.19			1.75
G4	.98	.39	.25			.12	.33				.07	.17		2.31
G5	.40	.19	.89			.32	.60				.74			5.14
G6	1.08	.27	.79			.50	.10				.60			3.34
G7	.58	.26	1.18			.18					.50			2.70
G8	.86	.30	1.51	.02			.02				.23			2.94
G9	.27	.38	2.47				.03			.08	.45	.07		3.75
H1	.43	.43	.47									.28		1.66
H2	1.18	.41	.15								.34	.02		2.10
H3	.50		1.42				1.41			.03				3.36
H4	.52	.07	.20				.75							1.54
H5	.56	1.06	.26								.03	.17		2.08

(JUNE)	DAY OF MONTH													Total
GAGE	1	2	4	5	6	8	9	20	23	24	25	26	29	
H6	.84	.06					.14				.31	.74		2.15
H7	1.12	.02	.03				1.13							2.30
H8	1.08	.03	.01			.49	1.07		.14	.01				2.83
H9	1.20		.35			.43	1.96		.42					4.36
I1	.91	.03	.29			.15	1.06		.14	.01				2.59
I2	2.49	.05	.16			.36	1.43		.04	.01				4.54
I3	1.17	.10	.09			.07	1.38		.03	.01				2.85
I4	.34	.03	.92			.04	.79							2.12
I5	.99	.32	.70			.15	.40				.42			2.98
I6	.80	.14	1.05			.10	.95				.05			3.09
I7	.86	.05	.19			.17	1.18		.01	.02				2.48
I8	1.42	.03	.08			.04	1.24		.06	.03				2.90
I9	.75	.42	.01				.04				.29			1.51
J1	.87	.25	.14				.33							1.09
J2	.35	.15	.49				.84							1.83
J3	.50	.28	.09				.45							1.32
J4	.29	.28	.19				.46							1.22
J5	.36	.20	.18				.51							1.25
J6	.50	.16	.84				.59							2.09
J7	.68	.10					.58							1.36
J8	.63	.14	1.35				.70				.25			3.07
J9	.83	.23	.35			.09	.47				.16			2.13
K1	.27	.43	1.94				.30	.20						3.14
K2	.63	.33	.22			.05	.36						.05	1.64
K3	.34	.43	.30				.19	.01			.02		.10	1.39
K4	.19	.34	.28				.40	.02			.02		.13	1.38
K5	.56	.49	.39				.36	.04					.12	1.96
K6	.40	.45	.73				.13	.02			.19		.07	1.99
K7	.21	.38	.76				.28	.10			.70		.06	2.49
K8	.41	.30	.82				.28	.05			1.15		.03	3.04
K9	.31	.38	1.35				.27	.90			.17			3.88
L1	.37	.26	.56				.55							1.74
L2	.29	.06	2.06				.60			.01	.02			3.04
L3	.36	.05	1.72				.66				.01			2.80



(JUNE)	DAY OF MONTH													TOTAL
AGE	1	2	4	5	6	8	9	20	23	24	25	26	29	
L4	.33	.18	1.27				.58				.16			2.52
L5	.52	.23	.53				.42	.04			.16			1.90
L6	.34	.16	1.58				.52	.02						2.62
L7	.51						.65							1.16
(July)	3	5	8	9	15	17	18	19						
1						.20	4.80	.10						5.10
2						.30	5.00	.10						5.40
3						.60	5.00	.10						5.70
4						.60	4.50	.10						5.20
5				.10		.80	4.20	.10						5.20
6				.10		.50	3.50	.10						4.20
7				.20		.70	2.90	.10						3.90
8				.10		.40	2.30	.10						2.90
9				.10		.30	2.80	.10						3.30
10				.20		.30	3.00	.50						4.00
11				.10		.65	2.60	.30						3.65
12				.40		.40	.60	1.20						2.60
13				.60		.30	.30	.60						1.80
14				.50		.70	.50	.80						2.50
15				.30		1.80	.80	.60						3.50
16				.20		2.30	1.60	.60						4.70
17				.40		2.70	1.50	.50						5.10
18				.60		2.60	1.60	.60						5.40
19				.20		3.20	3.00	.70						7.10
20				.20		1.40	2.10	.70						4.40
21				.15		1.80	2.50	.70						5.15
22						1.80	3.30	.70						5.80
23						2.60	3.20	.80						6.60
24						2.90	2.40	.90						6.20
25				.05		1.30	4.20	.90						6.45
26				.10		1.50	4.70	.80						7.10
27						1.70	3.30	.80						5.80
28				.05		.90	3.70	.90						5.55





(July)

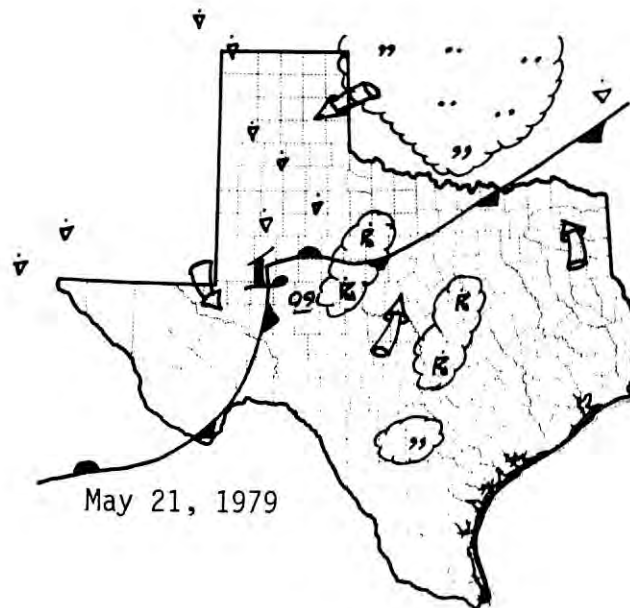
DAY OF MONTH

GAGE	3	4	5	6	7	8	9	15	17	18	19	20	21	25	30	31	TOTAL
B5	.03								.25	1.30	4.70	.09				.57	6.94
B6									1.19	.21	4.18	.17				.02	5.77
B7							.04		1.09	.32	3.74	.07				.03	4.89
B8									.83	.39	2.19						3.46
B9									.36	.58	5.35					.17	6.46
C1				.28				.70	.19	.78	1.77					1.05	4.77
C2								.08	.83	.51	2.78					.44	4.61
C3							.01		.28	.04	5.56					.04	5.93
C4							.07		.34	.16	2.42	.04				.21	3.24
C5							.03		.61	.34	2.57						3.55
C6							.01		.70		3.51					.02	4.24
C7							.04		.70	.09	2.01					.14	2.98
C8							.01		1.69	.10	5.43	1.24				.25	8.72
C9							.02		.65	.80						.29	1.76
D1							.11		2.34	.63	3.18	.60				.19	7.05
D2			.02				.12		2.76	.26	3.58	1.09				.39	7.22
D3							.10		1.21	.62	3.22	1.11				.23	6.49
D4							.11		.29	.08	3.78	.10				.04	4.40
D5							.07		.38		2.44					.02	2.91
D6							.08		.34	1.38	2.84					.09	4.73
D7			.10				.06		.43	.15	3.36					.08	4.18
D8				.04			.09		.15	1.17	2.70				.26	.10	4.51
D9			.56	.03					.08	.73	1.81					.30	4.51
E1			.35						.08	.65	1.59					.08	2.75
E2			.76				.02		.23	.77	1.90					.21	2.89
E3							.13		.20	.04	2.69					.03	3.09
E4							.06		.33	.15	2.04	.50				.13	3.21
E5							.25		.21	.02	3.11	.33				.03	3.95
E6		.02					.09		.12		2.78	.45			.05	.04	3.55
E7		.05					.18		1.20	.42	2.58	.09				.19	4.71
E8			.03				.21		3.55	.55	3.11					.26	7.71
E9			.01				.55		.20	2.22	4.81					.28	8.07
F1							.55		.54	.31					.01	.07	1.48
F2							.30		.75	.25	1.44	.18				.02	2.94

(JULY)	DAY OF MONTH															TOTAL	
GAGE	3	4	5	6	7	8	9	15	17	18	19	20	21	25	30	31	TOTAL
F3							.15		.38	.07	2.74	.33				.10	3.77
F4			.31				.70		.54	.10	2.94					.11	4.70
F5			.47				.31		.25	1.94	1.97					.11	5.05
F6			.20				.20		.18	1.18	1.26	.02				.12	3.16
F7			.17				.27		.46	.53	1.03						2.46
F8			.03				.03		.14	.65	1.18					.84	2.87
F9							.11		.99							.14	1.24
G1			.05				.35		1.51	.42	1.92					.09	4.34
G2			.77				.37		.41	.54	2.78					.09	4.96
G3			.04				.85		.37	.12	.76					.10	2.24
G4							.31		1.14	.38	1.23	.15				.16	3.37
G5							.16		1.53	.53	3.79	.26				.22	6.49
G6					.22	.21	.02		2.09	.15	1.12	.07				.08	3.96
G7					.03	.09			.82	.09	.81					.48	2.32
G8			.01				.02		.39	.59	2.22					.06	3.29
G9							.04		1.06	.08	1.36	.04				.17	2.75
H1				.19	.05	.18			.32	.01	1.18	.07				.21	2.21
H2						.20	.18		1.10	.10	1.30	.26				.95	4.09
H3							.03		.64		2.79	.06				.06	3.58
H4									.47	.16	5.17					.05	5.85
H5							.08	.18	.55							.08	.89
H6				.01					.04		1.19	.03			.02	.66	1.95
H7			.01						.60	1.07	2.11	.03				.45	4.27
H8	.44						.03		.37		3.83					.21	4.88
H9	.04		.10				.11		.19	.09						.05	.68
I1		.03	.02				.07		.84	1.05	2.47					.78	5.26
I2			.02				.57		1.76	.58	4.83	.24				.57	8.57
I3							.40		1.47	1.26	4.42	.08				.22	7.85
I4						.01	.30		.06	1.08	3.72					.37	5.54
I5							.02		1.09	.46	3.13	.19				.23	5.12
I6							.10		.34	.46	2.25				.06	.17	3.38
I7						.04	.34		.84	1.27	2.86	.11				.26	5.22
I8						.67	.44		.30	1.17	3.31	.05			.02		5.96
I9				.07		.19			.05	.65	1.34					.11	3.41

(July)		DAY OF MONTH														TOTAL	
GAGE	3	4	5	6	7	8	9	15	17	18	19	20	21	25	30	31	TOTAL
J1							.11		.10	.05	3.22	.36				.03	3.87
J2											3.07	.31				.05	3.43
J3							.04		.18	.19	2.50	1.03					3.94
J4					.09		.07		.29		2.26	.42				.04	3.17
J5		.29					.08		.58	.26	2.46	.31				.06	4.04
J6							.43		2.64	.51	1.69	.08					5.35
J7							.46		1.51	.85	2.42	.09				.06	5.39
J8							.30		1.15	.55	2.33	.02					4.35
J9							.27		1.83							.03	2.13
K1							.09		.30	.02	2.03					.02	2.46
K2							.50		.97	.37	1.31	.10				.06	3.31
K3							.39		.40	.21	.98	.67				.09	2.74
K4									1.16	.18	1.58	.37					3.29
K5							.11		.34	.12	2.52	.72				.07	3.88
K6							.10		.25	.04	2.03	.47	.05			.07	3.01
K7							.17		.25	.02	3.00	.23	.09			.08	3.84
K8							.08		.28	.02	2.08	.15				.05	2.66
K9							.06		.32	.08	2.73	.14				.06	2.39
L1							.05		.38	.09	3.70					.24	4.46
L2							.05		.90		2.35					.05	3.35
L3		.01					.10		.53	.04	3.25	.10				.03	4.06
L4							.11		.60	.05	3.50					.04	4.30
L5							.14		.53	.09	3.41					.08	4.25
L6							.01		.37	.55	2.16					.31	3.40
L7					.02		.09		.56	.53	3.14					.27	4.61

SECTION III: APPENDIX



### Weather Summary

A closed low at 500 mb lies between El Paso and Midland in southern New Mexico, with an associated surface wave lying along Maritime Polar cool front in the western portions of operational area being amplified by +3.0 barotropic 12 hour positive vorticity advection. Ample low level moisture over area being forced upward by low level convergence along front in area of surface wave.

By 1100 LDT a line of rainshowers and thunderstorms began developing west of the operational area and were moving north-east at 20 knots. By 1400 LDT this line contained tops in excess of 50,000 ft. and light hail. A severe thunderstorm warning was issued shortly after 1100 LDT for Martin, Howard, and adjacent counties to the north and northeast.

At 1400 LDT, movement of the upper level low eastward into moist post-frontal zone west of the operational area began to result in the development of additional convective activity. A cluster of thunderstorms approximately 80 km. in diameter with tops approximately 35,000 showed up on radar between Seminole and Pecos. Movement eastward at 20 kts. Activity dissipated over the operational area at 1900 LDT.



May 21, 1979 (cont.)  
Weather Observations

TIME  
(CDT)

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0755 SCATTERED CU-SC; SMALL CB NW; T = 64<sup>0</sup>F;  
WIND 110/06

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0855 SCATTERED SC-CU; LINE CU-CU CONGESTUS SW-NW-N;  
DARK W-N; T=65<sup>0</sup>F; WIND 190/06

---

0955 BROKEN CU; BROKEN AS; TOWERING CU RWU W-NW-N;  
WIND 190/08; T = 68<sup>0</sup>F;

---

1055 BROKEN CU; OVERCAST CS; LINE CB SW-NW; DARK  
SW-NW; T = 67<sup>0</sup>F; WIND 180/05

---

1155 BROKEN CU; LINE CB SW-NW MOVING NE; DARK SW-NW;  
T = 66<sup>0</sup>F; WIND 200/06

---

1255 BROKEN CU; CB; LINE CB SW-OVHD - N-NE; TRW +  
N-NE; LTG ICCCCG N-NE; T = 64<sup>0</sup>F; WIND 210/11

---

1455 FEW AS; SCT CI-CS; LINE LG CBs N-E-SE; CB  
S-SW AND W-NW DISTANT; T = 68<sup>0</sup>F; WIND 330/16G24;  
DUST SW-W

---

1600 SCATTERED CI-CS; LINE CB DISTANT NE-SE AND DISTANT  
SW-W; BLDG CU SW-W; T = 70<sup>0</sup>F; WIND 360/20G28

---

1655 SCATTERED CI; CU S-W-WNW; CB DISTANT W MOVING  
E; LINE CB EXTREME E-SE; T = 70<sup>0</sup>F; WIND 360/17G23

---

TEXAS HIPLEX OPERATIONS STATUS

DATE: MAY 21, 1979

FORECAST: UPPER CLOSED LOW TO CONTINUE MOVING EAST ACROSS OPERATIONAL AREA, AMPLIFYING SFC WAVE ALONG FRONT IN OPERATIONAL AREA. LLM CONVERGENCE ALONG FRONTAL ZONE TO CONTINUE WITH STRONG PVA. NURS HVY TSTMS ARE ANTICIPATED OVER AREA DURING PERIOD (1200 - 2200 LDT).

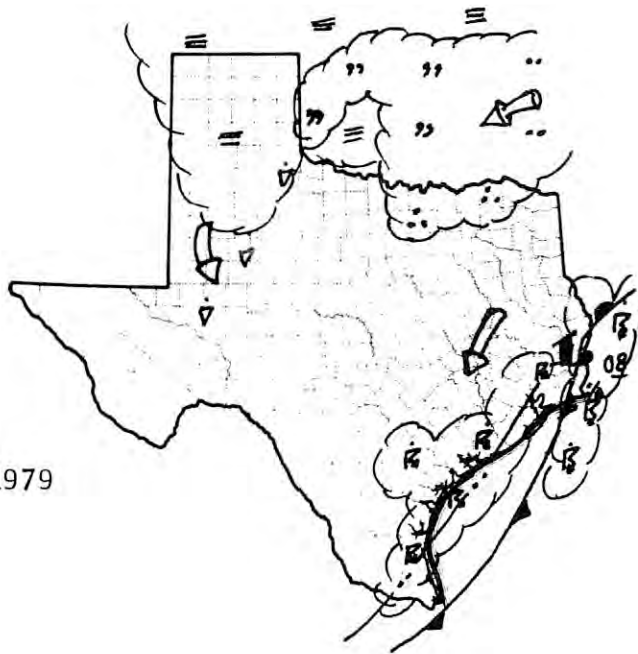
OBSERVATION: BY 1100 LDT A LINE OF RW AND TRW BEGAN DEVELOPING WEST OF OPERATIONAL AREA AND WERE MOVING NE AT 20 KTS. BY 1400 LDT THIS LINE CONTINUED WITH TOPS IN EXCESS OF 50K FT AND LGT HAIL OBSERVED. A SEVERE THUNDERSTORM WARNING WAS ISSUED FOR MARTIN, HOWARD, AND ADJACENT COUNTIES TO THE NORTH AND NORTHEAST. BY 1400 LDT, MVMT OF THE UPPER LEVEL LOW EASTWARD INTO THE MOIST POST FRONTAL ZONE WEST OF THE OPERATIONAL AREA BEGAN THE DEVELOPMENT OF ADDITIONAL CONVECTIVE ACTIVITY. A CLUSTER OF TRW APPROXIMATELY 80 KM IN DIAMETER WITH TOPS AT 35K WERE OBSERVED ON RADAR BETWEEN SEMINOLE AND PECOS. MOVEMENT EWD AT 20 KTS.

EQUIPMENT STATUS:

RADARS OPERATIONAL  
P-NAVAJO- IPC NOT INSTALLED. PAUL LARSON WILL BE IN BGS ON 5/24 TO INSTALL IPC AND FINE TUNE OTHER INSTRUMENTS.  
MRI NAVAJO- JW LMC AND MRI LYMAN ALPHA NON-OPERATIONAL.  
AUTO WX STATIONS- 22 OF 25 STATIONS LOCATED IN THE FIELD. ELECTRONICS NOT INSTALLED DUE TO SHIPPING DELAYS. EXPECTED OPERATIONAL 10 DAYS FROM TODAY.

REMARKS: RAIN GAGES- 106 RECORDING RAIN GAGES LOCATED AND CALIBRATED.  
MESOSCALE WAS OPERATIONAL  
HIPLEX WAS NON-OPERATIONAL DUE TO WX WARNING.  
TOWER FLY-BY SCHEDULED FOR TOMORROW AT 0600 LDT.  
SWR-75 AIR CONDITIONER DOWN AS A RESULT OF BAD CAPACITOR. EXPECTED TO BE UP TOMORROW.

OUTLOOK: OPERATIONAL



May 22, 1979

### Weather Summary

500 mb closed low lies over Northcentral Texas near Stephenville, and considerable back wash moisture continues at multiple levels over operational area. Cool air mass over operational area is stable (Lifted Index = +4). Surface front lies along Texas coast, where widespread convective activity is occurring. Very few sprinkles are occurring over operational area. Moisture is slowly moving east.

Considerable cloudiness remained at several levels with some occasional sprinkles observed during early afternoon. As anticipated, <sup>moisture</sup> moved eastward out of operational area, and sprinkles ceased by late afternoon. By early evening, only a few cumulus and scattered altocumulus were visible.

May 22, 1979 (cont.)  
Weather Observations

TIME  
(CDT)

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0755	OVERCAST ST-NS; FEW SPRINKLES ALQDS; RW-W; T=58 <sup>0</sup> F; WIND 040/05; BRIGHT SPOTS IN OVC NW
0900	BKN SC; HIGHER CLOUDS VISIBLE; T=61 <sup>0</sup> F; WIND 360/08
1005	BKN CU; HIGHER LAYER VISIBLE; T=62 <sup>0</sup> F; WIND 340/06
1100	BKN CU; FEW CU CONG W-NW; HIGHER CLOS VISIBLE; T=63 <sup>0</sup> F; WIND 360/08
1150	SCT CU; OVC AS-ST; B IN OVC SW; FEW SML CU CONG SW-N-NE; T=65 <sup>0</sup> F; WIND 330/06
1255	SCT V BKN CU; OVC AC-AS; T=67 <sup>0</sup> F; WIND 330/10; FEW SPRKLS
1405	BKN CU; BKN AS; T=66 <sup>0</sup> F; WIND ; OCNL LT SPRKL
1500	SCT CU; OVC AC-AS; T=67 <sup>0</sup> F; WIND 360/13
1550	SCT CU; OVC AC-AS; FEW MDT CU; T=68 <sup>0</sup> F; WIND
1650	SCT CU; BKN AC-AS; T=70 <sup>0</sup> F; WIND 360/09

---

TEXAS HIPLEX DAILY OPERATIONAL STATUS  
VALID FOR MAY 22, 1979

WEATHER SUMMARY

500 MB CLOSED LOW LIES OVER NCENTX NEAR STEPHENVILLE, AND CONSIDERABLE BACKWASH MOISTURE CONTINUES AT MULTIPLE LEVELS OVER THE OPERATIONAL AREA IS STABLE ( $LI=+4$ ). SFC FRONT LIES ALONG THE TEXAS COAST, WHERE WIDESPREAD CONVECTIVE ACTIVITY IS OCCURRING. A FEW LIGHT SPRINKLES ARE OCCURRING OVER THE OPERATIONAL AREA. MOISTURE IS SLOWLY MOVING EAST. CUMULUS AND CUMULUS HUMILIS ARE EXPECTED DUE TO COOL, MOIST AIRMASS WITHOUT A FORCING MECHANISM.

CONSIDERABLE CLOUDINESS REMAINED AT SEVERAL LEVELS, WITH SOME OCCASIONAL SPRINKLES OBSERVED DURING EARLY AFTERNOON. MOISTURE BEGAN TO MOVE EASTWARD OUT OF OPERATIONAL AREA, AND THE LIGHT SPRINKLES CEASED BY LATE AFTERNOON. BY EARLY EVENING, ONLY A FEW CU AND SCT AC-AS WERE OBSERVED.

EQUIPMENT STATUS

SBR-75 RADAR: OPERATIONAL- AIR CONDITIONAR WAS REPAIRED MAY 21, 1979.

FPS-77 RADAR: OPERATIONAL

ALL AIRCRAFT: OPERATIONAL

MRI CLOUD PHYSICS PACKAGE: OPERATIONAL

P-NAVAJO CLOUD PHYSICS PACKAGE: ONLY THE IPC IS DOWN. LAWSON DUE IN TONIGHT AND WILL UPGRADE SYSTEM TOMORROW.

AUTO. WX STATIONS: NON-OPERATIONAL- EXPECTED UP IN 9 DAYS

ALL OTHER EQUIPMENT: OPERATIONAL

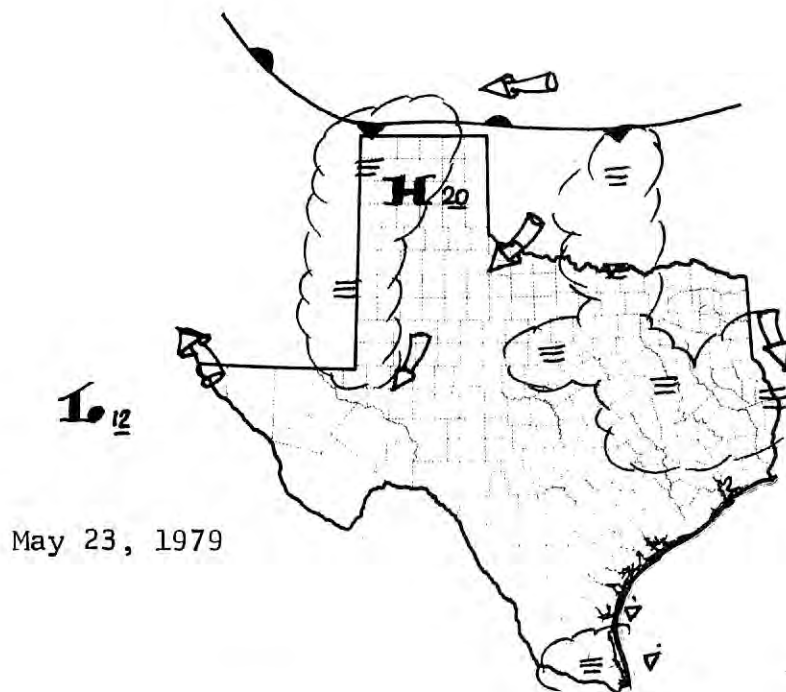
REMARKS

OUTLOOK: NO GO TOMORROW

TODAYS FLY-BY WAS CANCELLED DUE TO FORECAST SFC INVERSION AND CALM WINDS. FORECAST VERIFIED. TOWER FLY-BY WILL BE CONDUCTED AT EARLIEST POSSIBLE TIME. HOPEFULLY FRIDAY MORNING.

TODAY WAS BRIEFED AS NON-OPERATIONAL FOR BOTH THE HIPLEX AND MESO-SCALE PROGRAMS.

RIGGID



Weather Summary

A weak stationary surface front lies across northern Oklahoma and into Central Colorado. Due to radiational cooling beneath surface ridge, widespread fog is occurring over Texas-New Mexico border and north central Texas. Northerly flow at 500 mb is causing drying conditions and the airmass is relatively stable.

Stratocumulus began to develop by mid-morning, and a scattered stratocumulus and cumulus humilis deck prevailed throughout the afternoon. A scattered cirrus deck was also apparent.

May 23, 1979 (cont.)  
Weather Observations

TIME  
(CDT)

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0755 CLR. CI SE-W; HAZY S-W; T=61<sup>0</sup>F; WIND CALM

---

0900 CLR. CI S-NW; HAZY SW-NW; T=63<sup>0</sup>F; WIND 360/02

---

0955 SCT CU; FEW CI HRZN SE-NW; T=69<sup>0</sup>F; WIND 020/05

---

1055 SCT CU; SCT CI; T=72<sup>0</sup>F; WIND 060/03

---

1150 SCT SML CU HUM; SCT CI; T=76<sup>0</sup>F; WIND 050/10

---

1255 SCT CU; SCT CI; T=78<sup>0</sup>F; WIND 050/08

---

1350 SCT CU HUM; SCT CI; T=79<sup>0</sup>F; WIND 030/06

---

1455 SCT CU HUM; FEW THN CI; T=81<sup>0</sup>F; WIND 040/04

---

1550 FEW CU; SCT THN CI; T=81<sup>0</sup>F; WIND 030/05

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◆◆◆◆◆TEXAS HIPLEX STATUS REPORT◆◆◆◆◆  
VALID FOR MAY 23, 1979  
◆◆◆WEATHER SUMMARY◆◆◆

NORTHERLY FLOW AT 500MB WILL CAUSE DRY, COOL, AND STABLE CONDITIONS OVER THE TEXAS HIPLEX OPERATIONAL AREA. SC BEGAN TO DEVELOP BY MID-MORNING, DEVELOPING INTO WIDELY SCATTERED CUMULUS AND CUMULUS HUMILIS BY EARLY AFTERNOON.

◆◆◆OPERATIONS◆◆◆

TODAY WAS BRIEFED NON-OPERATIONAL FOR BOTH THE HIPLEX AND MESO-SCALE PROGRAMS.

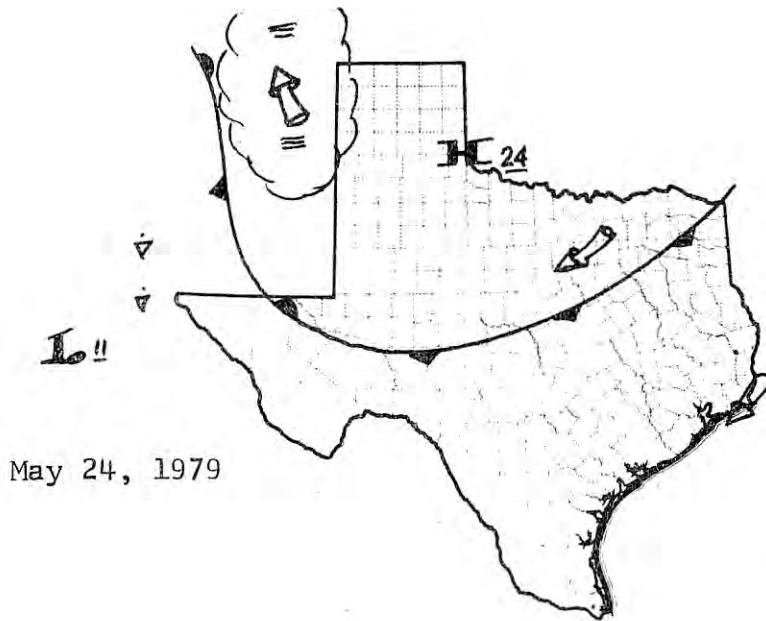
◆◆◆EQUIPMENT STATUS◆◆◆

SWR-75 RADAR IS FULLY OPERATIONAL  
PAUL LAWSON ARRIVED IN BGS THIS EVENING AND WILL BEGIN WORK ON THE P-NAVAJO'S IPC INSTRUMENT TOMORROW. ALL MRI CLOUD PHYSIC INSTRUMENTATION ARE FULLY OPERATIONAL. ALL RAWINSONDE AND RELATED EQUIPMENT ARE FULLY OPERATIONAL. ANALYSES RESULTS FROM MONDAYS RAWINSONDE ARE BETTER THAN EXPECTED. HOPEFULLY THE ANALYSIS RESULTS FROM THE 1000 LDT LAUNCH WILL BE AVAILABLE FOR THE 1100 LDT STAND-UP BRIEFING. AUTO. WX STATIONS REMIAN NON-OPERATIONAL. WE ARE STILL WAITING ON THE SHIPMENT OF CERTAIN EQUIPMENT. ALL OTHER EQUIPMENT ARE FULLY OPERATIONAL.

◆◆◆REMARKS◆◆◆

NO WORD YET ON THE MITRE AIRCRAFT.  
ATTN BILL HARRISON: THE BOXES CONTAINING THE INSTRUMENTS FOR THE AUTO. WX STATIONS HAVE BEEN STORED, AND THE COORDINATES ARE NOW IN THE BUREAU'S COMPUTER.  
INITIAL COMPUTATIONS USING MESO-SCALE SOUNDING DATA SHOW TEMPORAL AND SPACIAL CONTINUITY WITH MAGNITUDES MUCH LARGER THAN THOSE NORMALLY FOUND IN LARGER SCALE SYSTEMS.  
READY.





May 24, 1979

Weather Summary

A very weak surface front lies from northeast Texas to south of San Angelo and into the Trans-Pecos region of West Texas. Low level cold air advection in the operational area is bringing in a stratocumulus deck. Airmass is cool and moist but stable. A 500 mb ridge is lying over the central rockies and into eastern New Mexico and the Trans-Pecos region of Texas.

Stratocumulus deck broken into a cumulus humilis by early afternoon, with mid-level altocumulus and altocumulus castellanus moving south out of area by mid-afternoon. Airmass gradually lost moisture, and cumulus humilis predominated throughout forecast period.

May 24, 1979 (cont.)  
Weather Observations

TIME  
(CDT)

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0800 BKN AC; FEW ACCAS S-SW; T=60<sup>0</sup>F; WIND 050/11

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0900 SCT AC; ST FRMG N-E; T=61<sup>0</sup>F; WIND 060/14; ACCAS SE-S

---

0955 SCT AC; FEW SC-CU N-E; T=66<sup>0</sup>F; ACCAS S-SW; WIND

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1100 THN SCT CU; SCT CI; AC SE-SW; FEW ACCAS SW; T=70<sup>0</sup>F; WIND 040/12

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1250 SCT CU; FEW AC ACCAS SW-W; SCT CI; T= 75<sup>0</sup>F; WIND 090/10

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1455 THN SCT CU HUM; SCT AC; SCT CI; T=77<sup>0</sup>F; WIND 090/07

---

1550 SCT CU HUM; FEW AC SW-W; SCT CI; T=80<sup>0</sup>F; WIND 090/09

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\*\*\*\*\*TEXAS HIPLEX STATUS REPORT\*\*\*\*\*  
VALID FOR MAY 24, 1979

\*\*\*WEATHER SUMMARY\*\*\*

A VERY WEAK SURFACE FRONT LIES FROM NE TEXAS TO SOUTH OF SAN ANGELO AND INTO THE TRANS PECOS REGION OF WEST TEXAS. LOW LEVEL COLD AIR ADV- ECTION IN OPERATIONAL AREA IS BRING IN A SC DECK. AIRMASS IS COOL AND MOIST BUT STABLE. A 500 MB RIDGE IS LYING OVER THE CENTRAL ROCKIES AND INTO EASTERN N. MX. AND TRANS PECOS TEXAS. A MORNING SC DECK BROKE INTO SCT CUMULUS HUMILIS BY EARLY AFTERNOON, WITH MID-LEVEL AC AND ACCAS MOVING SOUTH OUT OF THE AREA BY MID-AFTERNOON. AIRMASS GRADUALLY LOST MOISTURE, AND CUMULUS HUMILIS PREDOMINATED THROUGH- OUT THE FORECAST PERIOD.

\*\*\*OPERATIONS\*\*\*

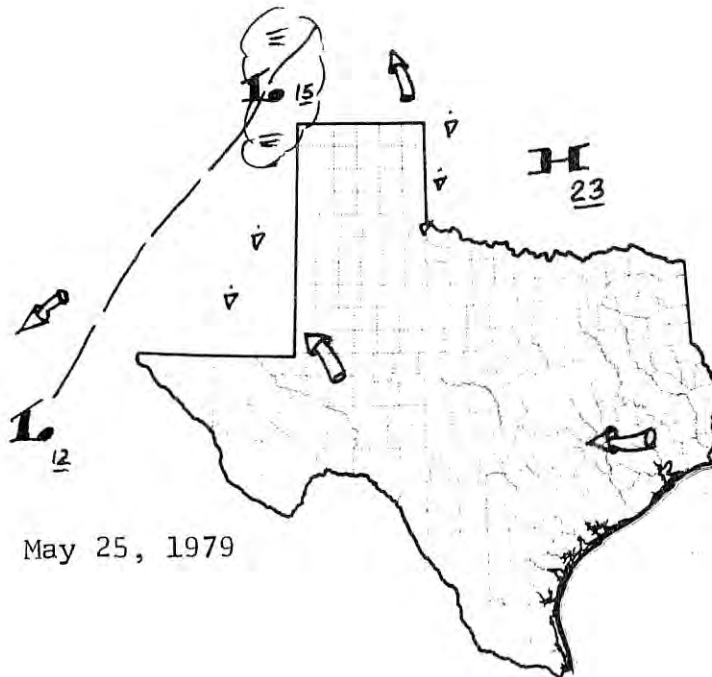
TODAY WAS BRIEFED NON-OPERATIONAL FOR BOTH THE HIPLEX AND THE MESO-SCALE PROGRAMS.

\*\*\*EQUIPMENT STATUS\*\*\*

SWR-75 RADAR IS FULLY OPERATIONAL  
LAWSON IS IN BGS AND IS WORKING ON THEP-NAVAJO'S IPC INSTRUMENT.  
ALL MRI CLOUD PHYSIC INSTRUMENTS ARE FULLY OPERATIONAL.  
ALL RAWINSONDE EQUIPMENT IS OPERATIONAL  
AUTO WX STATIONS REMAIN NON-OPERATIONAL.  
ALL OTHER EQUIPMENT IS FULLY OPERATIONAL.

\*\*\*REMARKS\*\*\*

NO WORD YET FROM MITRE.  
TEXAS DEPT. OF WATER RESOURCES PHOTOGRAPHER WILL BE IN BGS DURING THE WEEK OF JUNE 11, 1979.  
FEDERAL AND STATE INVENTORY PEOPLE WILL BE IN BGS DURING THE WEEK OF JUNE 4, 1979.  
PACK



May 25, 1979

### Weather Summary

A quite weak surface trough has developed from eastern Colorado south-southwest through New Mexico to West of El Paso. A 500 mb closed low lies in southeast Southern California, with a trough extending north-northeast through the Rockies and into Manitoba. Considerable mid and upper level moisture lies over the operational area, although 700-500 mb ridge axis bisects the operational area at 12Z. Lower levels are cool and dry.

Altostratus and stratocumulus deck remained over the area throughout the forecast period, although lower stratocumulus briefly broke into a scattered cumulus layer by late afternoon. Cirrostratus remained overcast above.

May 25, 1979 (cont.)  
Weather Observations

TIME  
(CDT)

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0800	SCT AS; OVC CS; T=60 <sup>0</sup> F; WIND 110/14
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0855	OVC AS; T=62 <sup>0</sup> F; WIND 120/17
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0950	OVC AC-AS; SML BINOVC; FEW LWR ST; T=64 <sup>0</sup> F; WIND 100/19
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1050	SCT SC; OVC AC; NUMRS BINOVC; T=67 <sup>0</sup> F; WIND 100/16
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1150	FEW ST; BKN AC; BINOVC; T=69 <sup>0</sup> F; WIND 100/12
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1255	FEW ST; BKN AC; OVC CI; T=72 <sup>0</sup> F; WIND 120/11
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1350	FEW CU; BKN AC; BKN CI; T=73 <sup>0</sup> F; WIND 110/14
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1450	FEW CU; BKN AC; BKN CI; T=75 <sup>0</sup> F; WIND 110/12
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1555	THN SCT CU; SCT AC-AS; OVC CI; THN SPTS I OVC; T=75 <sup>0</sup> F; WIND 120/13
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1650	FEW SC; BKN AS; CI ABV; T=75 <sup>0</sup> F; WIND 120/10
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◆◆◆◆◆TEXAS HIPLEX STATUS REPORT◆◆◆◆◆  
VALID FOR MAY 25, 1979

◆◆◆WEATHER SUMMARY◆◆◆

A WEAK SFC TROUGH HAS DEVELOPED FROM ESTERN COLORADO SSW THROUGH N. MX. TO WEST OF EL PASO. A 500 MB CLOSED LOW LIES IN SOUTHERN CALIF., WITH A TROUGH EXTENDING NNE THROUGH THE ROKIES AND INTO MAITOBA. CONSIDERABLE MID AND UPPER AIR MOISTURE LIES OVER THE OPERATIONAL AREA, WITH COOL AND DRY LOW LEVELS. RIDGING CONTIUES OVER THE OPERATIONAL AREA. AS AND AC REMAINED OVER THE OPERATIONAL AREA THROUGH OUT THE FORECAST PERIOD. CS ALSO WAS OBSERVED.

◆◆◆OPERATIONS◆◆◆

TODAY WAS BRIEFED NON-OPERATIONAL FOR BOTH THE HIPLEX AND MESO-SCALE PROGRAMS. OUTLOOK FOR TOMORROW ISOPERATIONAL.

◆◆◆EQUIPMENT STATUS◆◆◆

SWR-75 AIR CONDITIONER IS DOWN AS A RESULT OF A BAD CAPACITOR. IT IS EXPECTED TO BE OPERATIONAL TOMORROW.

LAWSON CONTINUES TO WORK ON THE P-NAVAJO'S IPC

MRI CLOUD PHYSIC INSTRUMENTS ARE OPERATIONAL

ALL RAWINSONDE AND RELATED EQUIPMENT ARE OPERATIONAL.

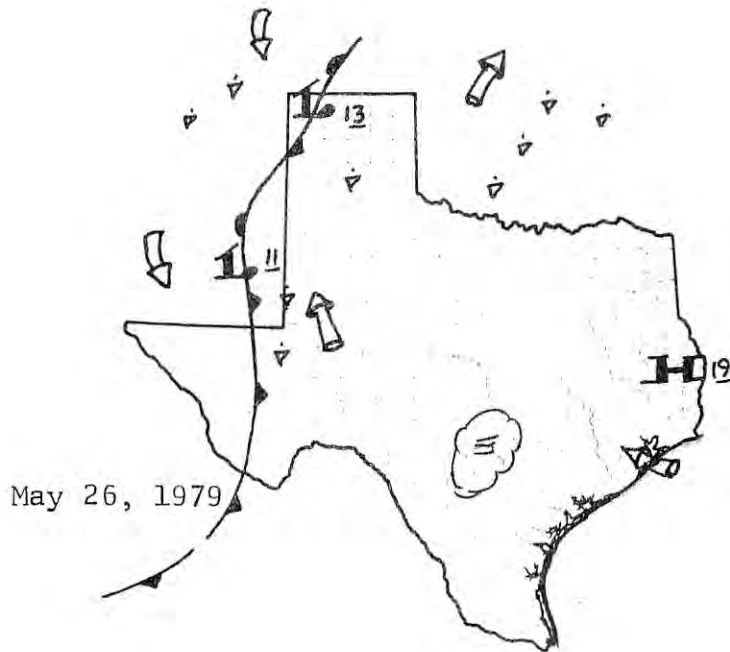
AUTO WX STATIONS REMAIN NON-OPERATIONAL

ALL OTHER EQUIPMENT IS OPERATIONAL

◆◆◆REMARKS◆◆◆

TWO SET OF RAWINSONDES WERE LAUNCHED TODAY (1000 AND 1900 LDT) FOR FURTHER SHAKE DOWN AND TEST RUNS. ANALYSES OF THE REAL TIME DATA IS VERY GOOD AND SHOULD PROVE TO BE AN EXCEPTIONAL OPERATIONAL TOOL THIS SUMMER.

R16610



### Weather Summary

A weak surface front has developed in the trough on the lee side of the Colorado and New Mexico Rockies under the influence of an upper-air trough, which lies in the central plains southwest to west of El Paso. Considerable upper-air moisture over the operational area and moderate surface moisture were observed.

Cumulus began to develop late a.m., and a few cumulus congestus were noted from 2 to 3 p.m. Isolated light rainshowers appeared between Snyder and Sterling City. These cells dissipated within an hour.

Large and very heavy thunderstorms developed well west of the operational area and moved slowly northeast, bordering the operational area by midnight.

May 26, 1979 (cont.)  
Weather Observations

TIME  
(CDT)

---

0700            OVC ST; T=60<sup>0</sup>F; WIND 140/07

---

0755            OVC ST; T=62<sup>0</sup>F; WIND 140/08

---

0850            OVC ST; T=63<sup>0</sup>F; WIND 140/11

---

0955            BKN ST; BKN AS-AC; T=65<sup>0</sup>F; WIND 140/13

---

1050            THN SCT CU; BKN AC-AS; LN ACCAS SE-S; CI ABV; T=69<sup>0</sup>F;  
WIND 175/15

---

1155            FEW CU; SCT AC; SCT CI; T=72<sup>0</sup>F; WIND 170/14

---



\*\*\*\*\*TEEXAS HIPLEX STATUS REPORT\*\*\*\*\*  
VALID FOR MAY 26, 1979

\*\*\*WEATHER SUMMARY\*\*\*

A WEAK SFC TROUGH HAS DEVELOPED IN EASTERN COLORADO AND NEW MEXICO UNDER THE INFLUENCE OF UPPER AIR TROUGH, WHICH LIES OVER THE CENTRAL PLAINS TO WEST OF EL PASO. CONSIDERABLE UPPER AIR MOISTURE IS OVER THE OPERATIONAL AREA THIS AM ALONG WITH CONVECTIVELY STABLE CONDITIONS. CUMULUS BEGAN TO DEVELOP LATE AM, AND A FEW CUMULUS CONGESTUS WAS OBSERVED FROM 1400 LDT TO 1600LDT. TWO ISOLATED RW- WERE OBSERVED ON RADAR (FPS-77) AT 1545 LDT BETWEEN SNYDER AND STERLING CITY. THESE CELLS MOVED OUT OF THE TARGET AREA AT 1650 LDT. LARGE AND VERY HEAVY TRW DEVELOPED WEST OF THE OPERATIONAL AREA AND MOVED SLOWLY TO THE NORTHEAST.

\*\*\*OPERATIONS\*\*\*

TODAY WAS BRIEFED OPERATIONAL FOR THE MESO-SCALE PROGRAM AND THE HIPLEX PROGRAM. IT WAS DECIDED TO KEEP THE P-NAVAJO ON THE GROUND TODAY TO ALLOW LAWSON TO WORK ON THE CLOUD PHYSIC PACKAGE. AT 1635 THE MRI AIRCRAFT TOOK TO THE NE TO OBSERVE AND REPORT ON THE ISOLATED CELLS OBSERVED BY RADAR. MRI REPORTED NO SEEDABLE CELLS IN THE TARGET AREA, CONSEQUENTLY THE HIPLEX OPERATIONS WAS CALLED OFF FOR THE DAY.

\*\*\*EQUIPMENT STATUS\*\*\*

SWR-75 WAS NON-OPERATIONAL ALL DAY AS A RESULT OF A BAD INTEGRATED CIRCUIT CARD IN THE DIGITAL CIRCUITRY. THE PROBLEM WAS NOT YET RESOLVED BY LATE PM.

THE SWR-75 AIR CONDITIONER IS OPERATIONAL  
LAWSON WORKED ON THE P-NAVAJO CLOUD PYSIC PACKAGE THROUGH OUT THE DAY. IPC NOT OPERATIONAL AS OF LATE PM AND IS NOT EXPECTED TO BE UP FOR A FEW MORE DAYS. IT IS OUR PLAN TO FLY THE AIRCRAFT EVEN IF THE IPC UNIT IS NOT WORKING.

\*\*\*LATE FLASH\*\*\* THE SWR-75 RADAR IS OPERATIONAL AS OF 0900 LDT ON MAY 27, 1979.

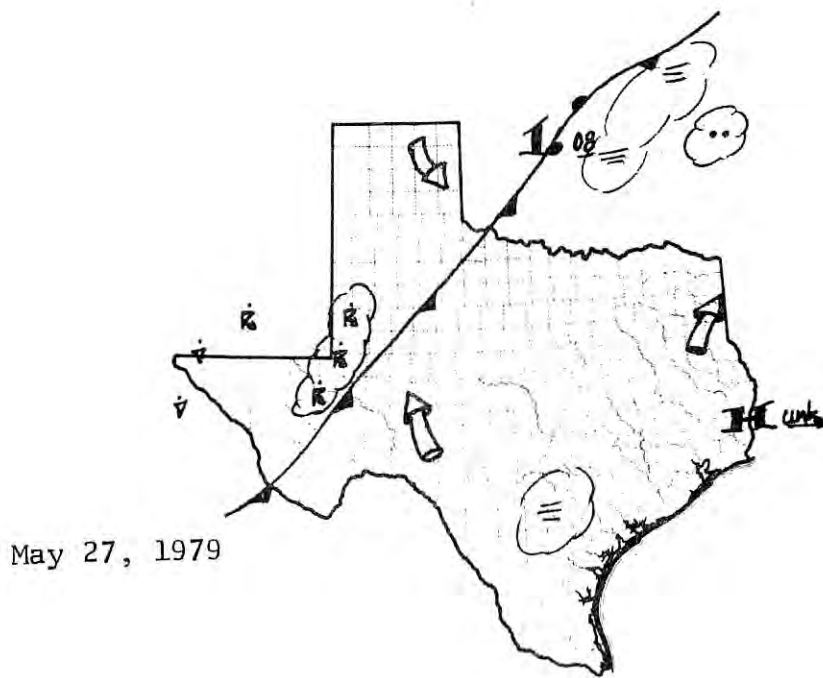
MRI AIRCRAFT AND INSTRUMENTATION ARE OPERATIONAL  
ALL RAWINSONDE AND RELATED EQUIPMENT ARE OPERATIONAL. YESTURDAYS MESO-SCALE OPERATIONS WENT VERY WELL. ONLY ONE SONDE WAS LOST. THE ANALYSES ARE PROVIDING EXCELLENT INSIGHT INTO SMALL SCALE STORM DEVELOPMENT.  
AUTO WX STATIONS ARE NON-OPERATIONAL  
ALL OTHER EQUIPMENT OPERATIONAL

\*\*\*REMARKS\*\*\*

OUTLOOK FOR MAY 27, 1979 IS OPERATIONAL.

RIGGIO

READY.



### Weather Summary

An upper-air closed low in southeast Arizona is moving east-northeast, with a surface front across the south Plains into Trans-Pecos Texas. Thunderstorms have moved into the western portion of the operational area and movement east-northeast, having begun along a Pecos-Hobbs line. Airmass moderately moist but quite unstable and cool.

The morning thunderstorms moved out of the operational area by 2 p.m., but low level moisture advection provided for regeneration of cumulus by 1400 LDT. Meanwhile, southwest of the operational area near Monahans, severe storms were developing along the surface front. Towering cumulus began to build rapidly east-west 20-25 miles north of Big Spring about 1545 LDT. Skies exhibited broken cumulus and overcast cirrostratus. (A tornado watch was issued effective 1530 to 2200 LDT for the operational area, precluding any HIPLEX aircraft operations.)

Towering cumulus built rapidly into a line to thunderstorms and moved east-northeast. The severe storm line southwest of the area moved across central and northern operational area depositing heavy precipitation.

May 27, 1979 (cont.)  
Weather Observations

Time  
(CDT)

---

0755 CLR CI S-NW; CB DSNT SW-W; T=67<sup>0</sup>F; WIND 120/04

---

0855 BKN CS; FEW AS; TCU S-SW; LG CB SW-W-NW MVG ENE RPDLY;  
T=71<sup>0</sup>F; WIND 170/12

---

0955 OVC CB; RW-; DRK/LTGCT OCNL NW; TRWU SW-OVHD-NW MVG ENE;  
T=70<sup>0</sup>F; CRLNG SW-W, FEW SCUD NW-N; WIND 290/14

---

1150 THN SCT AC; LN CB W-NE; VIRGA W NW; TRWU NW-N; T=77<sup>0</sup>F;  
WIND 090/03; CBMAM NW-N

---

/LIST

\*\*\*\*\*TEXAS HIPLEX STATUS REPORT\*\*\*\*\*  
VALID FOR MAY 27, 1979

\*\*\*\*\*WEATHER SUMMARY\*\*\*\*\*

AN UPPER AIR CLOSED LOW IN SE ARIZONA IS MOVING ENE ASSOCIATED WITH A SFC FRONT ACROSS THE SOUTH PLAINS INTO TRANS-PECOS AREA OF TEXAS. THE AIRMASS IS MODERATELY MOIST, UNSTABLE AND COOL. MORNING TRWS DEVELOPED ALONG A HOBBS PECOS LINE AND MOVED INTO THE OPERATIONAL AREA DURING THE LATE AFTERNOON. THEY CONTINUED AN ENE MOVEMENT AND WERE OUT OF THE OPERATIONAL AREA BY 1400 LDT. STRONG TRWS REGENERATED RAPIDLY ALONG AN E-W 25 MILES NORTH OF BGS BY MID AFTERNOON. (A TORNADO WATCH WAS ISSUED EFFECTIVE 1530 LDT TO 2200 LDT FOR THE OPERATIONAL AREA). THIS LINE OF ACTIVITY MOVED SLOWLY EASTWARD ACROSS THE OPERATIONAL AREA THROUGH OUT THE LATE AFTERNOON AND INTO EARLY EVENING. TOPS REPORTED BY RADAR WERE, AT TIMES, IN EXCESS OF 65K FT.

\*\*\*\*\*OPERATIONS\*\*\*\*\*

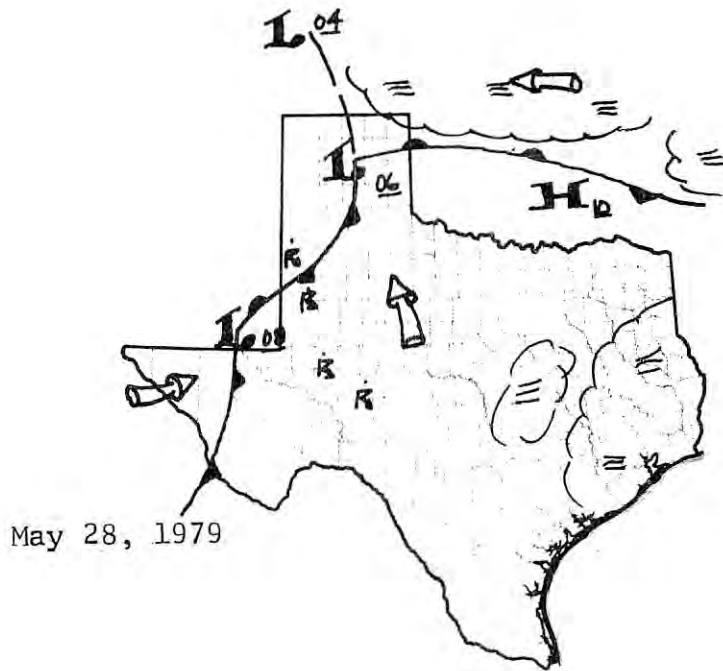
THE DAY WAS BRIEFED AS AN OPERATIONAL MESO-SCALE DAY BUT A NON-OPERATIONAL HIPLEX DAY BECAUSE OF A FLASH FLOOD WATCH ISSUED FOR THE OPERATIONAL AREA FOR THE PERIOD AM THROUGH PM. A SEVERE TRW WARNING COUPLED WITH A TORNADO WATCH WAS ALSO ISSUED FOR THE AREA DURING THE AFTERNOON. THE AIRCRAFT DID NOT OPERATE FOR HIPLEX PURPOSES, HOWEVER, THE AZTEC WAS RELEASED TO THE CRMWD FOR THEIR SEEDING PURPOSES. THE SWR-75 COLLECTED RADAR DATA THROUGH OUT THE PERIOD IN SUPPORT OF THE MESO-SCALE PROGRAM.

\*\*\*\*\*EQUIPMENT STATUS\*\*\*\*\*

SWR-75 RADAR WAS FULLY OPERATIONAL AFTER 0900 LDT.  
MRI AIRCRAFT AND INSTRUMENTS ARE OPERATIONAL  
THE P-NAVAJO WAS FLOWN TODAY TO CHECK ALL CLOUD PHYSIC INSTRUMENTS EXCEPT THE IPC. LAWSON WORKED ON THE IPC THROUGH OUT THE DAY. ALL SOUNDINGS WERE LAUNCHED TODAY EXCEPT THREE FROM SEAGRAVES WITH MECHANICAL PROBLEMS. THE SOUNDING EQUIPMENT WAS REPAIRED ALLOWING FOR THE 2200 LDT LAUNCH THAT EVENING.  
AUTO WX STATIONS NON OPERATIONAL  
ALL OTHER EQUIPMENT IS OPERATIONAL.

\*\*\*\*\*REMARKS\*\*\*\*\*

A MEETING OF THE TEXAS WEATHER MODIFICATION ADVISORY COMMITTEE IS SCHEDULED FOR MAY 29, 1979.



Weather Summary

Upper-air low lies equidistant between Amarillo and El Paso, with associated trough west of operational area. Air mass over the operational area is not particularly unstable, but is cool and slightly moist. Surface flow is south-southwest of the operational area. Convective temperature is 81<sup>0</sup>F; anticipated maximum temperature is 90<sup>0</sup>F.

Widespread cirrus over the operational area, but no lower clouds are noted. First cumulus was observed at 1150 LDT, at a temperature of 82<sup>0</sup>F. A line of towering cumulus and cumulonimbus developed rapidly early afternoon from north of Lake Thomas south to Sterling City and were moving easterly.

Activity moved out of the operational area during the late afternoon, and cumulus congestus prevailed through the remainder of the period. A few light thunderstorms slipped into the operational area from New Mexico late in forecast period.

May 28, 1979 (cont.)  
Weather Observations

TIME  
(CDT)

---

0750            BKN CS; FEW TCU S-SW; CB DSNT NW; T=65<sup>0</sup>F; WIND 190/06

---

0850            SCT CI-CS; CB DSNT SE-S; ACCAS NW; T=67<sup>0</sup>F; WIND 210/06

---

0950            SCT CI-CS; ACCAS W-NW; SE-E; T=74<sup>0</sup>F; WIND 220/14

---

1050            SCT CI; ACCAS-CS E-S DSNT; CS WNW; T=80<sup>0</sup>F; WIND 220/16

---

1150            SCT CU; SCT CI; FEW CU CONG E; T=83<sup>0</sup>F; WIND 210/17G23

---

1350            SCT CU; SCT CI; LN TCU-CB BLDG RPDLY NE-E-SE-S; CB DSNT  
WSW; T=87<sup>0</sup>F; WIND 240/16G24

---

1530            LN CB ENE-S MVG E; SCT CU; FEW CU CONG ALQDS; T=89<sup>0</sup>F;  
WIND 220/16

---

\*\*\*\*\*TEXAS HIPLEX STATUS REPORT\*\*\*\*\*  
VALID FOR MAY 28, 1979

\*\*\*\*\*WEATHER SUMMARY\*\*\*\*\*

AN UPPER AIR LOW LIES EQUIDISTANT BETWEEN AMARILLO AND EL PASO, WITH AN ASSOCIATED TROUGH WEST OF THE OPERATIONAL AREA. THE AIRMASS OVER THE OPERATIONAL AREA IS SLIGHTLY UNSTABLE AND IS COOL AND MOIST. THE SURFACE FLOW IS FROM THE SOUTH-SOUTHWEST INDICATING DRYING CONDITIONS THROUGHOUT THE DAY.

FIRST CUMULUS DEVELOPMENT WAS NOTED AT 1150 LDT. A SCATTERED LINE OF TCU AND TRWS DEVELOPED RAPIDLY DURING THE EARLY AFTERNOON FROM JUST WEST OF SNYDER TO STERLING CITY. THIS LINE WAS OBSERVED TO BE MOVING EASTWARD RAPIDLY. ACTIVITY MOVED OUT OF OPERATIONAL AREA BY MID AFTERNOON LEAVING ONLY CUMULUS AND CUMULOCONGESTUS FOR THE REMAINDER OF THE AFTERNOON AND THE FORECAST PERIOD.

\*\*\*\*\*OPERATIONS\*\*\*\*\*

TODAY WAS BRIEFED OPERATIONAL FOR BOTH THE HIPLEX AND MESO-SCALE PROGRAMS. THE MRI NAVAJO AND THE AZTEC WERE LAUNCHED AT 1345 LDT. HOWEVER BY THE TIME THE AIRCRAFT REACHED THE AREA OF CLOUD DEVELOPMENT THE CELLS HAD MOVED OUT OF THE OPERATIONAL AREA. THEY REMAINED IN THE VICINITY FOR ABOUT 30 MINUTES BUT COULD NOT IDENTIFY ANY SEEDABLE CLOUDS. BOTH AIRCRAFT THEN RETURNED TO BASE. TODAY'S OPERATIONS WERE CONSIDERED ONLY AS A FLIGHT AND NOT A MISSION.

\*\*\*\*\*EQUIPMENT STATUS\*\*\*\*\*

SWR-75 WAS FULLY OPERATIONAL RECORDING DATA.  
MRI AIRCRAFT AND INSTRUMENTATION WAS OPERATIONAL  
AZTEC WAS OPERATIONAL  
P-NAVAJO REMAINED ON THE GROUND WHILE LAWSON WORKED ON THE IPC.  
ALL RAWINSONDES WERE LAUNCHED IN SUPPORT OF THE MESO-SCALE WORK  
AUTO WX STATIONS NON-OPERATIONAL. HARRISON DUE IN BGS ON THE 31ST  
TO BEGIN THE INSTALATION OF THE ELECTRONICS.  
ALL OTHER EQUIPMENT IS OPERATIONAL.

\*\*\*\*\*REMARKS\*\*\*\*\*

OUTLOOK: NON-OPERATIONAL

MRI

HIPLEX NAVAJO LOG-1979

Date: 5/28/79

Page No. 1 of 2

Site: Big Springs, Texas

Observer DMT

Tape No. 902

Take Off Time 1354 Land Time 1534

BMS Time \_\_\_\_\_ = Aircraft Time \_\_\_\_\_

Aircraft Time \_\_\_\_\_ = Radar Time \_\_\_\_\_

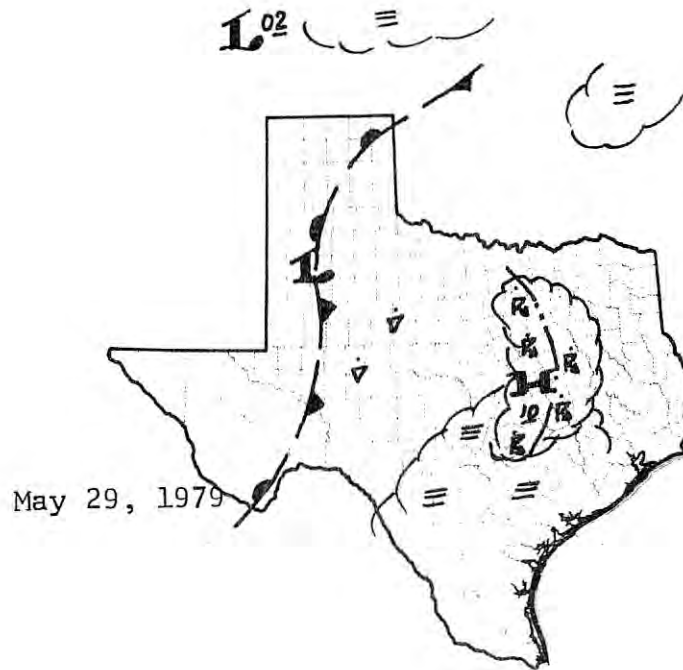
Altitude (29.92) = Initial 2660  
Final \_\_\_\_\_

Time	Event #	Altitude (kft)	Temp (°C)	Cloud #	Pass #	Type of Pass	COMMENTS
							(VOR, DME, HDG, Cl. Base Ht., Foil)
1354:40							OFF
14 3640	6	16.2		1	1		Start penetration HDG 100
3859				1	1		End penetration 96/40.4 VOR/DMG
							cloud tops - 25 k
4020	6	16.3	-8	1	2		Start, HDG 240
							99/40
4218				1	2		End
5520	6	16.2	-9.5	2	1		Start HDG 010
							-6, -4, +6, +900 ft/min
							112/40
5720				2	1		End ice on outside
15 0035	6	16.5	-11.1	3	1		St HDG 330









### Weather Summary

A surface low near Lubbock is moving southeast toward the operational area with an associated surface trough. Low level moisture is absent over the operational area west of the surface trough, with mid-level moisture apparent. 500 mb subsidence and ridging is beginning to overrun area.

A few altocumulus castellanus with virga were noted during the morning in association with the surface low, but this activity moved south out of the operational area. Scattered cirrus remained. A high convective temperature (91°F) was predicted, and cumulus appeared by mid-afternoon. Some dust was picked up by the low east of the area.

May 29, 1979 (cont.)  
Weather Observations

TIME  
(CDT)

---

0755	SCT AC; ACCAS/VIRGA SE-SW; RW- - SE SW; T=73 <sup>0</sup> F; WIND 190/13
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0900	CLR AC-ACCAS SE-SW; CI W-NW; T=75 <sup>0</sup> F; WIND 210/14; VIRGA SE
------	---

---

0950	CLR. AC-ACCAS S-SW; CI W-NW; T=80 <sup>0</sup> F; WIND 220/15
------	---

---

1050	CLR CI ALQDS; FEW AC DSNT S; T=84 <sup>0</sup> F; WIND
------	--

---

1155	SCT CI; DUSTY W-NW; T=88 <sup>0</sup> F; WIND 250/15
------	--

---

1255	SCT CI; DUSTY W-N; T=90 <sup>0</sup> F; WIND 250/16
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---

1350	SCT CU; FEW CI; BD W-N; T=93 <sup>0</sup> F; WIND 255/16
------	--

---

1455	SCT CU; FEW CI; BD W-N-NE; T=95 <sup>0</sup> F; WIND 260/17
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\*\*\*\*\*TEXAS HIPLEX STATUS REPORT\*\*\*\*\*

VALID FOR MAY 29, 1979

\*\*\*WEATHER SUMMARY\*\*\*

A SURFACE LOW NEAR LUBBOCK IS MOVING SOUTHEAST TOWARD THE OPERATIONAL AREA, HOWEVER, LOW LEVEL MOISTURE IS ABSENT OVER THE OPERATIONAL AREA BUT MID LEVEL MOISTURE IS APPARENT. 500 MB SUBSIDENCE AND RIDGING IS BEGINNING TO OVERRUN THE OPERATIONAL AREA.

A FEW ACCAS WITH VIRGA WERE NOTED DURING THE MORNING IN ASSOCIATION WITH A SURFACE LOW, BUT THIS ACTIVITY MOVED SOUTH AND OUT OF THE OPERATIONAL AREA BY MID-MORNING. SCATTERED CIRRUS REMAINED UNTIL MID-AFTERNOON WHEN CUMULUS APPEARED AND DISSIPATED BY SUNSET.

\*\*\*OPERATIONS\*\*\*

TODAY WAS BRIEFED NON-OPERATIONAL FOR BOTH THE HIPLEX AND MESO-SCALE PROGRAMS.

\*\*\*EQUIPMENT STATUS\*\*\*

SWR-75 REMAINS FULLY OPERATIONAL

MRI AIRCRAFT AND INSTRUMENTATION REMAIN FULLY OPERATIONAL

P-NAVAJO WAS CONSIDERED NON-OPERATIONAL WHILE LAWSON AND A SECOND TECHNICIAN FROM CIC WORK ON THE CLOUD PHYSICS PACKAGE.

AZTEC REMAINS FULLY OPERATIONAL

ALL PAMINSONDES ARE OPERATIONAL

AUTO MX STATIONS ARE NON-OPERATIONAL. HARRISON NOW DUE IN BGS ON THE 1ST OF JUNE TO BE THE FINAL INSTALLATION.

ALL OTHER EQUIPMENT IS OPERATIONAL.

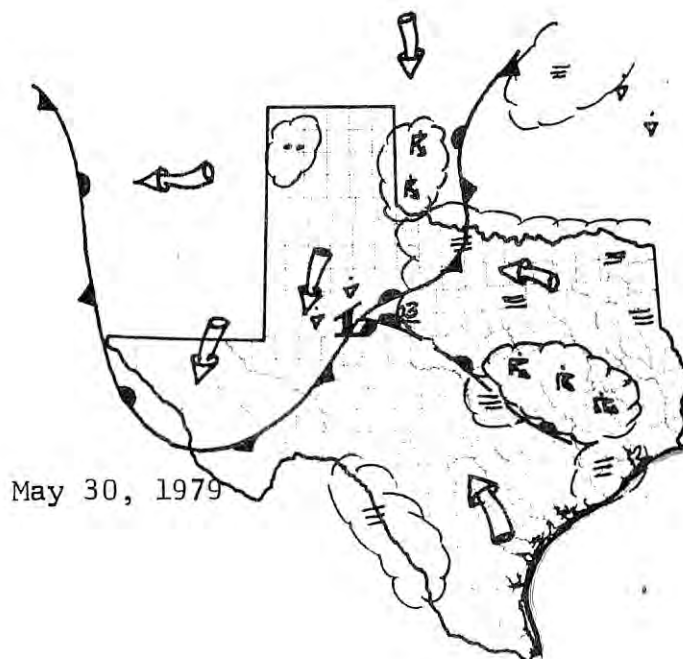
\*\*\*REMARKS\*\*\*

JOHN CARR REPLACED JIM SCOGGINS AS PROJECT DIRECTOR FOR THIS WEEK.

A SECOND TECHNICIAN FROM CIC IS HELPING LAWSON FINISH UP THE P-NAVAJO CLOUD PHYSIC WORK.

OUTLOOK: NON-OPERATIONAL

RIGGIO



Weather Summary

A surface cold front is moving rapidly southeast across the operational area, with a surface low on front just northeast of Big Spring. Low level stratocumulus deck is moving rapidly into vicinity behind the front, with altocumulus layer above. Air mass is quite dry and stable above front. 500 mb ridging is causing strong subsidence aloft, and a strong inversion exists just below 500 mb.

By late morning the stratocumulus deck had lifted and broken into cumulus with the altocumulus layer above. Some virga was noted early afternoon from the mid-level clouds. Mid-level clouds left area by late afternoon, with scattered cumulus prevailing remainder of forecast period.

May 30, 1979 (cont.)  
Weather Observations

TIME  
(CDT)

---

0855 SC NE-SE; BKN AC; FEW ACCAS/VIRGA -RW--W-N; T=76<sup>0</sup>F;  
WIND 030/05

---

0955 OVC ST-SC; ST MVD IN RPDLY FROM N-NE; T=72<sup>0</sup>F; BINOVC;  
HIR CLDS VSBL; WIND; WSHFT FROPA 24

---

1050 BKN CU; BKN AC; T=76<sup>0</sup>F; WIND 010/18

---

1255 SCT CU; BKN AC; FEW ACCAS and VIRGA NW-NE; T=79<sup>0</sup>F;  
WIND 020/16

---

1450 SCT CU; T=85<sup>0</sup>F; WIND 040/12

---

1655 SCT CU; T=87<sup>0</sup>F; WIND 060/13

---

◆◆◆TEXAS HIPLEX STATUS REPORT◆◆◆

VALID FOR MAY 30, 1979

◆◆◆WEATHER SUMMARY◆◆◆

A SURFACE COLD FRONT IS MOVING RAPIDLY SOUTHEAST ACROSS THE OPERATIONAL AREA, WITH A SURFACE LOW ON THE FRONT JUST NORTHEAST OF BIG SPRING. LOW LEVEL STRATOCUMULUS DECK IS MOVING RAPIDLY INTO THE VICINITY BEHIND THE FRONT WITH AN AC DECK ABOVE. THE AIRMASS IS QUITE DRY AND STABLE ABOVE THE FRONT. 500MB RIDGING IS CAUSING STRONG SUBSIDENCE ALOFT. BY LATE MORNING, THE SC DECK LIFTED AND BROKE INTO CUMULUS CLOUDS WITH AN AC LAYER ABOVE. BY LATE AFTERNOON THE MID-LEVEL CLOUDS LEFT THE AREA, LEAVING ONLY SCATTERED CUMULUS FOR THE REMAINDER OF THE PERIOD.

◆◆◆OPERATIONS◆◆◆

THE DAY WAS BRIEFED NON-OPERATIONAL FOR BOTH THE HIPLEX AND THE MESO-SCALE PROGRAMS.

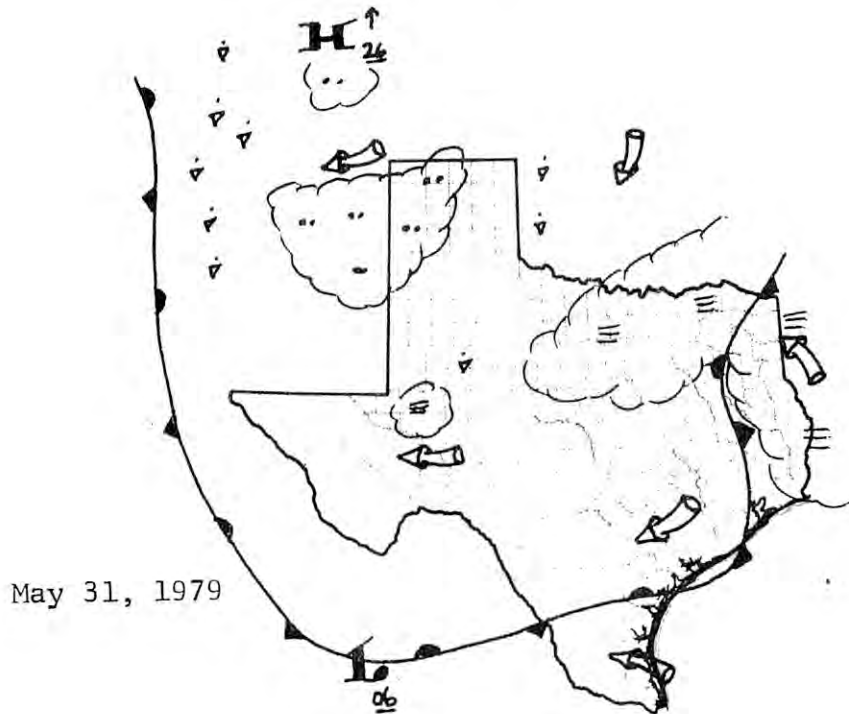
◆◆◆EQUIPMENT STATUS◆◆◆

NO CHANGE FROM YESTERDAY ON THE EQUIPMENT STATUS EXCEPT THAT THE RIGHT ALTERNATOR ON THE P-NAVAJO IS OUT. A REPLACEMENT IS EXPECTED IN TOMORROW AND SHOULD BE INSTALLED TOMORROW.

◆◆◆REMARKS◆◆◆

OUTLOOK: NON-OPERATIONAL  
RIGGID





### Weather Summary

Overrunning is providing a lower stratus deck over the operational area, with light drizzle at Big Spring. An upper-air cool pool lies from El Paso to Midland, with a dry layer between 850 and 600 mb. A 500 mb trough lies in Central Rockies, and a surface front lies near the Texas Coast, through South Texas, into Mexico and back to Trans-Pecos Texas and into New Mexico.

Overcast stratocumulus covered the area until late morning, where it broke and lifted into a cumulus deck. Some light drizzle was scattered over the operational area late a.m. By early afternoon rainshowers began moving northeast toward the operational area. Thunderstorms developed quickly along a line approximately 20 nmi. south of Sterling City to Garden City and to Midland. Activity moved into the operational area by mid-afternoon. Bases were rather high, but lowered during the late afternoon. Widespread precipitation occurred after dark over the operational area.

May 31, 1979 (cont.)  
Weather Observations

TIME  
(CDT)

---

0855            OVER SC; T=68 F; WIND 080/06

---

1000            OVC ST; INTMT L-; T=68<sup>0</sup>F; WIND 060/07

---

1155            BKN SC-CU; OCNL 1--; T=70<sup>0</sup>F; WIND 070/10

---

1355            BKN CU; BKN AC; DRK S-SW; APRNT RWU SW-W; T=75<sup>0</sup>F;  
WIND 060/15

---

1500            SCT CU; OVC AC; BINOVC; HIR CLDS VSBL; RWU SW-W & NW;  
TRWU W; LT RW OVHD; T=73<sup>0</sup>F; WIND 070/10

---

1555            FEW CU ALQDS; BKN AC; TCU - SML CB OVHD -S-E & NW-N;  
RW- AT STN; T=70<sup>0</sup>F; WIND 080/23G29

---

\*\*\*\*\*TEXAS HIPLEX STATUS REPORT\*\*\*\*\*

VALID FOR MAY 31, 1979

\*\*\*\*\*WEATHER SUMMARY\*\*\*\*\*

OVERRUNNING IS PROVIDING A LOWER STRATUS DECK OVER THE OPERATIONAL AREA, WITH LIGHT DRIZZLE AT BGS. AN UPPER AIR COOL POCKET OF AIR LIES FROM EL PASO TO MIDLAND, WITH A DRY LAYER BETWEEN 850 MB AND 600 MB. A 500 MB TROUGH LIES ALONG THE CENTRAL ROCKIES, WITH A SURFACE FRONT ALONG THE TEXAS COAST, THROUGH SOUTH TEXAS, INTO OLD MEXICO AND BACK INTO THE TRANS-PECOS AREA.

OVERCAST SC COVERED THE AREA UNTIL LATE MORNING, LIFTING SLIGHTLY BY EARLY AFTERNOON. BY EARLY AFTERNOON RAINSHOWERS WERE OBSERVED SOUTHWEST AND BEGAN MOVING TO THE NORTHEAST TOWARD THE OPERATIONAL AREA. TRWS DEVELOPED RAPIDLY ALONG A LINE APPROXIMATELY 20 MILES SOUTH OF STERLING CITY TO GARDEN CITY AND INTO MIDLAN. ACTIVITY MOVED INTO THE OPERATIONAL AREA BY MID-AFTERNOON. CONVECTIVE CELLS HAD BASES REPORTED AT 14K ABOVE AN OVERCAST STRATUS DECK. WIDESPREAD RAIN AND RAINSHOWERS OCCURED OVER THE OPERATIONAL AREA AFTER DARK.

\*\*\*\*\*OPERATIONS\*\*\*\*\*

THE MRI AIRCRAFT WAS LAUNCHED AT 1342 LDT HEADING WEST AND CLIMBING THROUGH LAYERED STRATUS. THE AZTEC WAS ADVISED TO REMAIN ON THE GROUND UNTIL SEEDABLE CLOUDS WERE OBSERVED BY THE MRI AIRCRAFT. THE MRI AIRCRAFT PENETRATED TWO CELLS AND OBSERVED LITTLE LIQUID WATER AND A LOT OF ICE. ICE CONCENTRATIONS WERE OBSERVED AS HIGH AS 100/L IN THE CONVECTIVE CELL AND ABOUT 1/L BACKGROUND. LIQUID WATER WAS ABOUT .56/M3. NO SEEDABLE CLOUDS WERE OBSERVED AND THE AIRCRAFT RETURNED TO BASE. THE AZTEC DID NOT LEAVE THE GROUND. THE DAY WAS ALSO DECLAIRED A NON-OPERATIONAL DAY.

*meso scale*

\*\*\*\*\*EQUIPMENT STATUS\*\*\*\*\*

SMR-75 WAS OPERATIONAL THROUGH OUT THE PERIOD. THE RIGHT ALTINATOR WAS OUT FOR THE DAY ON THE P-NAVAJO CAUSING THE P-NAVAJO TO BE LOGGED AS NON-OPERATIONAL. A REPLACEMENT ALTINATOR IS DUE IN TOMORROW. THE INSTRUMENT PACKAGE ON BOARD APPEARS TO BE OPERATIONAL. A TEST FLIGHT IS SCHEDULED FOR TOMORROW. MRI AIRCRAFT AND INSTRUMENTATION WAS OPERATIONAL THROUGHOUT THE PERIOD THE AUTO WX STATIONS REMAIN IN NON-OPERATIONAL STATUS ALL OTHER EQUIPMENT IS OPERATIONAL.

\*\*\*\*\*REMARKS\*\*\*\*\*

THE DAY WAS ALSO DECLARED NON-OPERATIONAL FOR THE MESO-SCALE PROGRAM. OUTLOOK: OPERATIONAL

RIGGID

MRI

HIPLEX NAVAJO LOG-1979

Date: 5/31/79

Page No. 1/2

Site: Big Spring

Observer DMT

Tape No. 903

Take Off Time 1340 Land Time 1537

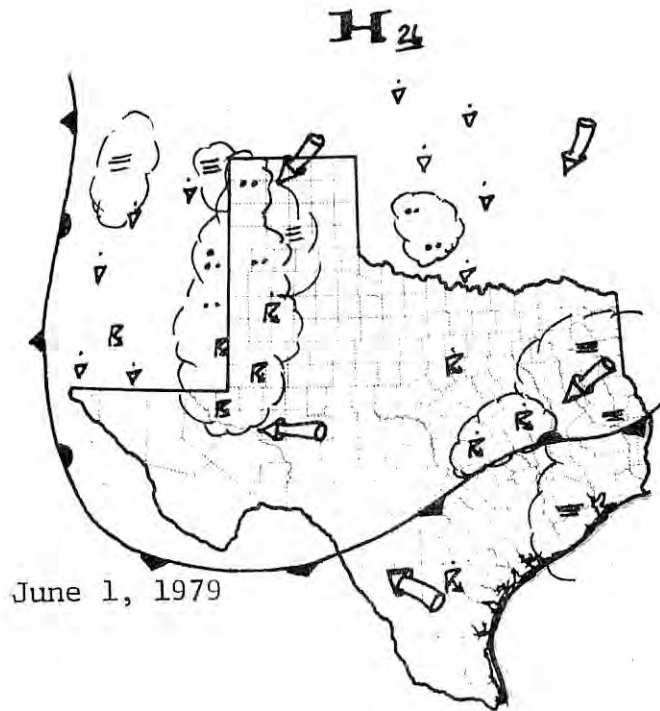
BMS Time \_\_\_\_\_ = Aircraft Time \_\_\_\_\_

Aircraft Time \_\_\_\_\_ = Radar Time \_\_\_\_\_

Altitude (29.92) = Initial 2460  
Final 2500

Time	Event #	Altitude (kft)	Temp (°C)	Cloud #	Pass #	Type of Pass	COMMENTS
							(VOR, DME, HDG, Cl. Base Ht., Foil)
1340							OFF
13 48:50		5.3	13				in cloud
54:00		7	12.9				above stratus deck
14 10		12.5	1				in mid-level clouds
16:10	2	16	-7.1				in clouds 330/40
28:22	6	16.7	-8.2	1	1		Hdg. 070 start penetration
29:20				1	1		-700'
				1	1		snow pellets
				1	1		1000'
				1	1		.6g/m <sup>3</sup> 4/lit ice
30:45				1	1		1500' 80/lit ice
31:21				1	1		out precipitation
32:00				1	1		end
35:21	6	16	-8.3	2	1		st hdg 270





Weather Summary

A surface cold front moved through the operational area late yesterday afternoon. A cool and quite moist air mass is over the operational area, with a short wave at 500 mb west of the operational area with an associated cool pool. Air mass is quite unstable. Numerous thunderstorms occurring southwest and northwest of the operational area. Moisture is deep in the air mass.

Stratus covered the sky during the morning with a heavy overcast. Light rainshowers were in the operational area by noon, and activity became widespread over the operational area, with a few imbedded heavy thunderstorms occurring over the operational area.

June 1, 1979 (cont.)  
Weather Observations

TIME  
(CDT)

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0750 OVC ST; THN SPTS IOVC; T=63<sup>0</sup>F; WIND 050/12G21

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0855 OVC ST; DRK NE; T=62<sup>0</sup>F; WIND 040/13

---

0955 OVC ST; INTMT RW--; T=62<sup>0</sup>F; WIND 030/10

---

1150 OVC NS; R AT STN; T=60<sup>0</sup>F; WIND 020/12

---

1355 OVC NS; R AT STATION; T=60<sup>0</sup>F; WIND 020/16G21

---

1455 OVC NS; R- AT STATION; T=59<sup>0</sup>F; WIND 040/17

---

1555 OVC NS; R- AT STATION; T=60<sup>0</sup>F; WIND 050/21G26

---

◆◆◆◆TEXAS HIPLEX STATUS REPORT◆◆◆◆  
VALID FOR JUNE 1, 1979

◆◆◆WEATHER SUMMARY◆◆◆

A SURFACE COLD FRONT MOVED THROUGH THE OPERATIONAL AREA LATE YESTERDAY AFTERNOON. COOL AND QUITE MOIST AIRMASS IS OVER THE OPERATIONAL AREA, WITH A SHORT WAVE AT 500 MB WEST OF THE OPERATIONAL AREA. THE AIRMASS IS UNSTABLE AND VERY MOIST FROM THE SURFACE TO THE UPPER LEVELS. TRWS WERE OBSERVED SOUTHWEST THROUGH NORTHWEST DURING THE EARLY AM. STRATUS COVERED THE SKY DURING THE AM WITH LIGHT RAINSHOWERS IN THE OPERATIONAL AREA BY NOON. THE ACTIVITY BECAME MORE WIDESPREAD OVER THE OPERATIONAL AREA THROUGHOUT THE AFTERNOON WITH A FEW IMBEDDED TRWS OCCURING OVER THE OPERATIONAL AREA.

◆◆◆OPERATIONS◆◆◆

THE DAY WAS BRIEFED OPERATIONAL FOR THE MESO-SCALE PROGRAM. THE P-NAVAJO WAS LAUNCHED AT 1338 LDT TO TEST OUT THE ON BOARD CLOUD PHYSIC INSTRUMENTS AND TO DO RECONNASSANCE. THE AIRCRAFT WAS IN THE SOUP AT 18K WITH SOME BREAKS. CLOUDS WERE REPORTED ABOVE AND BELOW HIS FLIGHT ALTITUDE. THE VDR PARTIALLY WORKED, SOME NOISE WAS OBSERVED IN THE IPC, AND THE THRESHOLD HAD TO BE ADJUSTED IN THE TOTAL LIQUID WATER. THESE PROBLEMS WERE NOT CONSIDERED TO BE MAJOR. A SECOND TEST FLIGHT WILL BE SCHELDUELED FOR TOMORROW. NO HIPLEX MISSIONS WERE FLOWN.

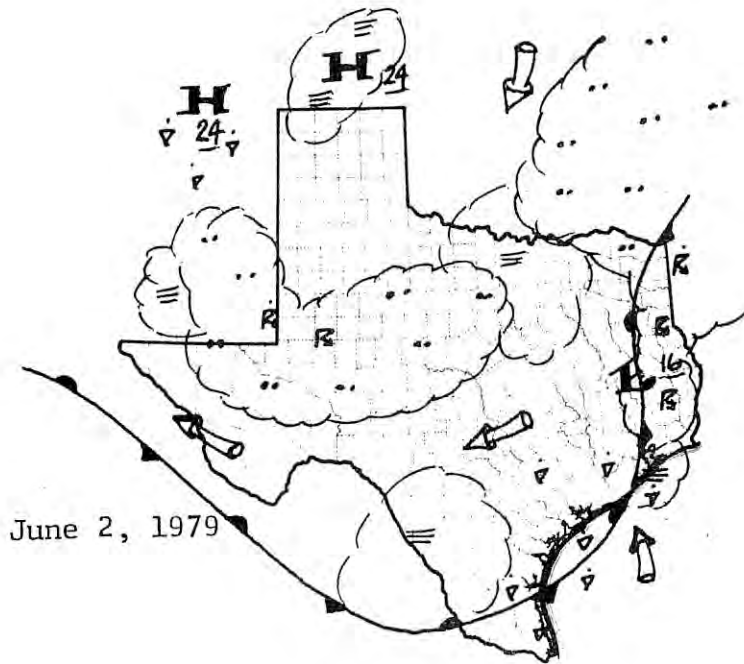
◆◆◆EQUIPMENT STATUS◆◆◆

SWR-75 IS OPERATIONAL  
MRI AIRCRAFT AND INSTRUMENTS ARE OPERATIONAL  
A SECOND TEST FLIGHT IS SCHEDULED FOR TOMORROW.  
AZTEC IS OPERATIONAL  
ALL RAWINSONDES WERE LAUNCHED. SOME BALLOON ICEING PROBLEMS OCCURED RESTRICTING THE BALLOONS HEIGHT.  
ALL OTHER EQUIPMENT IS OPERATIONAL

◆◆◆REMARKS◆◆◆

OUTLOOK: OPERATIONAL  
HARRISON DUE IN TODAY  
NO WORD ON THE MITRE AIRCRAFT  
RIGGIO





Drizzle, fog, and light rain covers a large portion of West Texas, including the operational area. A few heavy thunderstorms are occurring west of the operational area and are drifting north. Air mass is cool and quite moist, but not particularly unstable. Southeasterly flow is continuous from surface to 500 mb, and an upper air short wave lies just west of the vicinity.

A heavy overcast deck prevailed throughout the a.m., with light rainshowers imbedded in the nimbostratus drizzled layer. Light rain persisted through the afternoon, with a few heavier rainshowers imbedded. Precipitation ended by early evening.

June 2, 1979 (cont.)  
Weather Observations

TIME  
(CDT)

---

0750	OVC NS; OCNL RW--; DRK NE; T=59 <sup>0</sup> F; WIND 050/15; VSBY 6 MI. FOG
------	---

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0900	OVC ST; L-- AT STN; FOG, VSBY 3 MI; T=59 <sup>0</sup> F; WIND 040/12
------	--

---

0955	OVC NS; R- AT STN; FOG, VSBY 2; T=59 <sup>0</sup> F; WIND 030/10
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---

1055	OVC NS; R, F; VSBY 1; T=60 <sup>0</sup> F; WIND 040/09
------	--

---

1255	OVC NS; R F; VSBY 1; T=62 <sup>0</sup> F; WIND 040/09
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---

1355	OVC CU-NS; R- F; VSBY 5; T=64 <sup>0</sup> F; THN SPTS IOVC; WIND 060/09
------	--

---

1600	OVC ST-CU; T=65 <sup>0</sup> F; WIND 080/10
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\*\*\*\*\*TEXAS HIPLEX SUMMARY\*\*\*\*\*

VALID FOR JUNE 2, 1979

\*\*\*WEATHER SUMMARY\*\*\*

DRIZZEL, FOG, AND LIGHT RAIN COVERS A LARGE PORTION OF WEST TEXAS, WHICH INCLUDES THE OPERATIONAL AREA. A FEW TRWS WERE OCCURRING WEST OF THE OPERATIONAL AREA DURING THE AM AND DRIFTED TO THE NORTH. THE AIRMASS IS COOL AND QUITE MOIST AND STABLE. SOUTHEASTERLY FLOW IS CONTINUOUS FROM THE SURFACE TO 500 MB, AND AN UPPER LEVEL SHORT WAVE LIES WEST OF THE OPERATIONAL AREA.

A HEAVY OVERCAST CLOUD DECK PREVAILED THROUGHOUT THE AM, WITH LIGHT IMBEDDED RAINSHOWERS. THE LIGHT RAIN CONTINUED THROUGHOUT THE AFTERNOON, WITH SOME HEAVIER SHOWERS. THE PRECIPITATION ENDED BY EARLY EVENING.

\*\*\*OPERATIONS\*\*\*

THE WAS BRIEFED NON-OPERATIONAL FOR THE MESO-SCALE PROGRAM. THE HIPLEX PROGRAM WAS PLACED ON STAND-BY UNTIL THE MID-AFTERNOON AT WHICH TIME IT WAS CALLED OFF BECAUSE NO SUITABLE CLOUDS WERE OBSERVED. THE P-NAVAJO TEST FLIGHT WAS ALSO CALLED OFF BECAUSE OF UNFAVORABLE CONDITIONS.

\*\*\*EQUIPMENT STATUS\*\*\*

SWR-75 OPERATIONAL

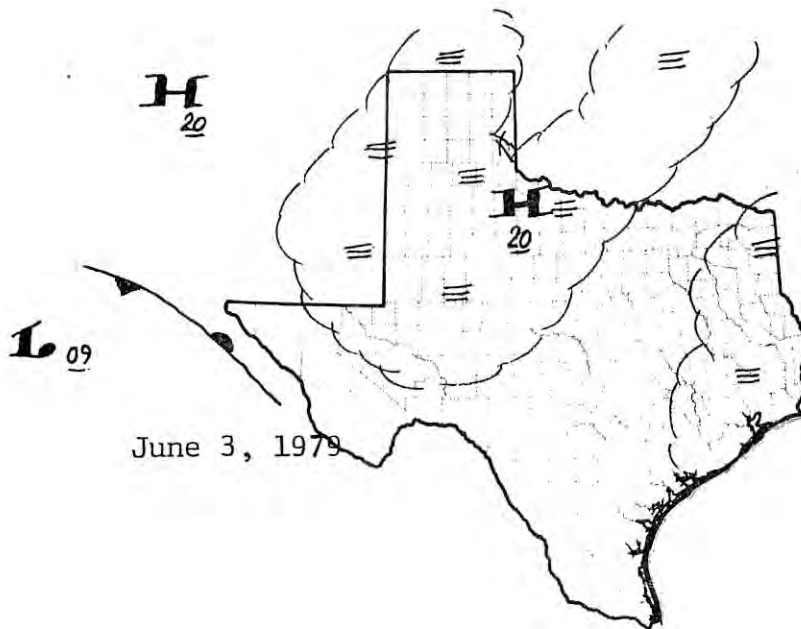
P-NAVAJO AND MRI NAVAJO THE SAME AS YESTERDAY

RAWINSONDES THE LAMESA SONDE IS NON OPERATIONAL BUT THE PROBLEM IS NOT CONSIDERED GREAT AND IT SHOULD BE BACK ON THE AIR TOMORROW.

ALL AUTO WX STATIONS NON-OPERATIONAL

ALL OTHER EQUIPMENT OPERATIONAL

R16610



### Weather Summary

A weak stationary front lies along the Texas Coast, curving southwest to near Laredo, into Mexico and northwest into southeast Arizona. A weak (1020 mb) high lies over Childress. Widespread fog blankets the region. Virga and a few rainshowers are scattered across far West Texas and South Central New Mexico. A 500 mb trough has moved well east of the area, and the upper air has dried substantially. There exists ample low level moisture, but air mass is stable and upper air has no dynamic forcing.

Widespread fog blanketed the operational area early morning and lifted into an overcast cumulus deck by mid-morning. Scattered cumulus prevailed throughout the forecast period. A cirrostratus layer advected into the operational area by early afternoon, and afternoon heating was minimized by the overcast.

June 3, 1979 (cont.)  
Weather Observations

TIME  
(CDT)

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0750 WIX, VSBY 1/8 FOG; T=58<sup>0</sup>F; WIND CALM

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0850 OVC ST; F; VSBY 3/4; T=60<sup>0</sup>F; WIND 330/04

---

0950 OVC CU; BINOVC ALQDS; T=63<sup>0</sup>F; WIND 310/05

---

1150 SCT CU; FEW CS N-E; T=71<sup>0</sup>F; WIND 360/03

---

1400 SCT CU; SCT CI-CS; T=76<sup>0</sup>F; WIND LV 060/04

---

1555 FEW SML CU; BKN CS; CS DNS S-W-NW; T=78<sup>0</sup>F; WIND 070/04

---

1650 FEW SML CU; OVC CS; BINOVC NE-E; T=78<sup>0</sup>F; WIND 100/03

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♦♦♦♦♦TEXAS HIPLEX REPORT♦♦♦♦♦

VALID JUNE 3, 1979

♦♦♦WEATHER SUMMARY♦♦♦

A WEAK STATIONARY FRONT LIES ALONG THE TEXAS COAST, CURVING SOUTHWEST TO NEAR LARADO, INTO OLD MEXICO AND NORTHWEST INTO SOUTHEAST ARIZONA. A WEAK HIGH LIES OVER CHILDRESS. VIRGA AND A FEW RWS ARE SCATTERED ACROSS FAR WEST TEXAS AND SOUTH CENTRAL NEW MEXICO. A 500 MB TROUGH HAS MOVED EAST OF THE AREA. THERE EXISTS AMPLE LLM, BUT THE AIRMASS IS STABLE AND HAS NO DYNAMIC FORCING.

WIDESPREAD FOG BLANKETED THE OPERATIONAL AREA EARLY THIS MORNING AND LIFTED INTO A BROKEN CUMULUS DECK BY MID-MORNING. SCATTERED CUMULUS PREVAILED THROUGHOUT THE FORECAST PERIOD. A CS LAYER WAS ADVECTED INTO THE OPERATIONAL AREA BY EARLY AFTERNOON MINIMIZING HEATING.

♦♦♦OPERATIONS♦♦♦

THE DAY WAS BRIEFER NON-OPERATIONAL FOR BOTH THE HIPLEX AND MESO-SCALE PROGRAMS. THE P-NAVAJO INSTRUMENTS WERE FLIGHT TESTED TODAY. NOISE PROBLEMS WERE OBSERVED IN THE TEMPERATURE AND DEW AND DEW POINT DATA, THE DME WAS ADVERSLY AFFECTING THE IPC DATA AND A WIRE BROKE ON THE TOTAL LIQUID WATER CONTENT PROBE. AL BUGAY RETURNED TO COLORADO LEAVING ONLY LAWSON. LAWSON WILL CONTINUE TO WORK ON THE INSTRUMENTATION. A THIRD TEST FLIGHT MAY SCHEDULED FOR TOMORROW.

♦♦♦EQUIPMENT STATUS♦♦♦

SWR-75 OPERATIONAL  
MRI AND AZTEC OPERATIONAL  
P-NAVAJO AS BRIEFED ABOVE  
RAWINSONDES OPERATIONAL  
ALL AUTO WX STATIONS NON-OPERATIONAL  
ALL OTHER EQUIPMENT OPERATIONAL

♦♦♦REMARKS♦♦♦

JIM SCOGGINS DUE TOMORROW

C RIGGIO

1979 TEXAS HIPLX - AIRCRAFT OBSERVER LOG

Date June 3, 1979 Pilot(s) Gabrick, Anderson Time at -5C (CDT) \_\_\_\_\_  
 Flight 1 Observer Long Time at -10C (CDT) \_\_\_\_\_  
 Aircraft p-Navajo Instrument Operator Long Time at Initial Point (CDT) \_\_\_\_\_  
 Takeoff Time (CDT) 1157 Data Tape No. P19154  
 Landing Time (CDT) 1331

Temp (°C) and Dewpoint Profile (1000 ft.)

	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	
ASDG	T																								
	T <sub>d</sub>																								
DSDG	T																								
	T <sub>d</sub>																								

A	4500
D	

Cld Base (1000 ft)

General Comments:

Flight was above a deck of small cumulus. Small patches of cirrus were above. Cumulus bases were at about 4,500 ft.; tops were at about 6,000 ft.

Comments on Data System:

-1

IPC showed 150 + 30 % whenever DME was on. Rosemount temperature approximately 2C below reverse flow temperature. Rosemount and reverse flow temperatures, and dewpoint, were all steady. Five percent of pressure values were > 2 mb from correct values. Total water content values varied from 0 to 6.3 in clear air.

Paul Lawson from Colorado International Corp. (CIC) was aboard to make adjustments to the data system.

Date: 3 June 1979

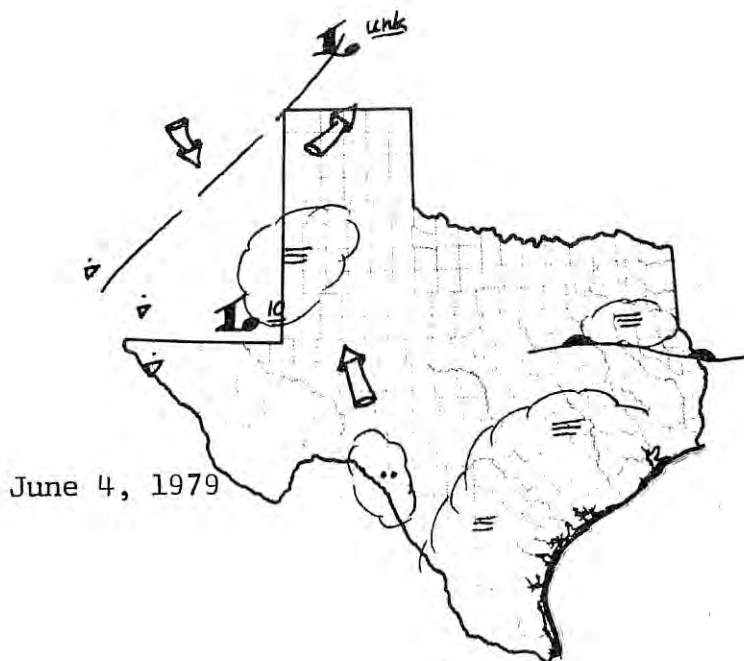
Aircraft: p - Navajo

83

## 1979 TEXAS HIPILEX - AIRCRAFT OBSERVER LOG

Time In	Time Out	Cld or Turret No.	Pass No.	Hdg	Speed	VOR/DME	Alt in (ft)	Alt Out	Comments (Cld Temp, U/Down, Turb, LWC, Ice, No. Flares, etc.)
1221						/			Spurious data in Rosemount and reverse flow temperature channels.
1230						/			Fluctuating static pressure.
						/			INTERCOMPARISON BEGINS
1240	124155					/	12000		p = 631 mb, T <sub>Rosemount</sub> = 3.4C, T <sub>Reverse flow</sub> = 5.5C, T <sub>dew</sub> = -17.4C
124545						/	10000		p = 684 mb, T <sub>Rosemount</sub> = 6.8C, T <sub>Reverse flow</sub> = 9.0C, T <sub>dew</sub> = -4.4C
124742						/	9000		p = 711 mb, T <sub>Rosemount</sub> = 9.1C, T <sub>Reverse flow</sub> = 11.4C, T <sub>dew</sub> = -5.0C
125139						/	7000		p = 768 mb, T <sub>Rosemount</sub> = 10.1C, T <sub>Reverse flow</sub> = 12.5C, T <sub>dew</sub> = 3.9C
125339						/	6000		T <sub>Reverse flow</sub> = 13.1C
125805						/	4000		p = 862 mb, T <sub>Rosemount</sub> = 13.6C, T <sub>Reverse flow</sub> = 16.0C, T <sub>dew</sub> = 12.4C
130000						/	3000		p = 896 mb, T <sub>Rosemount</sub> = 16.9C, T <sub>Reverse flow</sub> = 19.2C, T <sub>dew</sub> = 12.5C
1312						/			Power turned off data system
1331						/	landing		p = 917 mb, T <sub>Rosemount</sub> = 20.4C, T <sub>Reverse flow</sub> = 22.5C, T <sub>dew</sub> = 13.4C





### Weather Summary

A very moist and unstable air mass rests over the operational area, with baroclinic LFM advection of positive vorticity enhancing a minor short wave as 500 mb. A weak surface trough over central New Mexico is intensifying in response to the major 500 mb trough lying from Southern California to Northern Plains.

Scattered altocumulus with a cirrus-cirrostratus deck covered the operational area early. First cumulus observed about 10 a.m., at a temperature of 76°F. By noon cumulus congestus was observed over the operational area and first echoes were noted at noon. Numerous towering cumulus and cumulonimbus observed from early afternoon until well into the evening.

A flash flood watch was issued by the National Weather Service mid-afternoon for those counties west of the operational area.

June 4, 1979 (cont.)  
Weather Observations

TIME  
(CDT)

---

0755            SCT AC; BKN CI; T=70<sup>0</sup>F; WIND 150/09

---

0855            BKN AC; BKN CI-CS; FEW SC ALQDS; T=72<sup>0</sup>F; WIND 160/09

---

1055            SCT CU; BKN AC; BKN CI-CS; T=76<sup>0</sup>F; CU CONG S-SW; WIND 160/14

---

1150            SCT CU; BKN AC; OVC CS; BINOVC; CU CONG W-NE; FEW TCU DSNT  
NW-N; T=78<sup>0</sup>F; WIND 140/08

---

1345            SCT CU; BKN CI-CS; TCU BLDG NW-E; CB N-E; TRWU N-E; T=83<sup>0</sup>F;  
WIND 180/10

---

1500            SCT CUMULUS; SCT CIRRUS; TCU/CU CONG ALQDS; CB/RWU - TRWU  
ENE-E; T=85<sup>0</sup>F; WIND 180/09

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1650            SCT CU; TCU - CB ALQDS XCP W; SCT AC/CI; T=85<sup>0</sup>F; WIND 200/09

---

◆◆◆◆TEXAS HIPLEX STATUS REPORT◆◆◆◆

◆◆◆VALID FOR JUNE 4, 1979◆◆◆

◆◆◆WEATHER SUMMARY◆◆◆

SCATTERED AC WITH A CI-CS DECK COVERED THE OPERATIONAL AREA THIS AM. FIRST CUMULUS WERE OBSERVED AT ABOUT 1000 LDT AT A TEMPERATURE OF 76 F. BY NOON CU CONGESTUS WAS OBSERVED OVER THE OPERATIONAL AREA, AND FIRST ECHOES WERE NOTED AT NOON. NUMEROUS TCU AND TRWS WERE OBSERVED FROM EARLY AFTERNOON UNTIL WELL INTO THE EVENING.

◆◆◆OPERATIONS◆◆◆

THE DAY WAS BRIEFED OPERATIONAL FOR BOTH THE MESO-SCALE AND THE HIPLEX PROGRAMS. THE P-NAVAJO INSTRUMENT PACKAGE WAS NON-OPERATIONAL, HOWEVER THE AIRCRAFT WAS FLOWN FOR SEEDING PURPOSES. TWO HIPLEX MISSIONS WERE FLOWN, ONE WAS AN ON TOP SEEDING MISSION AND THE SECOND WAS A CLOUD BASE MISSION. IN BRIEF THE CELLS WERE SHORT LIVED AND GREW TO A CERTAIN LEVEL WERE THEY WOULD LOSE THEIR BOUYANCY AND ENTRAIN DRY AIR. MRI REPORTED MAX WATER TO BE APPROXIMATLY 2.5 GMS ON THE INITIAL PASS DECREASING ON SUBSEQUENT PASSES WHILE ICE INCREASED TO ABOUT 60/L.

◆◆◆EQUIPMENT◆◆◆

SWR-75 OPERATIONAL

P-NAVAJO REPORTED A HIGH CYLINDER HEAD TEMPERATURE AND WAS DOWN FOR A SHORT PERIOD OF TIME DURING THE AM. THE CLOUD PHYSICS PACKAGE NEEDS CALIBRATION TO SEE IF THE NOISE PROBLEM IN THE TEMP AND DP DATA WAS CORRECTED; TO ESTABLISH A THRESHOLD FOR THE TOTAL LIQUID WATER; AND TO TEST THE OUTPUT FROM THE VOR.

MRI NAVAJO REPORTED THAT THIER IPC IS DOWN, HOWEVER ALL OTHER EQUIPMENT IS OPERATIONAL.

AUTO WX STATIONS ARE NON-OPERATIONAL

THE RAWINSONDE HARDWARE IS OPERATIONAL

ALL OTHER EQUIPMENT IS OPERATIONAL

\_\_\_ RIGGID

MRI

HIPLEX NAVAJO LOG-1979

Date: 6/4/79

Page No. 1 of 4

Site: Big Springs, Texas

Observer DMT

Tape No. 904

Take Off Time 1315 Land Time 1522

BMS Time \_\_\_\_\_ = Aircraft Time \_\_\_\_\_

Aircraft Time \_\_\_\_\_ = Radar Time \_\_\_\_\_

Altitude (29.92) = Initial 2560  
Final \_\_\_\_\_

Time	Event #	Altitude (kft)	Temp (°C)	Cloud #	Pass #	Type of Pass	COMMENTS
							(VOR, DME, HDG, Cl. Base Ht., Foil)
1315							OFF
1324							Cloud bases 25.6K 16.2C
1353	2	16	-3				
13 5600	6	16.7		1	1		St HDG 095
							graupel
							lg/m <sup>3</sup> 10-50/lit ice
							soft graupel
14 0143	6	17		1	1		End
0412	6			2	1		St 18/14 HDG 195
							LWC - .2
0515	6			2	1		End
0538	6	17		3	1		HDG 140 St
							99/15
							2 g/m <sup>3</sup>



HIPLEX NAVAJO LOG - 1979

Page No. 3 of 4

Observer DMT

Tape No. 904

Time	Event #	Altitude (kft)	Temp (°C)	Cloud #	Pass #	Type of Pass	COMMENTS
							(VOR, DME, HDG, Cl. Base Ht., Foil)
16:25	6	169	-5	4	1		ST HDg 280
							2g/m <sup>3</sup> 091/17
17:30				4	1		END
17:48	6			S	1		ST
18:35				S	1		END
19:38	6	16.6	-4	6	1		ST HDg 260
							096/8.2
22:00		17.4		6	1		END
24:49	6	17	-7	6	2		ST HDg 045
							091/6.4
							GRAUPEL 1 g/m <sup>3</sup> LNC
31:20				6	3		END
33:10	6	17		6	4		St HDg 060
							064/8
							Big Liquid Drops 2D
35:15				6	4		END
44:50	6	17.3		7	1		HDg 225 St
							358/20.5
46:30							END



MRI

HIPLEX NAVAJO LOG-1979

Date: 6/4/79

Page No. 1 of 2

Site: Big Springs, Texas

Observer DMT

Tape No. 905

Take Off Time 1624 Land Time 1818

BMS Time \_\_\_\_\_ = Aircraft Time \_\_\_\_\_

Aircraft Time \_\_\_\_\_ = Radar Time \_\_\_\_\_

Altitude (29.92) = Initial 2630  
Final \_\_\_\_\_

Time	Event #	Altitude (kft)	Temp (°C)	Cloud #	Pass #	Type of Pass	COMMENTS
							(VOR, DME, HDG, Cl. Base Ht., Foil)
1624							OFF
1632							Cloud base, 5.8 kft 17c 050/2.9
17 1340	6	16.4	-4.9	1	1		St HDG 060 rain, graupel
17 1724				1	1		End
17 3836	6	16.6	-4.6	2	1		St HDG 125 170/6.7 1g/m <sup>3</sup> +8 m/sec
4050				2	1		End
4254	6	16	-5	2	2		ST HDG 290 154/6.5 +15, +6 m/sec





1979 TEXAS HIPLEX - AIRCRAFT OBSERVER LOG

Date 4 June 1979 Pilot(s) Anderson, Roberts Time at -5C (CDT) \_\_\_\_\_  
 Flight 2 Observer Long Time at -10C (CDT) \_\_\_\_\_  
 Aircraft p-Navajo Instrument Operator Long Time at Initial Point (CDT) \_\_\_\_\_  
 Takeoff Time (CDT) 1410 Data Tape No. P19155  
 Landing Time (CDT) 1527

Temp (°C) and Dewpoint Profile (1000 ft.)

	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	
ASDG T			20					8			5			0		-5									
ASDG T <sub>d</sub>																									
DSDG T																									
DSDG T <sub>d</sub>																									

CLD Base (1000 ft)  
 A ~ 6500 ft.  
 D

The data system was "down" most of this flight. The MRI Navajo selected the cloud to be treated. Temperature profile obtained with aircraft thermometer rather than with data system temperature probes. Paul Lawson of CIC is on-board to observe the operation of the data system.

Date: 4 June 1979

Aircraft: P - Navajo

## 1979 TEXAS HIPLIX - AIRCRAFT OBSERVER LOG

Time In	Time Out	Cld or Turret No.	Pass No.	Hdg	Speed (kt)	VCR/TME	Alt in (ft)	Alt Out	Comments (Cld Temp, U/Down, Turb, LWC, Ice, No. Flares, etc.)
1422		1	1	360°	120	360° / 14	-12000		Rain, 1000 ft min <sup>-1</sup> updraft
1423						/			Computer is crashing. Data system is turned off.
1434						350° / 28	18000		Turret to right is rising up to our level.
1437		2	1	210°	125	360° / 30	20000		500 ft min <sup>-1</sup> updraft. T ~ -8C. Tops in area are at about 26000 ft.
1439		2	2	70°	125	360° / 31	21000		
1442						/	20700		T ~ -11C
1444						/			MRI Navajo requested we proceed to 360°/19 n. mi. Frame #1 of turrets in area.
1448		3	1	120°		020° / 25	21500		Envelope opened and 2 flares 4 sec. apart fired on first pass. 500 ft min <sup>-1</sup> updraft. Perhaps not cloud selected by MRI Navajo.
1500		4	1	70°	135	22° / 25	21500		T ~ -12C. 900 ft min <sup>-1</sup> updraft. No liquid water.
1507						/			Returning to Big Spring. No new growth visible in area and tops are turning to ice.
1512						180° / 14			Frame #2 to near right of clouds penetrated.
						/			
						/			
						/			
						/			
						/			
						/			
						/			

1979 TEXAS HIPLEX - AIRCRAFT OBSERVER LOG

Date 4 June 1979 Pilot(s) Roberts, Anderson Time at -5C (CDT) \_\_\_\_\_  
 Flight 3 Observer Long Time at -10C (CDT) \_\_\_\_\_  
 Aircraft p-Navajo Instrument Operator Long Time at Initial Point (CDT) \_\_\_\_\_  
 Takeoff Time (CDT) 1625 Data Tape No. no tape obtained  
 Landing Time (CDT) 181845 data system down

Temp (°C) and Dewpoint Profile (1000 ft.)

	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
ASDG T									46	+3		0	-2		-5	-6		-10	-12					
ASDG T <sub>d</sub>						+10																		
DSDG T																								
DSDG T <sub>d</sub>																								

	Cld Base (1000 ft)	
A		
D		

Initial point: 030°/15 n. mi.

Temperature profile obtained with aircraft thermometer rather than with data system temperature probes.

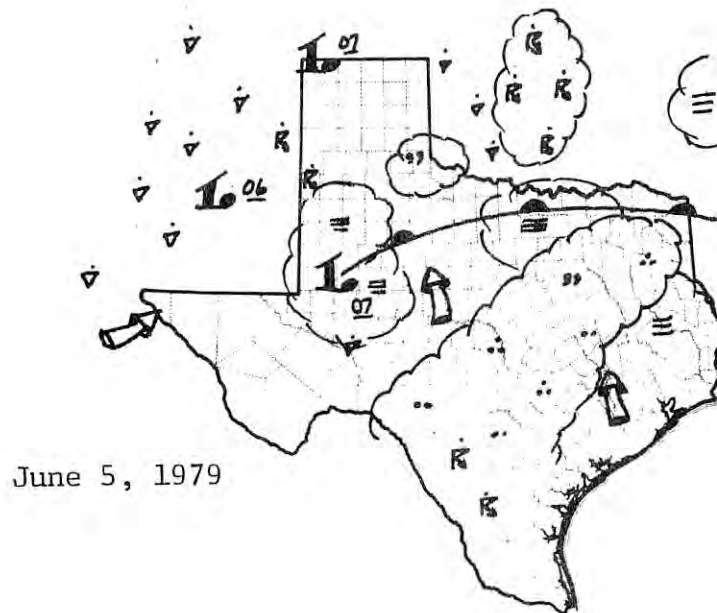
Date: 4 June 1979

Aircraft: P - Navajo

## 1979 TEXAS HIPLEX - AIRCRAFT OBSERVER LOG

Time In	Time Out	Cld or Turret No.	Pass No.	Hdg	Speed (kt)	VCR/DME	Alt in (ft)	Alt Out	Comments (Cld Temp, U/Down, Turb, LWC, Ice, No. Flares, etc.)
1649						/			Skywater radar observes a line of echoes south of our area and oriented NE. SW. A core of "blue" reflectivity lies near 3600/8-10 n. mi. We had flown to N of line to near 0200/40 n. mi. but have now turned back to the south.
1705		1	1	260°	130	350°/10.6	21000		Graupel. Little liquid water.
1707		1	2	90°	130	330°/11			Some LWC. 800 ft min <sup>-1</sup> updraft. Moderate turbulence.
1709		2	1	260°	130	319°/10.8			Cloud still growing. T ~ -12C. Graupel, liquid water. 500-600 ft min <sup>-1</sup> updraft NE side, 550 ft min <sup>-1</sup> downdraft on SW side. Moderate turbulence.
1713		2	2	70°	130	319°/12.6	20760		500 ft min <sup>-1</sup> updraft.
1716		2	3	250°	130	320°/12			1000 ft min <sup>-1</sup> downdraft on NE side. 1200 ft min <sup>-1</sup> updraft.
1719		5	1	50°	130	310°/8	21000		1000 ft min <sup>-1</sup> updraft. T ~ -9C.
1722		5	2	210°	130	315°/8.5			1000 ft min <sup>-1</sup> downdraft. Many turrets here on SW side are dying. Aztec says clouds are mainly decaying.
1728		4	1	250°	130	320°/85			No updraft.
1730		4	2	40°	130	320°/85			800 ft min <sup>-1</sup> updraft.
1736						/			Cirrus blowoff above from envil to north. There may be some natural seeding.
1739		5	1	250°		180°/7			1500 ft min <sup>-1</sup> updraft. Liquid water. MRI Navajo reported 1.5 g m <sup>-3</sup> LWC in this cloud and considerable icing.
1742		5	2	40°		180°/7			500 ft min <sup>-1</sup> downdraft. Some graupel.
1745		5	3						Aztec says it opened envelope of instructions for treating this cloud. 12 20 gm flares were burned from 1742-1745





### Weather Summary

A 500 mb closed low northeast of El Paso is moving east-northeast. Widespread fog lies over the operational area, and considerable mid-level cloudiness in association with the upper air system exists in our vicinity. Air mass is moist and cool, and is unstable. A surface low lies in the northwestern portion of the operational area, with a warm front extending east from the low.

Day began with a stratus/fog overcast, visibilities being reduced to  $\frac{1}{4}$  mile in places. By 1100 the stratus and fog had lifted, and scattered cumulus covered the area. By 1400, the scattered cumulus was interlaced with numerous cumulus congestus and a few towering cumulus. By late afternoon, numerous towering cumulus were observed in the northwestern portion of the operational area, and rainshowers had developed between Post and Tahoka. This activity became thunderstorms, but no line development was observed.

June 5, 1979 (cont.)  
Weather Observations

TIME  
(CDT)

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0750	OVC ST; F APCHG FM SE; T=66 <sup>0</sup> F; WIND 160/02
0900	OVC ST; VSBY 4 FOG; T=67 <sup>0</sup> F; WIND CALM
1005	OVC ST; F ALQDS; VSBY 5; T=68 <sup>0</sup> F; WIND CALM
1050	SCT CU; FEW MDT CU NW-N; CU CONG W; T=73 <sup>0</sup> F; WIND 170/02
1350	SCT CU; CU CONG ALQDS; TCU SW; T=80 <sup>0</sup> F; WIND 250/06
1455	SCT CUMULUS; FEW CU CONG ALQDS; T=82 <sup>0</sup> F; WIND 190/07 RWU DSNT N

---



◆◆◆◆TEXAS HIPLEX STATUS REPORT◆◆◆◆  
VALID FOR JUNE 5, 1979

◆◆◆WEATHER SUMMARY◆◆◆

STRATUS AND FOG WERE OBSERVED DURING THE EARLY AM, VISIBILITIES WERE REDUCED TO 1/4 MILE. BY 1100 LDT THE STRATUS LIFTED LEAVING SCATTERED CUMULUS OVER THE AREA. BY 1400 LDT THE CUMULUS WAS INTERLACED WITH NUMEROUS CUMULUS CONGESTUS AND A FEW TCU. BY LATE AFTERNOON NUMEROUS TCU WERE OBSERVED IN THE NORTHERN PART OF THE TARGET AREA, WITH RWS DEVELOPING BETWEEN POST AND TAHOKA. THIS ACTIVITY DEVELOPED INTO TRW-.

◆◆◆OPERATIONS◆◆◆

THE DAY WAS BRIEFED OPERATIONAL FOR BOTH THE HIPLEX AND MESO-SCALE PROGRAMS. DURING THE FIRST MISSION BOTH THE MRI AND P-NAVAJOS DEPARTED FOR GROWING CELLS AT 1431 LDT. HOWEVER, BEFORE THE P-NAVAJO REACHED ALTITUDE THE RIGHT ALTERNATOR MALFUNCTIONED AND THE P-NAVAJO RETURNED TO BASE FOR THE REMAINDER OF THE DAY. THE MRI CONTINUED SAMPLING FOR THE REMAINDER OF THE DAYS FIRST MISSION. A SECOND MISSION WAS FLOWN LATER THAT AFTERNOON WITH THE MRI NAVAJO AND THE AZTEC. THIS MISSION WAS TO BE A CLOUD BASE SEEDING MISSION. HOWEVER, THE AZTEC WAS UNABLE TO FIND ANY UPDRAFTS AT FLIGHT LEVEL SO NO SEEDING WAS PERFORMED. THE MRI NAVAJO DID DO SOME LIMITED SAMPLING.

◆◆◆EQUIPMENT STATUS◆◆◆

SWR-75 RADAR OPERATIONAL  
MRI NAVAJO THE IPC IS NON-OPERATIONAL  
P-NAVAJO THE RIGHT ALTERNATOR IS NON-OPERATIONAL LEAVING THE AIRCRAFT GROUNDED UNTIL IT IS REPLACED TOMORROW. THE CLOUD PHYSICS PACKAGE STILL NEEDS SOME CALIBRATION. LARRY DAVIS FROM CIC WILL BE IN BGS TOMORROW TO DISCUSS THE INSTRUMENT PACKAGE AND BRING WITH HIM A LOWER POWER INVERTER WHICH MAY BE THE CAUSE OF THE ALTERNATOR PROBLEMS.  
RAWINSONDE EQUIPMENT IS OPERATIONAL  
AUTO WX STATIONS ARE NON-OPERATIONAL  
ALL OTHER EQUIPMENT IS OPERATIONAL  
RIGGID

MRI

HIPLEX NAVAJO LOG-1979

Date: 6/5/79

Page No. 1 of 2

Site: Big Spring , Texas

Observer DMT

Tape No. 906

Take Off Time 1431 Land Time 1612

BMS Time \_\_\_\_\_ = Aircraft Time \_\_\_\_\_

Aircraft Time \_\_\_\_\_ = Radar Time \_\_\_\_\_

Altitude (29.92) = Initial 2660

Final \_\_\_\_\_

Time	Event #	Altitude (kft)	Temp (°C)	Cloud #	Pass #	Type of Pass	COMMENTS
							(VOR, DME, HDG, Cl. Base Ht., Foil)
1431							OFF
1440							Cloud bases G. Skft 14.1c
15 2729	6	16.4	-5	1	1		St HDG 040
15							1-1.5 g/m <sup>3</sup> LWC
4600				1	1		End along line of clouds
4800	6	15.8	-4	1	2		St HDG 350
							1g/m <sup>3</sup> tbm/sec
4929				1	2		End
5135	5	16	-4	1	3		St HDG 160
							Dissipating cloud
16 0310				1	3		End

MRI

HIPLEX NAVAJO LOG-1979

Date: 6/5/79

Page No. 2 of 2

Site: Big Spring, Texas

Observer DMT

Tape No. 907

Take Off Time 1712 Land Time 1838

BMS Time \_\_\_\_\_ = Aircraft Time \_\_\_\_\_

Aircraft Time \_\_\_\_\_ = Radar Time \_\_\_\_\_

Altitude (29.92) = Initial 2750

Final \_\_\_\_\_

Time	Event #	Altitude (kft)	Temp (°C)	Cloud #	Pass #	Type of Pass	COMMENTS
							(VOR, DME, HDG, Cl. Base Ht., Foil)
1712							OFF
17 2325							Cloud base 8K at 11.6c 332/9
17 4720	6	16		1	1		St HDG 020
							325/35
							Plates
5100		15		1	1		End 333/4.1
5442	6	15.7	-5	1	2		St HGD 190
							330/40 Dissipating needles
5810				1	2		End
5948	6	16.3	-4	2	1		St HDG 190
							323/32/7 - 6m/sec
18 0158		15.8	-5	2	1		Out 3/9/29





1979 TEXAS HIPLX - AIRCRAFT OBSERVER LOG

Date 5 June 1979 Pilot(s) Anderson, Roberts Time at -5C (CDT) \_\_\_\_\_  
 Flight 1 Observer Long Time at -10C (CDT) \_\_\_\_\_  
 Aircraft p-Navajo Instrument Operator Long Time at Initial Point (CDT) \_\_\_\_\_  
 Takeoff Time (CDT) 1431 Data Tape No. P19156  
 Landing Time (CDT) 153517

Temp (°C) and Dewpoint Profile (1000 ft.)

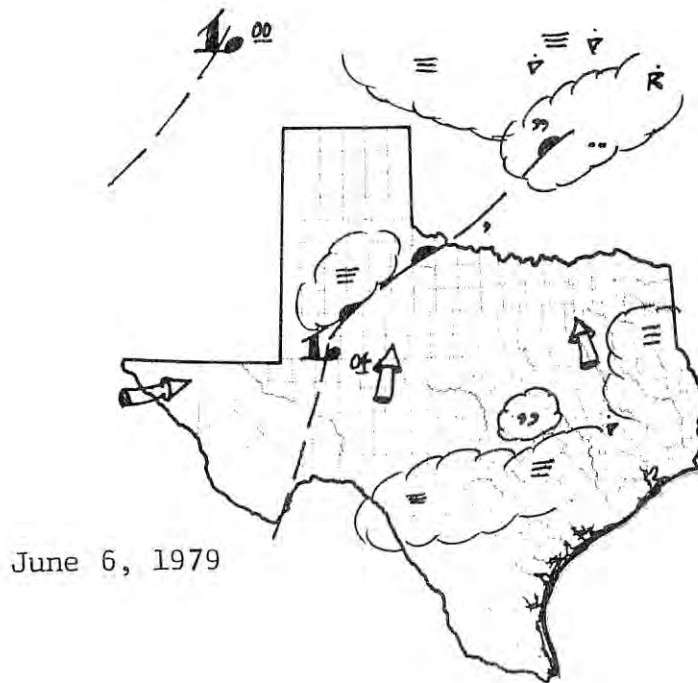
	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
ASDG			18					7							-4			-9						
T <sub>d</sub>																								
T																								
T <sub>d</sub>																								

A	
D	

Cld Base (1000 ft)

Paul Lawson is on-board to make adjustments to the data system.  
 Initial point is 330°/30 n. mi.  
 Temperature profile obtained with aircraft thermometer rather than with data system temperature probes.





Weather Summary

A 500 mb closed low lies west of Amarillo, with a trough lying south-southwest to Trans-Pecos Texas. A surface low lying north of Midland, with a warm front stretching northeast to East of Childress and into Oklahoma. Air mass remains slightly cool and moist, but is much more stable than yesterday due to a lack of low level moisture.

First cumulus was observed in an otherwise clear sky at 1100 LDT with a temperature of 81°F. A few cumulus congestus were visible to the east-northeast by early to mid-afternoon, with towering cumulus in the operational area by late afternoon. Some light rain showers were visible just east of the operational area early evening.



June 6, 1979 (cont.)  
Weather Observations

TIME  
(CDT)

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0755 CLR STRATUS ALQDS; T=69<sup>0</sup>F; WIND 200/08

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0900 CLR T=73<sup>0</sup>F; WIND 220/10

---

0950 CLR T=78<sup>0</sup>F; WIND 230/14

---

1050 CLR; FEW SML CU SE-S; T=81<sup>0</sup>F; WIND 240/13; DUSTY W-N

---

1350 SCT CUMULUS; CU CONGESTUS ENE; T=87<sup>0</sup>F; WIND 230/20G26

---

1455 SCT CUMULUS; FEW SML TCU ENE; T=89<sup>0</sup>F; WIND 240/18G24

---

1655 SCT CUMULUS; FEW TCU DSNT NE; T=91<sup>0</sup>F; WIND 250/16G21

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♦♦♦♦♦TEXAS HIPLEX STATUS REPORT♦♦♦♦♦

♦♦♦♦VALID FOR JUNE 6, 1979♦♦♦♦

♦♦♦WEATHER SUMMARY♦♦♦

FIRST CUMULUS WAS OBSERVED BY 1100 LDT AT A TEMPERATURE OF ABOUT 81 F. A FEW CUMULUS CONGESTUS WERE OBSERVED TO THE ENE BY EARLY AFTERNOON, WITH TCU IN THE OPERATIONAL AREA BY LATE AFTERNOON. SOME LIGHT RW WERE OBSERVED EAST OF THE OPERATIONAL AREA BY EARLY EVENING.

♦♦♦OPERATIONS♦♦♦

THE DAY WAS BRIEFED NON-OPERATIONAL FOR BOTH THE HIPLEX AND THE MESO-SCALE PROGRAMS.

♦♦♦EQUIPMENT STATUS♦♦♦

SWR-75 IS OPERATIONAL

P-NAVAJO: THE ALTERNATOR WAS REPLACED THIS AM AND IS OPERATIONAL. THE NEW INVERTER WAS INSTALLED ON THE AIRCRAFT THIS PM. A SECOND TECHNICIAN FROM CIC ARRIVED WITH DAVIS AND IS WORKING ON THE VOR RECORDING PROBLEMS. A GROUND TEST OF THE INVERTER IS SCHEDULED FOR TOMORROW.

MRI NAVAJO: THE IPC IS NON-OPERATIONAL

AUTO WX STATIONS ARE CURRENTLY BEING WORKED ON. IT IS HOPED THAT THE MESO-NET WILL BE ON THE AIR BY SATURDAY.

RAWINSONDE IS OPERATIONAL

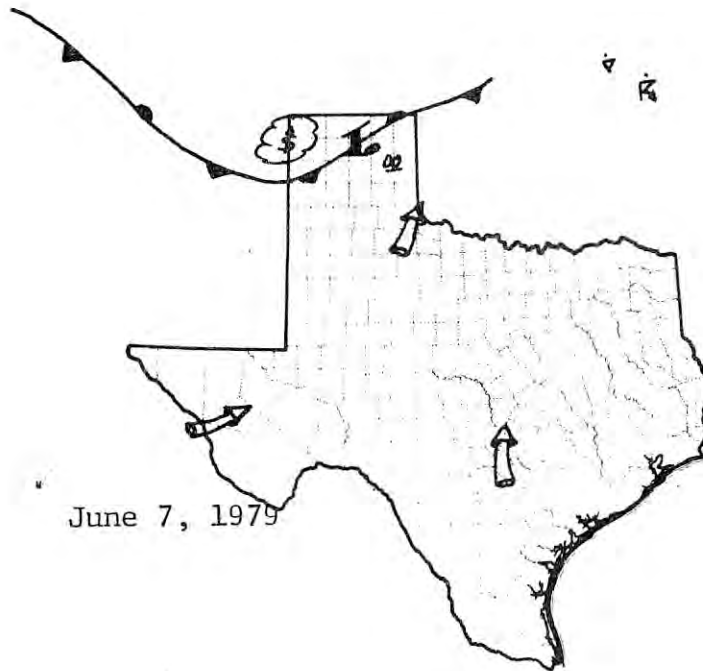
ALL OTHER EQUIPMENT IS OPERATIONAL

♦♦♦REMARKS♦♦♦

A TOWER FLY BY IS SCHEDULED FOR 0900 LDT TOMORROW.

BOB SCHAFF HAD TO RETURN TO CALIFORNIA FOR PERSONAL REASONS AND IS EXPECTED BACK BY SATURDAY. THATS BOB SCHAFF

RIGGID



### Weather Summary

A surface front lying south of Amarillo and into New Mexico is moving slowly east-southeast. An upper-air trough west of the area is nearly stationary due to retrograde ridging. Some cloudiness is noted in South Central New Mexico in association with the upper-air trough. Air mass is warm, slightly moist and unstable. Low level moisture is at a premium, and convective temperature is 90°F.

Skies remained clear throughout the morning and temperatures rose rapidly with the dry southwest surface flow. First cumulus was observed at 1500 LDT, with a temperature of 96°F. At this time a line of towering cumulus/cumulonimbus were building on the horizon northwest. This activity had moved (ahead of the surface front) to a position 30 to 40 miles away from the northwestern portion of the operational area by late afternoon. Several towering cumulus occurred in the northwest portion of the operational area in association with the cumulonimbus activity to the northwest of the area. All activity remained nearly stationary and dissipated during the evening.

June 7, 1979 (cont.)  
Weather Observations

TIME  
(CDT)

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0750 CLR T=70<sup>0</sup>F; WIND 190/14

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0850 CLR T=76<sup>0</sup>F; WIND 190/15

---

0950 CLR T=82<sup>0</sup>F; WIND 210/17

---

1055 CLR T=86<sup>0</sup>F; WIND 230/14

---

1150 CLR T=90<sup>0</sup>F; WIND 210/13

---

1350 CLR T=94<sup>0</sup>F; WIND 210/17G22

---

1455 CLR FEW CU S; FEW CI SE-S; T=96<sup>0</sup>F; WIND 210/14G21  
CB LN HRZN NW

---

1550 FEW CU SE-S; FEW CI; LN TCU-CB DSNT NW; T=98<sup>0</sup>F; WIND 240/15

---

1650 SCT CIRRUS; FEW CUMULUS NE-S-SW; T=98<sup>0</sup>F; LN TCU/CB NW STNRY;  
WIND 250/10

---

◆◆◆◆TEXAS HIPLEX STATUS REPORT◆◆◆◆

VALID FOR JUNE 7, 1979

◆◆◆WEATHER SUMMARY◆◆◆

SKIES REMAINED CLEAR THROUGHOUT THE MORNING, AND TEMPERATURES ROSE RAPIDLY WITH A DRY SOUTHWEST WIND. FIRST CUMULUS WAS OBSERVED AT 1500 LDT, AT A TEMPERATURE OF ABOUT 96 F. AT THIS TIME A LINE OF CB/RW WERE OBSERVED TO BE BUILDING ALONG A LINE TO THE NORTHWEST. THIS ACTIVITY HAD MOVED TO A POSITION ABOUT 30 TO 40 MILES AWAY FROM THE NORTHWEST BOUNDARY OF THE OPERATIONAL AREA BY LATE AFTERNOON. ALL ACTIVITY REMAINED NEARLY STATIONARY DURING THE LATE AFTERNOON AND DISSAPTED BY EARLY EVENING.

◆◆◆OPERATIONS◆◆◆

THE DAY WAS BRIEFED NON-OPERATIONAL FOR BOTH THE HIPLEX AND MESO-SCALE PROGRAMS. A TOWER FLY-BY WAS FLOWN THIS MORNING FOR BOTH THE MRI AND P-NAVAJO AIRCRAFT. SIX PASSES AT EACH OF THREE SPEEDS WERE PERFORMED. THE INITIAL LOOK AT THE P-NAVAJO DATA INDICATES THAT THE TEMPERATURE AND DEW POINT DATA AND THE PRESSURE DATA ARE GOOD. THE MRI DATA WERE SHIPPED TO

THE BUREAU FOR PROCESSING. IT WILL BE EXAMINED WHEN IT IS SHIPPED BACK TO BGS, HOPEFULLY IN A FEW DAYS. A TEST FLIGHT FOR THE CLOUD PHYSICS INSTRUMENTS ABOARD THE P-NAVAJO IS SCHEDULED FOR TOMORROW.

◆◆◆EQUIPMENT STATUS◆◆◆

SMR-75: OPERATIONAL

P-NAVAJO: AS BRIEFED ABOVE

MRI NAVAJO: IPC DOWN; BOB SCHAFF NOT DUE BACK UNTIL SUNDAY, A TEMPORARY REPLACEMENT MAY BE NECESSARY.

RAMINSONDES: OPERATIONAL

AUTO WX STATIONS: HARRISON THINKS THAT ALL STATIONS SHOULD BE ON THE AIR BY MONDAY.

MRI

HIPLEX NAVAJO LOG-1979

Date: 6/7/79

Page No. 1 of 2

Site: Big Spring , Texas

Observer DMT

Tape No. 908

Take Off Time 0910 Land Time 1003

BMS Time \_\_\_\_\_ = Aircraft Time \_\_\_\_\_

Aircraft Time \_\_\_\_\_ = Radar Time \_\_\_\_\_

Altitude (29.92) " Initial \_\_\_\_\_

Final \_\_\_\_\_

Tower Slybye

COMMENTS  
(VOR, DME, HDG, Cl. Base Ht., Foil)

9

Time	Event #	Altitude (kft)	Temp (°C)	Cloud #	Pass #	Type of Pass	COMMENTS
0910							OFF
	6	2.8			1		150 kts
1859	6				2		"
2126	6				3		"
2318	6				4		"
2519	6				5		"
2727	6				6		"
	6				7		130 kts
3012	6				8		"
3253	6				9		"
3723	6				10		"
3950	6				11		"
4203	6				12		"
4443	6				13		120 kts



1979 TEXAS HIPLEX - AIRCRAFT OBSERVER LOG

Date 7 June 1979 Pilot(s) Roberts Time at -5C (CDT) \_\_\_\_\_  
 Flight 1 Observer Long Time at -10C (CDT) \_\_\_\_\_  
 Aircraft p-Navajo Instrument Operator Long Time at Initial Point (CDT) \_\_\_\_\_  
 Takeoff Time (CDT) 0905 Data Tape No. P19158

Landing Time (CDT) 1007

Temp (°C) and Dewpoint Profile (1000 ft.)

	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	
ASDG	T																								
	T <sub>d</sub>																								
DSDG	T																								
	T <sub>d</sub>																								

Cld Base (1000 ft)

A	
D	

Paul Lawson and Larry Davis are on-board to see how data system functions.



Date: 7 June 1979

Aircraft: p-Navajo

1979 TEXAS HIPLEX - AIRCRAFT OBSERVER LOG

Time In	Time Out	Cld or Turret No.	Pass No.	Hdg	Speed	VOR/TIME	Alt in (ft)	Alt Out	Comments (Cld Temp, U/Down, Turb, LWC, Ice, No. Flares, etc.)
						/			All passes by the tower were from WSW to ENE. Speed is that attempted. Speed achieved may be slightly different.
						/			Event number denotes the event code that appeared on the CRF in flight when the event button appropriate for that pass was pushed.
091726			1		160	/			p-Navajo 15 ft above tower. Event 3
091944			2		160	/			p-Navajo at tower elevation. Event 4
092213			3		160	/			Event 5
092414			4		160	/			Event 6
092628			5		160	/			p-Navajo 5 ft above tower. Event 7
092825			6		160	/			p-Navajo at tower elevation. Event 8 not pushed.
093122			1		140	/			p-Navajo 5 ft below tower. Event 9
093352			2		140	/			p-Navajo at tower elevation. Event 10.
093617			3		140	/			p-Navajo at tower elevation. Event 11.
093833			4		140	/			p-Navajo at tower elevation. Event 12.
094045			5		140	/			Event 13
						/			
						/			
						/			
						/			

June 8, 1979 (cont.)  
Weather Observations

TIME  
(CDT)

---

0750        FEW ST ALQDS; ACCAS ALQDS; BKN AS; BKN CI; T=77<sup>0</sup>F;  
             WIND 190/14

---

0950        SCT ST-SC; BKN AC; BKN CI; TCU LN NW-N; T=81<sup>0</sup>F;  
             WIND 190/18G25

---

1150        SCT CU; SCT AC; SCT CI; T=84<sup>0</sup>F; WIND 190/14

---

1355        SCT CUMULUS; FEW CU CONGESTUS NW-E; SCT CIRRUS; T=90<sup>0</sup>F;  
             WIND 170/18

---

1450        SCT CU; SCT CIRRUS; NMRS CU CONGESTUS NW-N; RWU DSNT N;  
             LN CB NE-E HRZN; T=91<sup>0</sup>F; WIND 180/15

---

1550        SCTCCU; SCT CI; TCU BLDG RAPDLY NW-N-NE; RWU W NE;  
             T=91<sup>0</sup>F; WIND 200/18

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♦♦♦♦♦TEXAS HIPLEX STATUS REPORT♦♦♦♦♦

::VALID FOR JUNE 8, 1979::

♦♦♦WEATHER SUMMARY♦♦♦

SCATTERED STARTUS WAS OBSERVED OVER THE OPERATIONAL AREA, WITH CONSIDERABLE UPPER AIR AND MID-LEVEL CLOUDINESS DURING THE AM. SCATTERED CUMULUS DEVELOPED BY EARLY AFTERNOON BUT WERE DISSIPATING AS THEY GREW INTO THE DRY LAYER. BY MID AFTERNOON VERTICAL DEVELOPMENT HAD TRANSPORTED MOISTURE INTO THE MID-LEVELS ALLOWING FOR THE DEVELOPMENT OF CUMULUS CONGESTUS AND MDT TRWS AS THE DRY LINE BEGAN TO MOVE THROUGH THE OPERATIONAL AREA.

♦♦♦OPERATIONS♦♦♦

THE WAS BRIEFED AN OPERATIONAL DAY FOR THE MESO-SCALE PROGRAM. HOWEVER, AT 1525 LDT THE NSSFC ISSUED A SEVERE TRW WATCH COVERING THE OPERATIONAL AREA THUS CANCELLING HIPLEX OPERATIONS. THE INSTRUMENT PACKAGED ABOARD THE P-NAVAJO WAS CHECKED OUT ON A TEST FLIGHT AND ALL PROBES AND SYSTEMS WERE CONSIDERED FULLY OPERATIONAL BY ALEX LONG AND GIRDZUS. THE CIC PERSONNEL ARE PLANNING TO RETURN HOME TOMORROW BUT LAWSON WILL RETURN TUESDAY EXAMINE THE DATA COLLECTED. THE SWR-75 WAS FULLY OPERATIONAL IN SUPPORT OF THE MESO-SCALE PROGRAM.

♦♦♦EQUIPMENT STATUS♦♦♦

SWR-75: OPERATIONAL

P-NAVAJO: OPERATIONAL

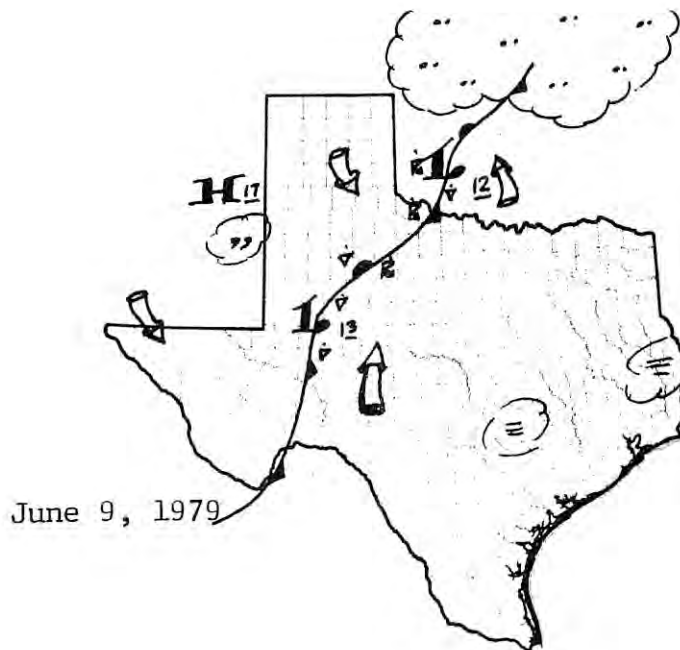
MRI NAVAJO: IPC DOWN; DAVE SUDDER WITH MRI WILL TEMPORARILY REPLACE THE BOB SCHAFF UNTIL BOB RETURNS WEDNESDAY.

AZTEC: OPERATIONAL

RAWINSONDES: OPERATIONAL

AUTO WX STATIONS: SEVEN ARE READY TO BROADCASTING AND THE REMAINDER SHOULD BE READY BY MONDAY.

ALL OTHER EQUIPMENT OPERATIONAL



### Weather Summary

A surface front lies over the operational area and is moving quite slowly east. Air mass is moist east of front and is drying considerably west of front. Upper-level trough lies over Central New Mexico to the El Paso area.

Numerous thunderstorms remained over the operational area during the morning hours, but by mid-morning had dissipated. As the surface front moved slowly east, drying occurred over the operational area. Scattered cumulus occurred over the operational area. The front cleared the operational area by mid-afternoon, and a line of rain-showers and thunderstorms developed east of the area from Robert Lee and San Angelo to Abilene.

A flash flood watch was issued during the early morning hours for the operational area for the balance of the day.

June 9, 1979 (continued)  
Weather Observations

TIME  
(CDT)

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0750 OVC CB; RW+ AT STN; T = 67<sup>0</sup>F; BINOVC W; WIND CALM

---

0855 OVC AS; BINOVC HRZNS ALQDS; RW-- AT STN; ST ALQDS;  
T=69<sup>0</sup>F; WIND 230/03

---

0950 BKN SC; OVC AC; DRK NE-S; T=70<sup>0</sup>F; WIND 300/02; RW-- AT STN

---

1050 OVC CU; T=70<sup>0</sup>F; WIND 290/06

---

1155 OVC CUMULUS; BINOVC; HIER CLDS VSBL; T=72<sup>0</sup>F; WIND 300/10

---

1355 BKN CUMULUS; T=73<sup>0</sup>F; WIND 340/12

---

1450 SCT CU HUMILIS; AC Lyr ABV; T=76<sup>0</sup>F; WIND 330/10

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♦♦♦♦TEXAS HIPLEX STATUS REPORT♦♦♦♦

VALID FOR JUNE 9, 1979

♦♦♦WEATHER SUMMARY♦♦♦

NUMEROUS THUNDERSTORMS REMAINED OVER THE OPERATIONAL AREA DURING THE AM, BUT BY MID-AFTERNOON THEY HAD DISSIPATED. AS THE SURFACE FRONT MOVED SLOWLY EASTWARD, DRYING OCCURED OVER THE OPERATIONAL AREA. SCATTERED CUMULUS WAS OBSERVED OVER THE OPERATIONAL AREA THROUGHOUT THE OPERATIONAL PERIOD. THEY MOVED EAST OF THE OPERATIONAL AREA BY MID-AFTERNOON, AND A LINE OF RAIN-SHOWERS DEVELOPED EAST OF THE OPERATIONAL AREA ALONG A LINE FROM ROBERT LEE TO ABILENE.

♦♦♦OPERATIONS♦♦♦

THE DAY WAS BRIEFED OPERATIONAL FOR THE MESO-SCALE PROGRAM, HOWEVER A FLASH FLOOD WATCH WAS ISSUED DURING THE EARLY MORNING HOURS FOR THE OPERATIONAL AREA FOR THE REMAINDER OF THE DAY. CONSEQUENTLY NO HIPLEX OPERATIONS WERE PERFORMED.

♦♦♦EQUIPMENT STATUS♦♦♦

SWR-75: OPERATIONAL

P-NAVAJO: OPERATIONAL

MRI NAVAJO: IPC IS NON-OPERATIONAL; ALL ELSE IS OPERATIONAL

AZTEC: OPERATIONAL

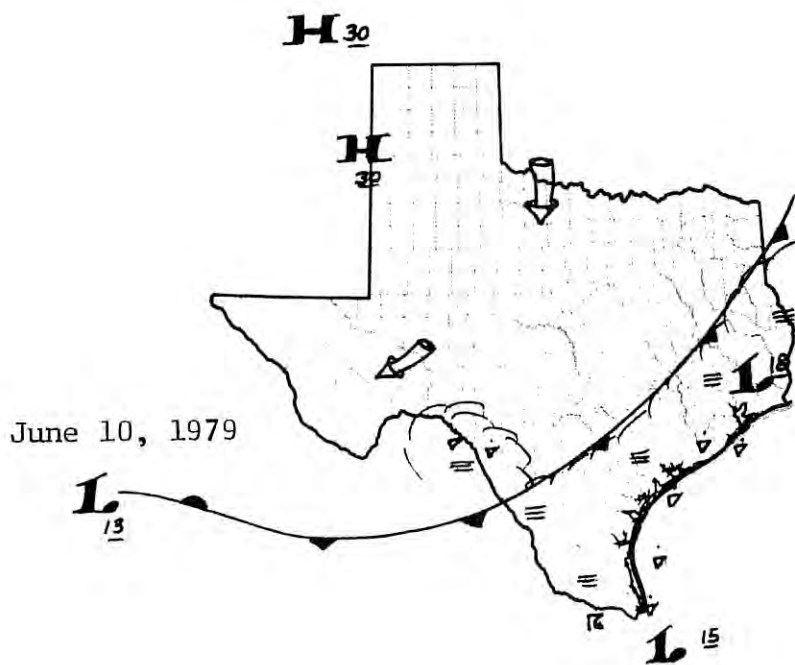
RAWINSONDES: PLEASE ADVISE BENNY GIRARDO THAT THE BGS SOUNDING IS BEING HAND TRACKED BECAUSE THE AZMITH AUTO DRIVE IS BLOWING FUSES. AN INVESTIGATION OF THE PROBLEM SHOWS THAT THE MOTOR GEAR IS BINDING WITH ADJACENT GEARS.

AUTO WX STATIONS: ON FRIDAY MORNING (JUNE 8, 1979) HARRISON ADVISED SCOGGINS, JURICA, AND MYSELF THAT ACCORDING TO HIS SCHEDULE HE WOULD HAVE FOUR STATIONS ON THE AIR BY LATE FRIDAY, FOUR MORE ON THE AIR BY LATE SATURDAY, AND EIGHT MORE ON THE AIR BY LATE SUNDAY. HOWEVER IT WAS LEARNED (AT THE TIME OF THIS WRITING-SUNDAY AM) THAT HARRISON RETURNED TO DENVER AND ONLY SEVEN STATIONS ARE ON THE AIR. PLEASE ADVISE US AS TO HARRISONS FUTURE PLANS SO WE CAN BETTER UTILIZE OUR PEOPLE AND MORE REALISTICALLY PLAN FOR OUR MESO-SCALE OPERATIONS. HOPEFULLY, WE CAN ESTABLISH BETTER COORDINATION IN THE FUTURE.

DAVE REYNOLDS INFORMED US SUNDAY AM THAT AS OF FRIDAY CSU WAS RECEIVING CODED MESSAGES FROM ONLY FOUR SURFACE STATIONS.

RIGGIO

READY.



### Weather Summary

A surface front is moving southeast across South Central Texas, with widespread fog on the warm side of the front. Considerable drying is occurring rapidly behind the system, with an upper-air trough lying from eastern Oklahoma south to East of Del Rio. Air mass over the operational area is quite cool, dry, and stable, with some high cloudiness observed.

Broken mid- and upper-level cloud cover was observed over the operational area during the early morning. This cloud cover moved southeast during the forecast period, and only scattered cirrus was apparent by late afternoon. No cumulus was observed, as the convective temperature (82°F) was never attained (Tmax = 78°F).

June 10, 1979 (continued)  
Weather Observations

TIME  
(CDT)

---

0800      BKN AC; BKN CI-CS; ST DECK DSNT SE-S; T=60<sup>0</sup>F; WIND 030/10

---

0855      SCT CI-CS; CS DECK N-E-S; FEW AS N-E-S; T=62<sup>0</sup>F; WIND 030/15

---

0955      SCT CI-CS; CS DECK NNE-SW; AS BLW CS SE-S; T=66<sup>0</sup>F; WIND  
020/15

---



\*\*\*\*\*TEXAS HIPLEX STATUS REPORT\*\*\*\*\*  
VALID FOR JUNE 10, 1979

\*\*\*WEATHER SUMMARY\*\*\*

BROKEN MID AND UPPER LEVEL CLOUD COVER WAS OBSERVED OVER THE OPERATIONAL AREA DURING THE EARLY MORNING. THIS CLOUD COVER MOVED SOUTHEAST DURING THE FORECAST PERIOD, AND ONLY SCATTERED CIRRUS WAS APPARENT BY LATE AFTERNOON. NO CUMULUS DEVELOPMENT WAS OBSERVED.

\*\*\*OPERATIONS\*\*\*

THE WAS BRIEFED NON-OPERATIONAL FOR BOTH THE MESO-SCALE AND HIPLEX PROGRAMS. TEXAS A&M PERSONNEL CALIBRATED THREE AUTO WX STATIONS. THE CALIBRATION INCLUDED ALL SENSORS EXCEPT THE WIND SPEED.

\*\*\*EQUIPMENT STATUS\*\*\*

SWR-75: OPERATIONAL

P-NAVAJO: OPERATIONAL

MRI NAVAJO: OPERATIONAL EXCEPT THE IPC IS DOWN. SCHAFF IS DUE BACK TO BIG SPRING ON WEDNESDAY.

RAWINSONDE: ALL ARE OPERATIONAL. THE BGS SONDE AUTO TRACKING IS NOT OPERATING, BUT IT CAN BE HAND TRACKED.

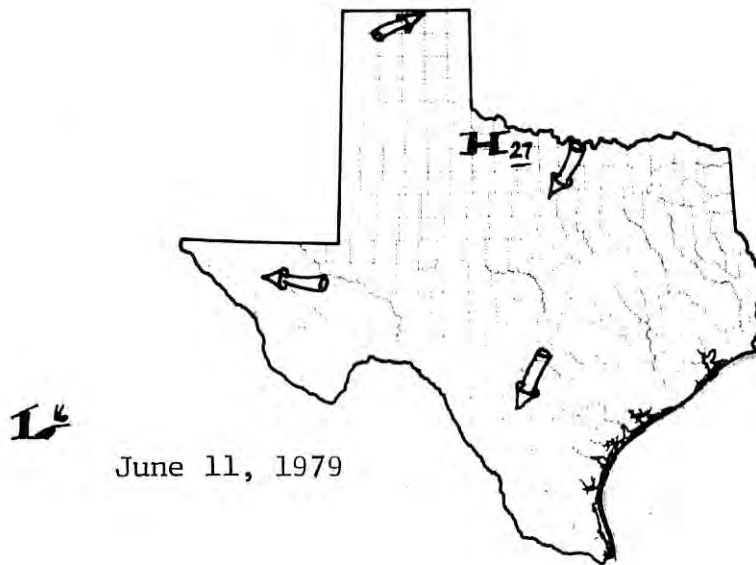
AUTO WX STATION: THREE ARE CALIBRATED. IT IS ESTIMATED THAT THREE PER DAY CAN BE CALIBRATED, CONSEQUENTLY WE ARE ESTIMATING ANOTHER WEEK BEFORE THEY ARE FULLY OPERATIONAL.

\*\*\*REMARKS\*\*\*

JOHN CARR DUE IN TOMORROW

TOWR PHOTOGRAPHER IS DUE IN TOMORROW.

RIGGIO



June 11, 1979

Weather Summary

A large surface high centered near Childress this morning, providing cool and quite dry air to the operational area. A strengthening upper-air ridge extends all the way to 300 mb. Air mass is quite stable. Skies are clear over the operational area.

Skies remained clear over the operational area throughout the forecast period. Convective temperature is 103°F; T<sub>max</sub> was 81°F.

June 11, 1979 (continued)  
Weather Observations

TIME  
(LDT)

---

0750 CLR T=59<sup>0</sup>F; WIND CALM

---

0850 CLR T=65<sup>0</sup>F; WIND CALM

---

0950 CLR T=69<sup>0</sup>F; WIND 110/09

---

1050 CLR T=72<sup>0</sup>F; WIND 060/04; FEW SML CU HUMILIS SW-S

---

\*\*\*\*\*TEXAS HIPLEX STATUS REPORT\*\*\*\*\*

VALID FOR JUNE 11, 1979

\*\*\*WEATHER SUMMARY\*\*\*

SKIES REMAINED CLEAR OVER THE OPERATIONAL AREA THROUGHOUT THE FORECAST PERIOD. OUTLOOK IS FOR CONTINUED CLEAR CONDITIONS FOR THE REMAINDER OF THE WEEK WHILE TEXAS REMAINS UNDER THE INFLUENCE OF RIDGING CONDITIONS AT 500 MB.

\*\*\*OPERATIONS\*\*\*

THE DAY WAS BRIEFED NON-OPERATIONAL FOR BOTH THE HIPLEX AND MESOSCALE PROGRAMS.

\*\*\*EQUIPMENT STATUS\*\*\*

SWR-75: OPERATIONAL

P-NAVAJO: ON BOARD COMPUTER IS DOWN BECAUSE OF A BAD CIRCUIT BOARD.

PAUL LAWSON IS DUE IN BGS TOMORROW.

MRI NAVAJO: IPC IS DOWN; ALL ELSE IS OPERATIONAL

RAWINSONDE: OPERATIONAL

AUTO WX STATIONS: FOUR STATIONS ARE CALIBRATED. THE A&M PERSONNEL HAVE INSTALLED 12 STATIONS AS OF LATE TODAY. WE UNDERSTAND THAT CSU IS RECEIVING A GARBLED SIGNAL FROM THE STATIONS.

ALL OTHER EQUIPMENT IS OPERATIONAL.

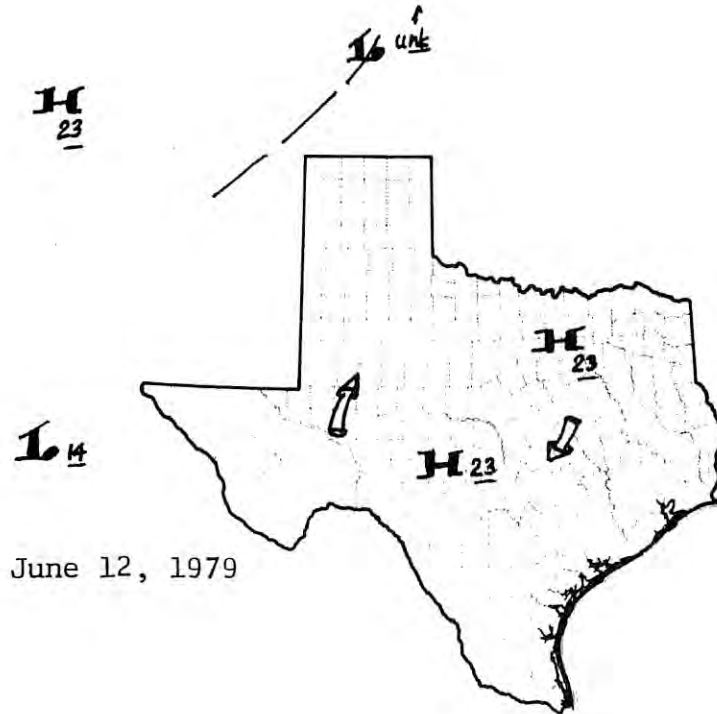
\*\*\*REMARKS\*\*\*

JOHN CARR REPLACED JIM SCOGGINS TODAY

TDMR PHOTOGRAPHER ARRIVED TODAY AND WILL BE HERE FOR ABOUT A WEEK.

THE P-NAVAJO COMPUTER TAPES WERE SHIPPED TO THE BUREAU VIA LARRY DAVIS TO BE DEGOSSED BY GLAZURA.

RIGGIO



June 12, 1979

Weather Summary

A large upper-air ridge pattern continues to dominate the weather. A 500 mb high centered over eastern Arizona is providing dry, warm and subsident air over the operational area. A surface high over North Central Texas is allowing weak and dry surface trajectories in the low levels from the Southwest. Air mass is very dry and quite stable.

Skies remained clear throughout the day.

June 12, 1979 (continued)  
Weather Observations

TIME  
(CDT)

---

0705 CLR T=58<sup>0</sup>F; WIND 160/04

---

0750 CLR T=62<sup>0</sup>F; WIND 170/06

---

0950 CLR T=70<sup>0</sup>F; WIND 200/07

---

\*\*\*\*\*TEXAS HIPLEX STATUS REPORT\*\*\*\*\*  
VALID FOR JUNE 12, 1979

\*\*\*WEATHER SUMMARY\*\*\*

A STRONG UPPER AIR RIDGE PATTERN CONTINUES TO DOMINATE THE BIG SPRING WEATHER. A 500 MB HIGH CENTERED 0

\*\*\*\*\*TEXAS HIPLEX STATUS REPORT\*\*\*\*\*  
VALID FOR JUNE 12, 1979

\*\*\*WEATHER SUMMARY\*\*\*

A STRONG UPPER AIR RIDGE PATTERN CONTINUES TO DOMINATE THE BIG SPRING WEATHER. A 500 MB HIGH CENTERED OVER EASTERN ARIZONA IS PROVIDING DRY, WARM AND SUBSIDENT AIR OVER THE OPERATIONAL AREA. WINDS IN THE LOW LEVELS ARE FROM THE SOUTHWEST. THE AIRMASS IS QUIET STABLE.

\*\*\*OPERATIONS\*\*\*

THE DAY WAS BRIEFED NON-OPERATIONAL FOR BOTH THE MESO-SCALE AND THE HIPLEX PROGRAMS.

\*\*\*EQUIPMENT STATUS\*\*\*

SWR-75: OPERATIONAL

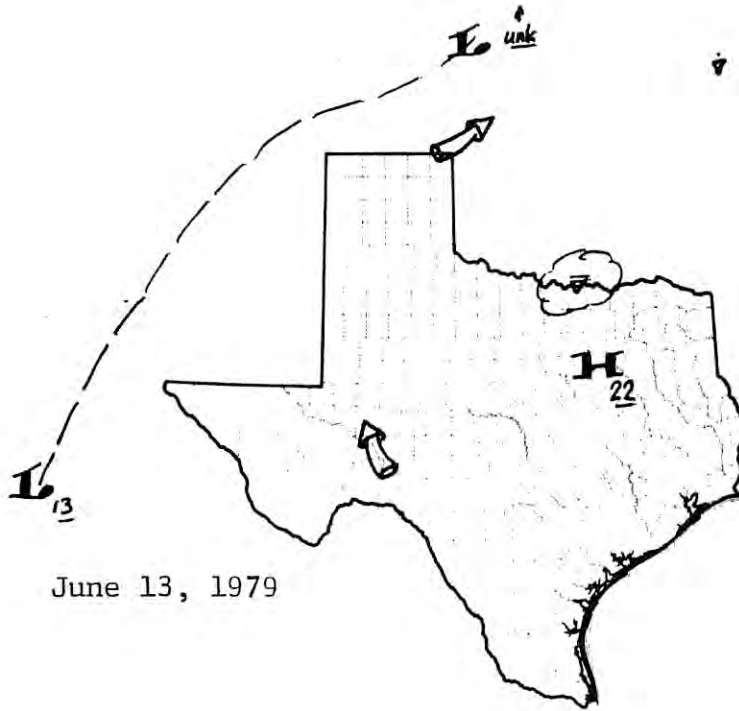
P-NAVAJO: LAWSON ARRIVED IN BIG SPRING THIS AFTERNOON WITH A NEW INTEGRATED CIRCUIT FOR THE ON BOARD COMPUTER. A TEST FLIGHT IS SCHEDULED FOR TOMORROW AM.

MRI-NAVAJO: IPC NON OPERATIONAL. SCHAFF DUE BACK FRIDAY.

RAWINSONDES: OPERATIONAL

AUTO WX STATIONS: AS OF THIS DAY PM 13 STATIONS HAVE BEEN INSTALLED AND ONLY 4 HAVE BEEN CALIBRATED.

RIGGIO



June 13, 1979

Weather Summary

A surface high centered near Tyler is providing light southwesterly surface flow into the operational area, and a 500 mb high over east central New Mexico is providing warm, dry and quite stable conditions in the upper air. No weather of significance within 500 miles of the operational area.

Skies once again remained clear over the operational area.



June 13 (continued)  
Weather Observations

TIME  
(CDT)

---

0755 CLR T=64<sup>0</sup>F; WIND 160/04

---

0955 CLR T=73<sup>0</sup>F; WIND 240/08

---

1055 CLR T=77<sup>0</sup>F; WIND 240/03

---

1355 CLR T=87<sup>0</sup>F; WIND 180/02

---

\*\*\*\*\*TEXAS HIPLEX STATUS REPORT\*\*\*  
VALID FOR JUNE 13, 1979

\*\*\*WEATHER SUMMARY\*\*\*

A SURFACE HIGH CENTERED NEAR TYLER IS PROVIDING LIGHT SOUTHEASTERLY SURFACE FLOW INTO THE OPERATIONAL AREA, AND A 500 MB RIDGE IS PROVIDING WARM DRY AND STABLE CONDITIONS IN THE UPPER AIR. NO SIGNIFICANT WEATHER WITHIN 500 MILES OF THE AREA.

\*\*\*OPERATIONS\*\*\*

THE WAS BRIEFED NON-OPERATIONAL FOR BOTH THE MESO-SCALE AND THE HIPLEX PROGRAMS.

\*\*\*EQUIPMENT STATUS\*\*\*

SWR-75: OPERATIONAL

P-NAVAJO: OPERATIONAL; THIS MORNINGS TEST FLIGHT WENT VERY WELL WITH NO PROBLEMS. THE COMPYTER REMAINED ON THE AIR. NO CLOUDS WERE IN THE AREA SO THE CLOUD PHYSICS INSTRUMENTATION WAS NOT TESTED, HOWEVER NO PROBLEMS ARE EXPECTED.

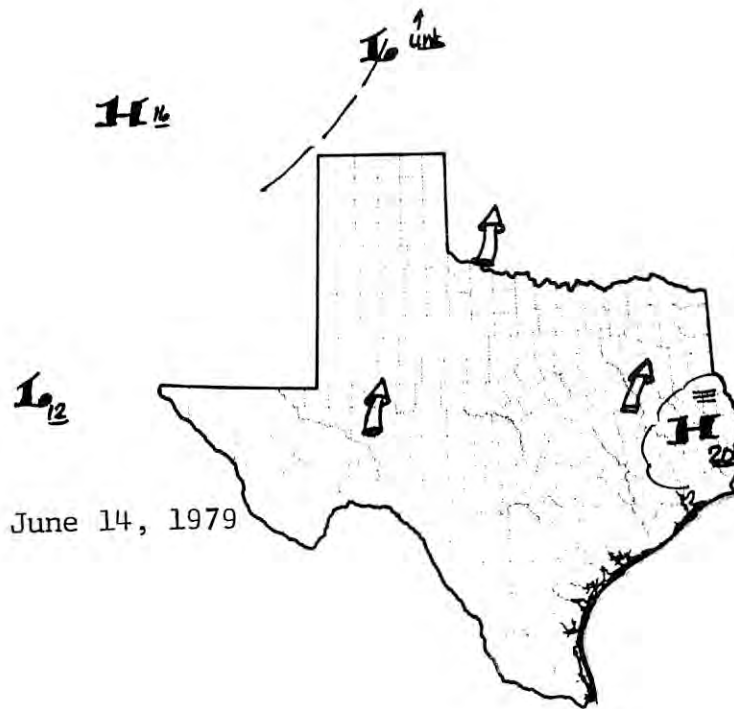
MRI NAVAJO: OPERATIONAL EXCEPT FOR THE IPC.

RAWINSONDE: OPERATIONAL

AUTO WX STATIONS: TEN STATIONS OF THE INNER NETWORK WERE CALIBRATED AND ARE ASSUMED OPERATIONAL. THE OUTER NETWORK STATIONS ARE BEING INSTALLED AND SHOULD BE READY FOR CALIBRATION BY SATURDAY.

ALL OTHER EQUIPMENT IS OPERATIONAL

RIGGIO



Weather Summary

A surface high centered near Lufkin is weakening and moving southeast with consequent southwesterly low level flow in operational area; little low level moisture is being provided. A 500 mb high centered over southeast New Mexico is providing dry and warm air aloft. Air mass remains quite stable, and skies are clear over the area.

Skies remained clear throughout the forecast period. However, some cirrus was noted by late afternoon on the west-north horizon, resulting from thunderstorm outflow in New Mexico.

June 14, 1979 (continued)  
Weather Observations

TIME  
(CDT)

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0750 CLR T = 63<sup>0</sup>F; WIND 190/10

---

0850 CLR T = 68<sup>0</sup>F; WIND 200/11

---

0950 CLR T = 78<sup>0</sup>F; WIND 210/16

---

1050 CLR T = 84<sup>0</sup>F; WIND 190/12

---

1655 CLR FEW CI NW; T = 96<sup>0</sup>F; WIND 220/15

---

\*\*\*\*\*TEXAS HIPLEX STATUS REPORT\*\*\*\*\*  
VALID FOR JUNE 14, 1979

\*\*\*WEATHER SUMMARY\*\*\*

A RIDGE OF HIGH PRESSURE CONTIUES TO DOMINATE THE TEXAS HIPLEX OPERATIONAL AREA. CLEAR SKIES AND HOT TEMPERATURES WERE OBSERVED THROUGHOUT THE PERIOD.

\*\*\*OPERATIONS\*\*\*

THE WAS BRIEFED NON-OPERATIONAL FOR BOTH THE HIPLEX AND THE MESOSCALE PROGRAMS.

\*\*\*EQUIPMENT STATUS\*\*\*

SWR-75: OPERATIONAL

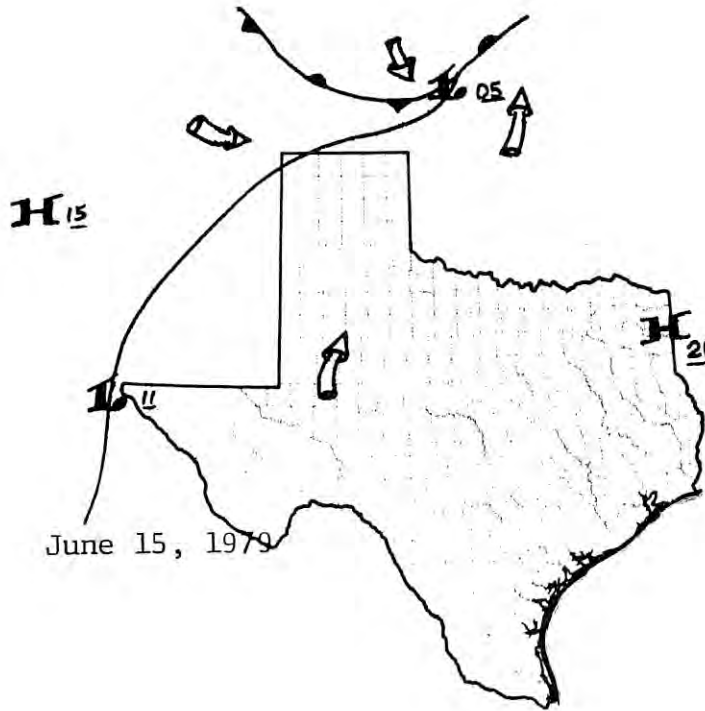
P-NAVAJO: OPERATIONAL

MRI-NAVAJO: OPERATIONAL EXCEPT FOR THE IPC. SCHAFF DUE BACK SATURDAY.

AUTO WX STATIONS: ELEVEN OF THE INNER MESONET STATIONS HAVE BEEN CALIBRATED. TARZAN STILL NEEDS TO BE CALIBRATED. WITH REGARDS TO THE OUTER NETWORK, BROWNFIELD AND TAHOKA ARE MISSING IR SHIELDS AND TAHOKA IS MISSING AN SATELLITE ANTENNA. ALL BELIEVED TO HAVE BEEN STOLEN IN THE FIELD. FOUR OF THE OUTED NETWORK STILL NEEDS TO BE INSTALLED AND SHOULD BE COMPLETED BY PM TOMORROW.

RAMINSONDES: OPERATIONAL; WE HAVE CONFIRMED HE DELIVERY OF 304 SONDES. READY.

BYE



Weather Summary

Dry southwesterly low level flow rakes the operational area this morning, as a surface trough is developing ahead of a weak Pacific front in Central New Mexico. The surface front, lying in the Central Plains and Rockies, is nearly stationary. Upper-level ridging continues over the operational area, with 500 mb high centered near Clovis. Air mass remains quite dry, warm and stable.

Skies remained clear throughout the day, with a few cirrus south-west-north during the afternoon and evening, mostly due to thunderstorms in Central New Mexico and northern Panhandle.

June 15, 1979 (continued)  
Weather Observations

TIME  
(CDT)

---

0855 CLR FEW CI SW; T = 72<sup>0</sup>F; WIND 190/17

---

0950 CLR FEW CI SW-W; T = 77<sup>0</sup>F; WIND 190/18

---

1150 CLR CI SW-W N; T = 87<sup>0</sup>F; WIND 180/21

---

\*\*\*\*\*TEXAS HIPLEX STATUS REPORT\*\*\*\*\*

VALID FOR JUNE 15, 1979

\*\*\*WEATHER SUMMARY\*\*\*

~~SWR-75 REMAINS OPERATIONAL THROUGHOUT THE DAY, WITH A FEW CIRRUS CLOUDS OBSERVED~~  
IN CENTRAL NEW MEXICO AND NORTHERN PAN HANDLE, MOSTLY DUE TO TRWS

\*\*\*OPERATIONS\*\*\*

THE DAY WAS BRIEFED NON-OPERATIONAL FOR BOTH THE HIPLEX AND MESOSCALE PROGRAMS.

\*\*\*EQUIPMENT STATUS\*\*\*

SWR-75: OPERATIONAL

P-NAVAJO: OPERATIONAL

MRI NAVAJO: OPERATIONAL EXCEPT FOR THE IPC

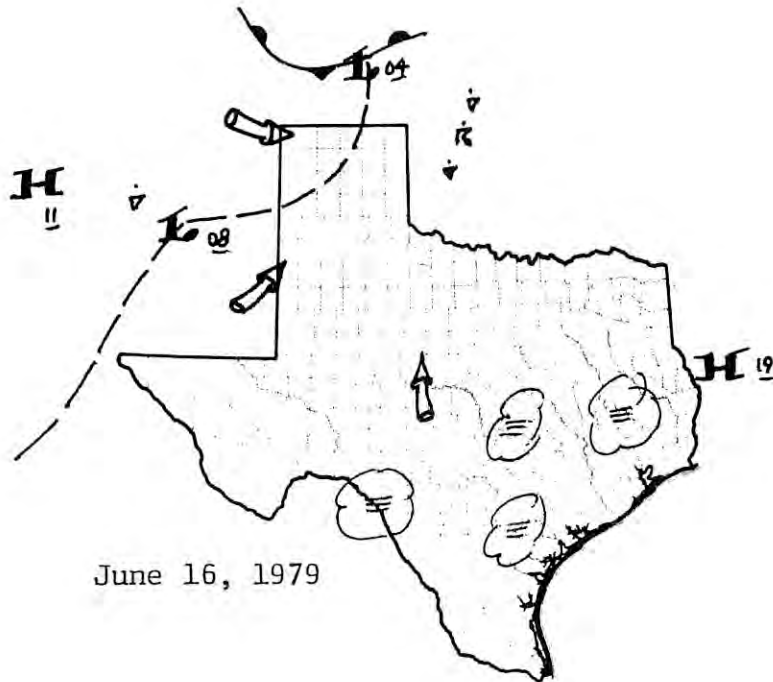
RAWINSONDES: OPERATIONAL

AUTO WX STATIONS: ALL OUTER NETWORK STATIONS ARE FULLY INSTALLED EXCEPT FOR BROWNFIELD, TADKA, AND COLORADO CITY. THE WIND RECORDING INSTRUMENT IS NON-OPERATIONAL FOR THE COLORADO CITY STATION. FOURTEEN OF THE STATIONS ARE NOW CALIBRATED.

\*\*\*REMARKS\*\*\*

ALL 304 RAWINSONDES FROM NOAA HAVE BEEN RECEIVED.  
RIGGIO





June 16, 1979

### Weather Summary

Weak short wave at 500 mb is providing mid-level cloudiness over the operational area. Dry low levels are producing no clouds, however. Surface trajectories are from the south-southeast over the operational area, and the air mass is dry and warm but slightly unstable. Scattered altocumulus are over the operational area.

Altocumulus and altocumulus castellanus occurred during the morning hours, but moved northeast prior to the forecast period. A few cirrus were noted by mid-afternoon. Scattered cirrus were over the operational area by early evening as a result of New Mexico thunderstorms. A few of these thunderstorms moved to the Texas-New Mexico border by dusk, dissipating shortly thereafter.

June 16, 1979 (continued)  
Weather Observations

TIME  
(CDT)

---

0755 CLR FEW CI S-W-N; FEW ACCAS DSNT W-NW; T = 69<sup>0</sup>F; WIND 170/20G27

---

0850 SCT AC; AC MUD IN RPDLY FM SW; T = 74<sup>0</sup>F; WIND 170/22G28

---

0950 SCT AC; VIRGA E-SE; T = 76<sup>0</sup>F; WIND 170/22; PK WND 1733/02

---

1050 SCT AC; VIRGA E; T = 80<sup>0</sup>F; WIND 170/24G34; PKWND 1734/25

---

VALID FOR JUNE 16, 1979

\*\*\*WEATHER SUMMARY\*\*\*

THE SKIES WERE MOSTLY CLEAR THROUGHOUT THE FORECAST PERIOD. SOME ANVIL BLOW OFF WAS OBSERVED WEST THROUGH NORTH.

\*\*\*OPERATIONS\*\*\*

THE WAS BRIEFED NON-OPERATIONAL FOR BOTH THE HIPLEX AND THE MESOSCALE PROGRAMS.

\*\*\*EQUIPMENT STATUS\*\*\*

SWR-75: OPERATIONAL

P-NAVAJO: OPERATIONAL; HOWEVER A TEST FLIGHT WILL BE SCHEDULED TO TEST THE CLOUD PHYSICS INSTRUMENTS AS SOON AS CLOUDS ARE AVAILABLE TO DO SO.

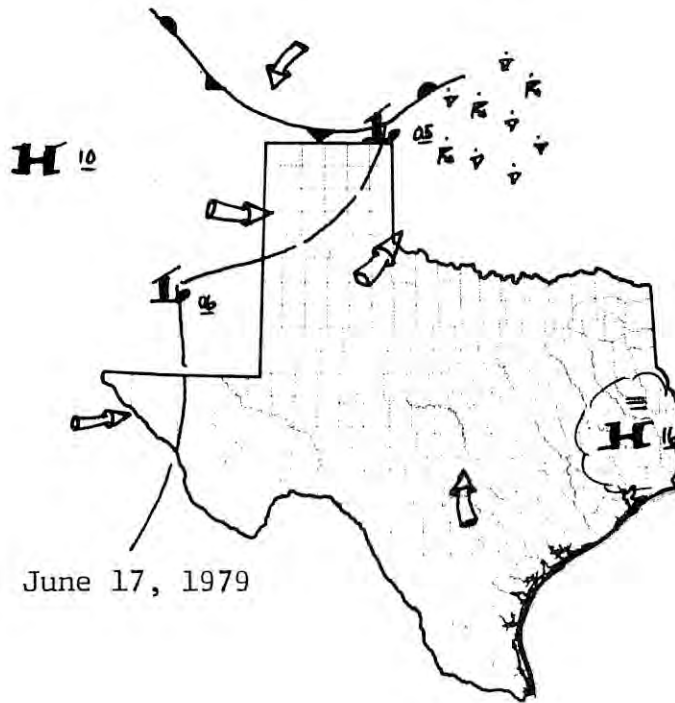
MRI NAVAJO: OPERATIONAL

WILSONSONDES: OPERATIONAL

AUTO WX STATIONS: ALL BUT FIVE STATIONS ARE CALIBRATED, HOWEVER, WE DO NOT KNOW HOW WELL THEY ARE TRANSMITTING. TAHOKA, AND BROWNFIELD NEED SHIELDS, AND MIDLAND AND REDLAKE NEED DCP. SEMINOLE WILL BE CALIBRATED TOMORROW.

ALL OTHER EQUIPMENT IS OPERATIONAL

RIGGIO



### Weather Summary

A strong southerly flow in the low levels over the operational area is advecting little moisture into the operational area. An area of altocumulus and altocumulus castellanus, left over from eastern New Mexico thunderstorms of yesterday, lies over the eastern portion of the operational area. The air mass is warm, slightly moist (but not in the low levels) and very slightly unstable. 500 mb ridging remains in vicinity. Dry line feature lies from the Texas Panhandle to south central New Mexico and Trans-Pecos Texas.

A few altocumulus and altocumulus castellanus were over the operational area, with some scattered cirrus by late morning. Altocumulus left area by late morning, but cirrus remained throughout forecast period. Although convective temperature was 100°F intense surface heating ( $T_{max} = 101^{\circ}F$ ) allowed development of altocumulus castellanus by mid-afternoon over the northern operational area.

June 17, 1979 (continued)  
Weather Observations

TIME  
(CDT)

---

0800 CLR CI S-SW; AC-ACCAS NE-SE-S; T = 72<sup>0</sup>F; WIND 180/19

---

0850 CLR AC, ACCAS E-S; CC-CI S-SW; T = 76<sup>0</sup>F; WIND 180/24G32

---

0950 CLR AC SE SW; CI SW-W; T = 78<sup>0</sup>F; WIND 190/20G31

---

1055 CLR AC E-SE & S; CIRRUS S-W; T = 82<sup>0</sup>F; WIND 180/17G23

---

1155 SCT CIRRUS; FEW AC SE; T = 87<sup>0</sup>F; WIND 200/15G24

---

1455 SCT CI; FEW AC DSNT N; T = 97<sup>0</sup>F; WIND 190/18

---

1750 SCT CIRRUS; FEW AC/ACCAS DSNT N; T = 101<sup>0</sup>F; WIND 210/16

---

\*\*\*\*\*TEXAS HIPLEX STATUS REPORT\*\*\*\*\*  
VALID FOR JUNE 17, 1979

\*\*\*WEATHER SUMMARY\*\*\*

HIGH CIRRUS CLOUDS WERE OBSERVED THROUGHOUT THE OPERATIONAL PERIOD.

\*\*\*OPERATIONS\*\*\*

THE DAY WAS BRIEFED NON-OPERATIONAL FOR BOTH THE MESOSCALE AND THE HIPLEX PROGRAMS.

\*\*\*EQUIPMENT STATUS\*\*\*

SWR-75: OPERATIONAL

P-NAVAJO: OPERATIONAL; STILL WAITING ON SUITABLE CLOUDS TO DEVELOP TO TEST OUT THE ON BOARD CLOUD PHYSIC INSTRUMENTATION.

MRI NAVAJO: IPC IS NON-OPERATIONAL, LAWSON WILL BE ASKED TO LOOK AT IT WHEN HE RETURNS TO BIG SPRING.

RAWINSONDES: OPERATIONAL

AUTO WX STATIONS: TWENTY STATIONS HAVE BEEN CALIBRATED. WE FEEL WE HAVE DONE ALL WE CAN UP TO THIS POINT.

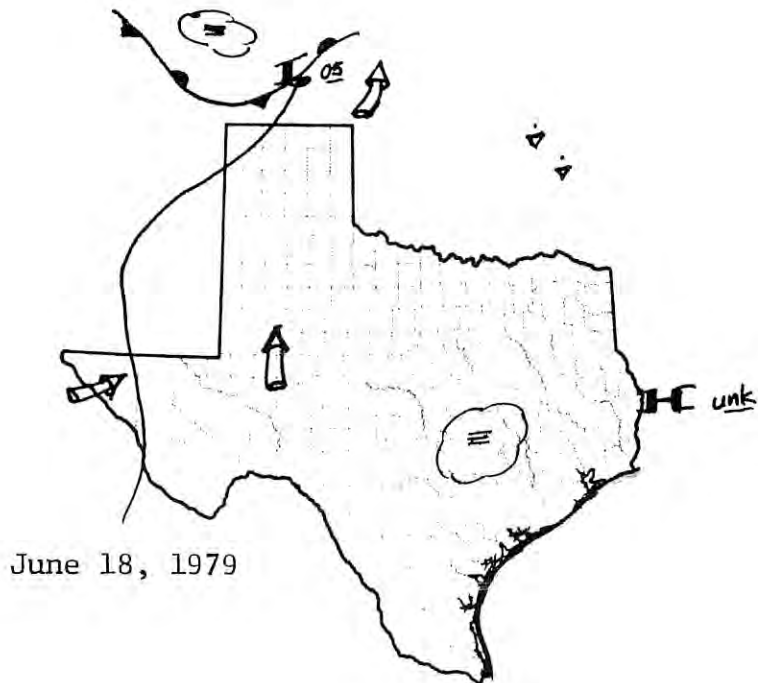
\*\*\*REMARKS\*\*\*

SCOGGINS IS DUE IN TOMORROW TO RELIEVE CARR.

LLOYD; I HAVE ONLY RECEIVED ONE BOX OF THE COMPUTER TAPES I SENT YOU TO BE DEGOSSED. I SENT YOU TWO BOXES.

RIGGID

RF



Weather Summary

Dry, low level conditions continue over the operational area, as southwesterly flow through 850 mb is advecting continental tropical air into the area. A weak, modified Pacific front lies stationary in the Central Plains, with a dryline dropping from a low on the front in southwest Kansas, through the Texas Panhandle, into south central New Mexico and Trans-Pecos Texas. Subsidence at 500 mb is beginning to enhance negative vertical motion over the region.

A few altocumulus were visible over eastern and far western portions of the operational area by late morning. By mid-afternoon, a scattered high cumulus/low altocumulus deck was over the operational area. Advection of dry air continued into the operational area during the afternoon, and by late afternoon the deck was altocumulus, with a few altocumulus castellanus and virga over the operational area.

June 18, 1979 (continued)  
Weather Observations

TIME  
(CDT)

---

0750           SCT CIRRUS; FEW CC OVHD-NW; T = 72<sup>0</sup>F; WIND 170/13

---

0955           SCT CIRRUS; T = 79<sup>0</sup>F; WIND 190/15

---

1050           CLR FEW CIRRUS N; FEW AC W; T = 84<sup>0</sup>F; WIND 180/12

---

1450           SCT CU/AC; T = 96<sup>0</sup>F; WIND 240/11

---

1655           SCT AC; FEW ACCAS W/VIRGA OVHD; T = 100<sup>0</sup>F; WIND 230/12

---



♦♦♦♦♦TEXAS HIPLEX STATUS REPORT♦♦♦♦♦  
VALID FOR JUNE 18, 1979

♦♦WEATHER SUMMARY♦♦

A FEW AC WERE VISIBLE OVER EASTERN AND FAR WESTERN PORTIONS OF THE OPERATIONAL AREA BY LATE MORNING. BY MID-AFTERNOON, A SCATTERED HIGH CUMULUS/ LOW AC DECK WAS OVER THE OPERATIONAL AREA. ADVECTION OF DRY AIR CONTINUED INTO THE OPERATIONAL AREA DURING THE AFTERNOON, AND BY LATE AFTER. NOON ACCAS WITH VIRGA WAS OBSERVED OVER THE OPERATIONAL AREA.

♦♦OPERATIONS♦♦

THE DAY WAS BRIEFED NON-OPERATIONAL FOR BOTH THE HIPLEX AND THE MESO-SCALE PROGRAMS.

♦♦EQUIPMENT STATUS♦♦

SMR-75: OPERATIONAL

P-NAVAJO: OPERATIONAL

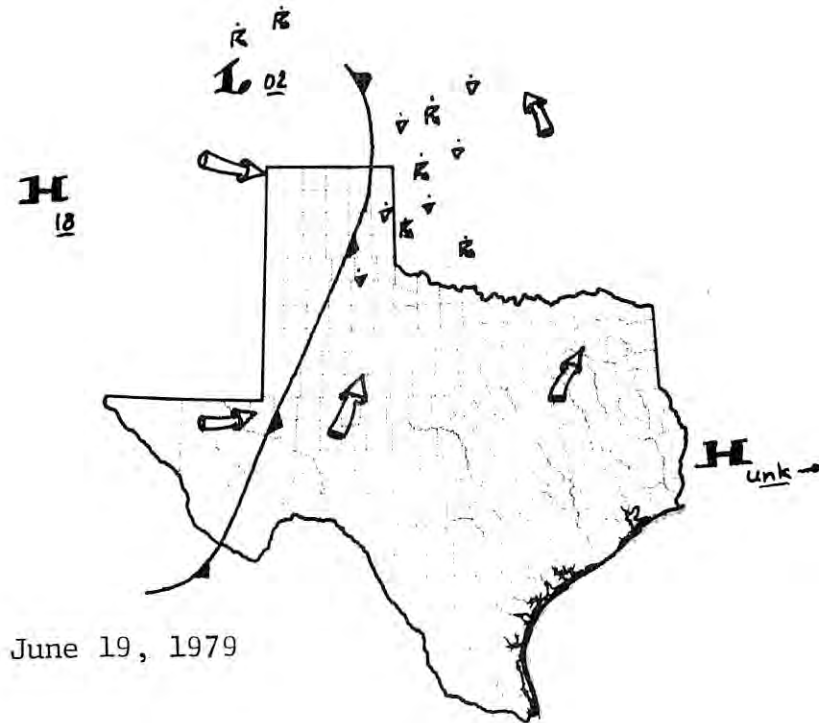
MRI NAVAJO: IPC DOWN; THE REST OPERATIONAL. BOB SCHAFF HAS RETURNED. MARK HUMBERT WILL BE REPLACING DON T. ON WEDNESDAY FOR THE REMAINDER OF THE OPERATIONAL PERIOD.

AUTO WX STATIONS: HARRISON AND THE MESONET PERSONNEL ARRIVED AND WILL BEGIN WORKING ON ALL THE STATIONS TOMORROW. WE UNDERSTAND THAT SOME OF THE INSTRUMENTS ON ALL THE STATIONS NEED TO BE RECALIBRATED.

RAWINSONDES: OPERATIONAL

♦♦REMARKS♦♦

SCOGGINS REPLACED CARR FOR THIS WEEKS OPERATIONS  
RIGGID



Weather Summary

A moderate Pacific front is moving east-southeast, lying from southwestern Kansas across the Texas Panhandle and into the Big Bend. A few thunderstorms are occurring in the eastern Panhandle and northwestern Oklahoma. The air mass is moist and warm but slightly stable. Mid-level moisture (700 to 500 mb) is abundant, but low levels are quite dry.

Altostratus and altostratus castellanus were observed over the operational area during the morning hours. By early afternoon, the cool front had moved to a position just east of Big Spring. A few light sprinkles were observed over the operational area early afternoon, but cloud bases were 14000 to 15000 feet. The balance of the forecast period remained scattered skies with altostratus and altostratus castellanus.

June 19, 1979 (continued)  
Weather Observations

TIME  
(CDT)

---

0700 SCT AC; FEW ACCAS SE; CLR OVHD; AS DSNT W; T = 74<sup>0</sup>F;  
WIND 180/16G22

---

0755 CLR AC/ACCAS SE-W; T = 76<sup>0</sup>F; WIND 180/20

---

0855 SCT AC; FEW ACCAS S-SW; T = 78<sup>0</sup>F; WIND 200/17

---

0955 SCT AC; ACCAS ALQDS; T = 82<sup>0</sup>F; WIND 200/15G21

---

1100 SCT AC; T = 85<sup>0</sup>F; WIND 220/15

---

1150 SCT AC; LN SML ACCAS W; T = 89<sup>0</sup>F; WIND 270/13

---

1350 SCT AC/ACCAS; T = 94<sup>0</sup>F; WIND 280/09G20

---

1550 SCT AC; ACCAS N; T = 97<sup>0</sup>F; WIND 220/10

---

\*\*\*\*\*TEXAS HIPLEX STATUS REPORT\*\*\*\*\*

VALID FOR JUNE 19, 1979

\*\*\*WEATHER SUMMARY\*\*\*

AC AND ACCAS WERE OBSERVED OVER THE OPERATIONAL AREA DURING THE MORNING HOURS. BY EARLY AFTERNOON, THE COOL FRONT HAD MOVED TO A POSITION JUST EAST OF BIG SPRING. A FEW LIGHT SPRINKLES WERE OBSERVED OVER THE OPERATIONAL AREA DURING THE AFTERNOON, BUT CLOUD BASES WERE 14K TO 15K FT. THE REMAINDER OF THE FORECAST PERIOD HAD SCATTERED AC AND ACCAS.

\*\*\*OPERATIONS\*\*\*

THE MESOSCALE PROGRAM WAS INITIATED BUT WAS TERMINATED AFTER THE SECOND LAUNCH DUE TO DRYING CONDITIONS. THE HIPLEX CREW WAS ON STAND-BY UNTIL 1500 LDT AT WHICH TIME HIPLEX OPERATIONS WERE CALLED OFF.

\*\*\*EQUIPMENT STATUS\*\*\*

SWR-75: OPERATIONAL

P-NAVAJO: "OPERATIONAL"; STILL NO CLOUDS TO TEST THE CLOUD PHYSICS INSTRUMENTS.

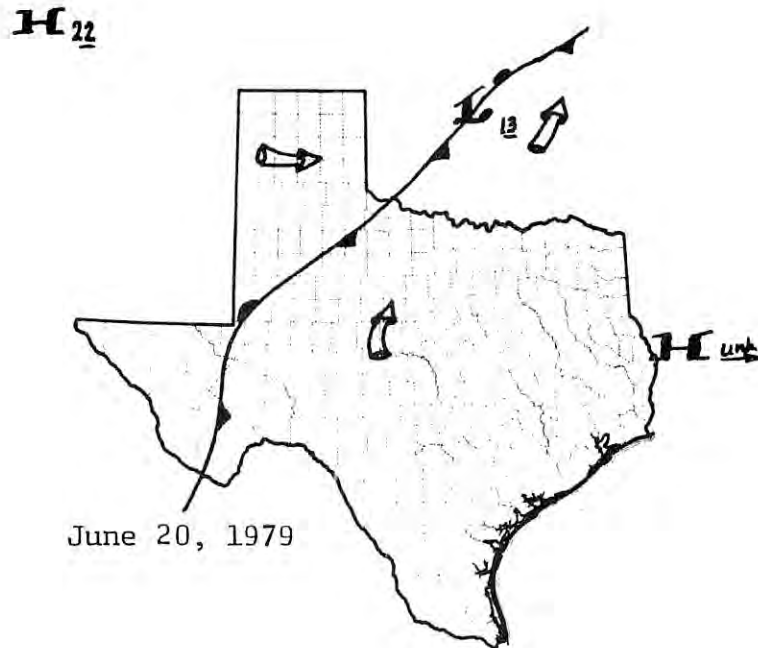
MRI-NAVAJO: ALL OPERATIONAL EXCEPT THE IPC. SCHAFF BELIEVES THE PROBLEM IS A DESIGN PROBLEM THAT LAWSON WOULD NEED TO LOOK INTO. WHEN LAWSON RETURNS TO BIG SPRING WE WILL ASK HIM TO LOOK AT THE IPC ON THE MRI NAVAJO.

RAWINSONDES: MINOR PROBLEMS OCCURED AT STERLING CITY AND SNYDER, HOWEVER, THEY CAN BE RESOLVED WITH LITTLE DIFFICULTY.

AUTO WX STATIONS: THE AUTO WX STATION PERSONNEL BRIEFED THE AGGIES THIS MORNING AND ALL BEGAN WORK IN THE FIELD THIS AFTERNOON. ESTIMATED TIME OF COMPLETION IS EARLY NEXT WEEK.

RIGGID

\*\*\*\*\*



### Weather Summary

A surface front which passed the area yesterday afternoon has now receded northwest, and is now lying from near Childress to south of Lubbock, west of Hobbs and Wink to near Marfa. Low levels are quite moist, but the airmass is dry above 850 mb. The air mass is warm, slightly dry and slightly unstable.

Skies were clear during the morning hours with convective temperature of 94°F, first cumulus was noted at 1300 CDT. Scattered cumulus remained throughout the afternoon. The surface front began moving over the operational area by very late afternoon, forcing low level moisture into the airmass. Towering cumulus were noted by 1800 and several small convective complexes, maximum tops near 25,000 ft., developed just northeast of Big Spring. By 00Z, tops were 50,000 ft.

June 20, 1979 (continued)  
Weather Observations

TIME  
(CDT)

---

0750 CLR T = 74<sup>0</sup>F; WIND 190/10

---

0850 CLR ST FRMG S; T = 78<sup>0</sup>F; WIND 180/10G20

---

0950 CLR T = 82<sup>0</sup>F; WIND 190/14

---

1100 CLR T = 86<sup>0</sup>F; WIND 190/10

---

1355 SCT CUMULUS, T = 95<sup>0</sup>F; WIND 200/06

---

7L131

\*\*\*\*\*TEXAS HIPLEX STATUS REPORT\*\*\*\*\*  
VALID FOR JUNE 20, 1979

\*\*\*WEATHER SUMMARY\*\*\*

SKIES WERE CLEAR DURING THE MORNING HOURS. FIRST CUMULUS WAS NOTED AT 1300 CDT AND REMAINED THROUGHOUT THE AFTERNOON. A SURFACE FRONT BEGAN MOVING OVER THE OPERATIONAL AREA BY LATE AFTERNOON, FORCING LLM INTO THE AIRMASS. BY 1800 CDT TCU WERE OBSERVED NE OF BIG SPRING, AND BY 1900 CDT THE ACTIVITY DEVELOPED TO TRWS WITH TOPS AT 50K FT.

\*\*\*OPERATIONS\*\*\*

THE DAY WAS BRIEFED NON-OPERATIONAL FOR BOTH THE HIPLEX AND THE MESOSCALE PROGRAMS. A FLIGHT TEST OF THE P-NAVAJO WAS INITIATED.

\*\*\*EQUIPMENT STATUS\*\*\*

SWR-75: OPERATIONAL  
P-NAVAJO: THE VOR RECORDED INTERMITTENTLY AND THE IPC RECORDED ICE PARTICLES OUTSIDE THE CLOUD IN THE CLEAR AIR. ALL OTHER INSTRUMENTS FUNCTIONED SATISFACTORILY.

MRI-NAVAJO: OPERATIONAL EXCEPT FOR THE IPC.

AUTO WX STATIONS: HARRISON AND CREW WORKING OUT IN THE FIELD. STATUS UNKNOWN.

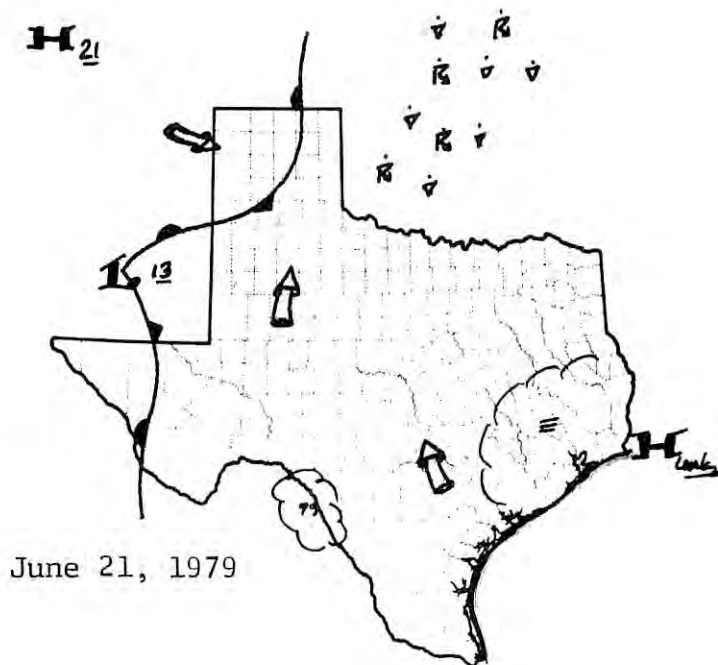
RAWINSONDES: OPERATIONAL

\*\*\*REMARKS\*\*\*

FRAN, BOB P. AND LORRAN N. FROM THE BUREAU ARRIVED TODAY.

R16610

CCCNORMAL



### Weather Summary

A Pacific front lies nearly stationary from southwestern Kansas southwest to near Roswell, then south to west of central New Mexico and Marfa. Low level moisture is ample. The air mass is warm, moist and unstable.

Skies remained clear throughout the morning and early afternoon hours, with a line of large cumulonimbi building to the southwest horizon. By 1600, line of towering cumuli began developing near the northwest portion of the operational area. Also at 1600 the local area began observing small cumuli.

Echoes began developing on radar by 1630, and maximum tops of 20,000 ft. were recorded at this time.



June 21, 1979 (continued)  
Weather Observations

TIME  
(CDT)

---

0810	BKN CI-CS; T = 76 <sup>0</sup> F; WIND 170/10G19; HAZY S-W
------	--

---

0855	SCATTERED CI-CS; T = 80 <sup>0</sup> F; WIND 180/18; FEW AC W
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---

0950	SCT CI; FEW AC SW-W; T = 81 <sup>0</sup> F; WIND 170/17
------	---

---

1050	THN SCT CI; T = 86 <sup>0</sup> F; WIND 160/14G20
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---

1355	CLR; FEW CI N-E-S; CB HRZN SW; T = 94 <sup>0</sup> F; WIND 180/13
------	---

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1455	CLR; CB HRZN SW; T = 95 <sup>0</sup> F; WIND 200/15
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---

1550	CLR; TCU LN BLDG NW-NNW; T = 97 <sup>0</sup> F; LN CB DSNT SW-W; WIND 180/12
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\*\*\*\*\*TEXAS HIPLEX STATUS REPORT\*\*\*\*\*  
VALID FOR JUNE 21, 1979

\*\*\*WEATHER SUMMARY\*\*\*

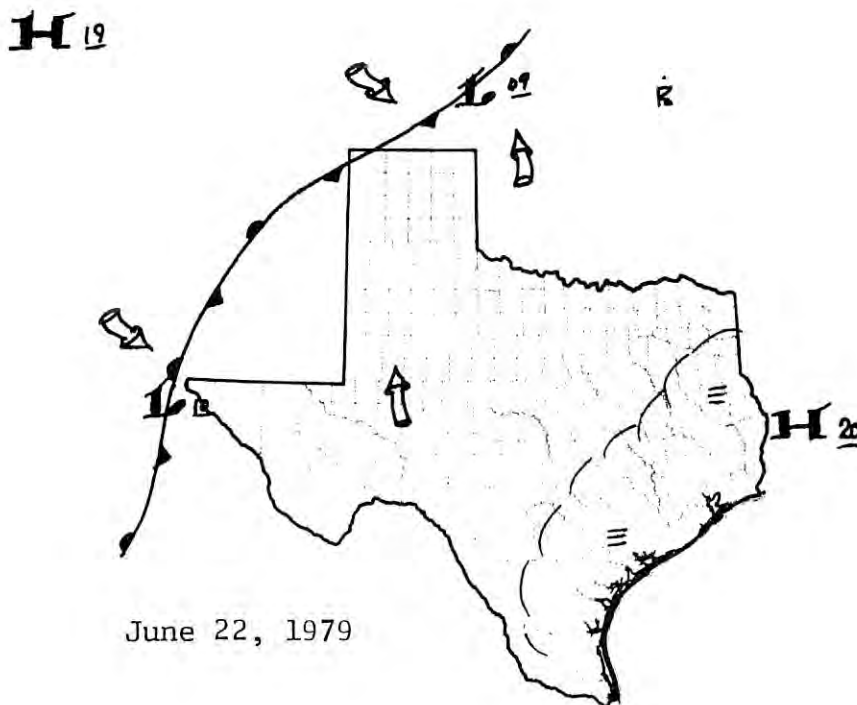
SKIES REMAINED CLEAR THROUGHOUT THE MORNING AND EARLY AFTERNOON. A LINE OF CBS WAS OBSERVED BUILDING ON THE SW HORIZON. BY 1600 CDT, A LINE OF RWS WAS OBSERVED DEVELOPING OUTSIDE THE NW PORTION OF THE OPERATIONAL AREA. THIS ACTIVITY REMAINED OUTSIDE THE OPERATIONAL AREA THROUGHOUT THE PERIOD.

\*\*\*OPERATIONS\*\*\*

THE DAY WAS BRIEFED OPERATIONAL FOR BOTH THE MESOSCALE AND THE HIPLEX PROGRAMS. THE BALLOON LAUNCHS WERE TERMINATED AT 0000 Z DUE TO DRYING CONDITIONS. THE HIPLEX CREWS WERE PLACED ON STAND-BY UNTIL 0000 Z AT WHICH TIME IT WAS CANCELLED BECAUSE OF THE LACK OF ANY WORKABLE CLOUDS.

\*\*\*EQUIPMENT STATUS\*\*\*

SMR-75: OPERATIONAL  
P-NAVAJO: OPERATIONAL EXCEPT FOR THE IPC AND VDR. CIC WILL BE INFORMED OF THE PROBLEMS AND REQUESTED TO SEND SOMEONE TO BGS TO REPAIR THE INSTRUMENTS.  
MRI-NAVAJO: OPERATIONAL EXCEPT FOR THE IPC  
RAWINSONDES: ALL OPERATIONAL EXCEPT FOR STERLING CITY  
AUTO WX STATIONS: WORK CONTINUES  
RIGGID



Weather Summary

The Pacific front remains stationary from southwestern Kansas, Panhandle and into central New Mexico. The air mass is very dry and stable.

The skies were mostly clear with some scattered cirrus during the morning. Widely scattered cumulus were first observed by 1230 CDT and remained throughout the afternoon. By late afternoon skies were broken with heavy cirrus, probably blow-off from thunderstorms which developed along the Texas-New Mexico border.

June 22, 1979 (continued)  
Weather Observations

TIME  
(CDT)

---

0000          LOW 71; HIGH 99

---

1330          T = 92<sup>0</sup>F; SC SCATTERED; CI SCATTERED; WINDS 150/15

---

\*\*\*\*\*TEXAS HIPLEX STATUS REPORT\*\*\*\*\*

VALID FOR JUNE 22 3, 1979

\*\*\*WEATHER SUMMARY\*\*\*

THE SKIES WERE MOSTLY CLEAR WITH SCATTERED CIRRUS DURING THE MORNING HOURS. WIDELY SCATTERED CUMULUS WAS FIRST OBSERVED BY 1230 CDT AND REMAINED IN THE OPERATIONAL AREA THROUGHOUT THE PERIOD. BY LATE AFTERNOON THE SKIES WERE BROKEN WITH HEAVY CIRRUS BLOW OFF FROM A LINE OF TRWS WHICH DEVELOPED ALONG THE TEXAS NEW MEXICO BORDER.

\*\*\*OPERATIONS\*\*\*

THE DAY WAS BRIEFED NON-OPERATIONAL FOR BOTH THE HIPLEX AND THE MESOSCALE PROGRAMS.

\*\*\*EQUIPMENT STATUS\*\*\*

SWR-75: OPERATIONAL

P-NAVAJO: IPC WILL BE TESTED TODAY IF CLOUDS ARE AVAILABLE. ALL OTHER INSTRUMENTS ARE SEEMINGLY OPERATIONAL

MRI-NAVAJO: OPERATIONAL; THE IPC WAS REPAIRED.

RAWINSONDES: OPERATIONAL EXCEPT FOR THE STERLING CITY SONDE.

AUTO MX STATIONS: MOST STATIONS ARE BROADCASTING. SOME PROBLEMS EXIST WITH A FEW.

RIGGID

-END OF FILE-

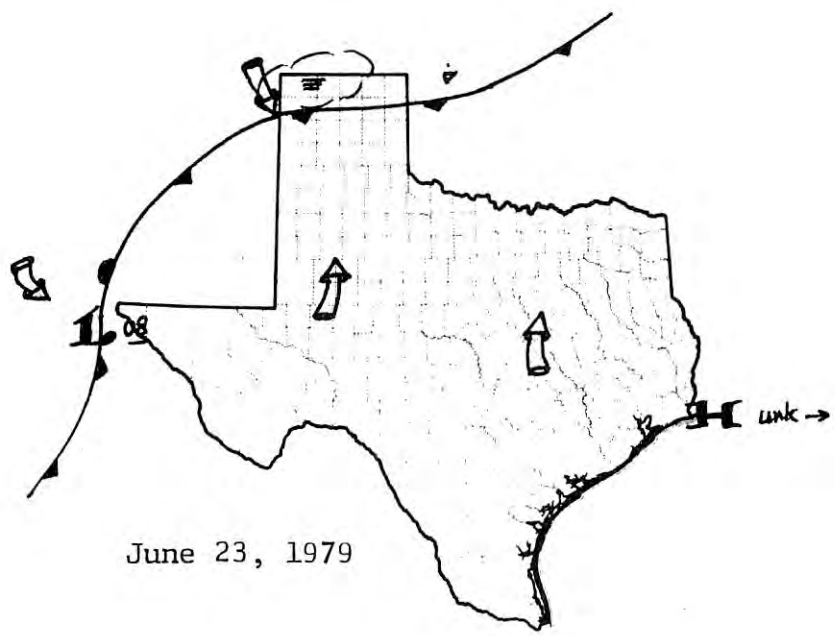
? END

END TEXT EDITING.

READY.

REPLACE

READY.



June 23, 1979

(Weather summary not available)

June 23, 1979 (continued)  
Weather Observations

TIME  
(CDT)

---

HIGH 98<sup>0</sup>F; LOW 77<sup>0</sup>F

---

0900 SC SCATTERED; CI OVERCAST; 78<sup>0</sup>F; WINDS 180/25

---

1230 CI SCATTERED; 89<sup>0</sup>F; WINDS 150/20

---

79/06/24. 09.21.09.  
PROGRAM TEXP34

\*\*\*\*\*TEXAS HIPLEX STATUS REPORT\*\*\*\*\*  
VALID FOR JUNE 23, 1979

:::WEATHER SUMMARY:::

HIGH CIRRUS WAS OBSERVED OVER THE OPERATIONAL AREA THROUGHOUT THE  
THE FORECAST PERIOD. A LINE OF TRWS DEVELOPED ALONG  
A STATIONARY FRONT LOCATED THROUGH THE PAN HANDLE AND INTO EASTERN NEW  
MEXICO. BY 1900 CDT THE FRONT BEGAN TO MOVE EASTWARD BRINGING THE TRW  
ACTIVITY WITH IT INTO THE WESTERN EXTREME PORTION OF THE OPERATIONAL AREA.  
TRWS WERE REPORTED IN THE OPERATIONAL AREA BY APPROXIMATLY 2000 CDT.

\*\*\*OPERATIONS\*\*\*

THE DAY WAS BRIEFED NON-OPERATIONAL FOR THE MESOSCALE PROGRAM. THE HIPLEX  
CREWS WERE PLACED ON STANDBY UNTIL 1600 CDT. A SEVERE WEATHER WATCH  
WAS ISSUED FOR THE WESTERN PORTION OF THE OPERATIONAL AREA CANCELING  
HIPLEX OPERATIONS.

\*\*\*EQUIPMENT\*\*\*

SWR-75: OPERATIONAL

P-NAVAJO: IPC STILL NEEDS TO BE TESTED, HOWEVER, THE OTHER INSTRUMENTS  
ARE OPERATIONAL.

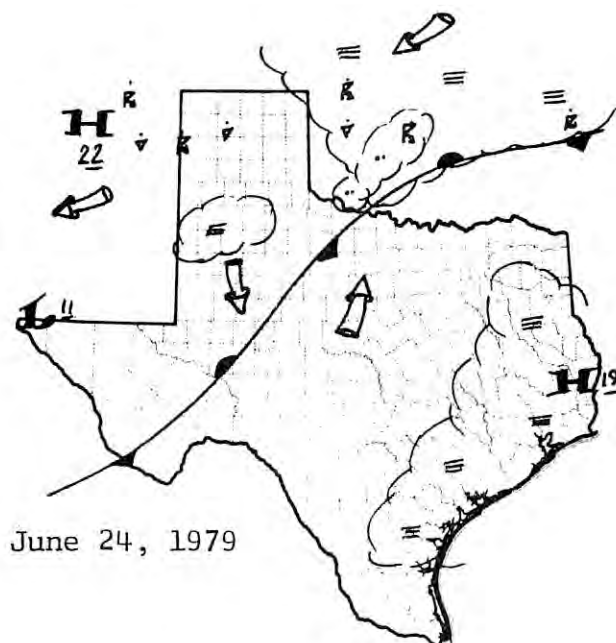
MRI-NAVAJO: OPERATIONAL

AUTO WX STATIONS: 18 STATIONS ARE REPORTING GOOD DATA, HOWEVER THE OTHER  
7 ARE REPORTING INTERMITTENTLY. WE THINK IT IS A  
TIMING PROBLEM FOR SOME OF THE 7 STATIONS.

RAWINSONDES: STERLING CITY IS NON-OPERATIONAL; THE REST ARE OPERATIONAL.  
RIGG10  
READY.

CHANGE, TEXP34/CT=PU  
READY.





June 24, 1979

### Weather Summary

A stationary Pacific front lies northeast-southwest from west of Wichita Falls to Big Spring to near Marfa. A few altocumulus castellanus are over the operational area, and numerous thunderstorms are occurring in Oklahoma. A 500 mb short wave exists in the southern Panhandle and also a minor perturbation in central Texas. The air mass ahead of the front is slightly cool, quite moist and slightly unstable. The front lies directly over the operational area.

A high scattered cirroform deck was over the operational area through the morning hours, and a cumulus layer developed by 1000 CDT. A scattered cumuloform deck remained throughout the forecast period. By mid-afternoon, however, altocumulus castellanus began developing in the northwestern portion of the operational area. Several small rainshowers were noted in the northwestern portion of the operational area during the afternoon, but most bases were 15-16K. A few rainshowers with low (7500') bases occurred.

June 24, 1979 (continued)  
Weather Observations

TIME  
(CDT)

---

0800        SCT CS; FEW AS SW-NW; ACCAS SW; T = 74<sup>0</sup>F; WIND 050/04

---

0900        SCT AC; CI SW-W; LWR SC-CU S-SW; T = 78<sup>0</sup>F; WIND 030/05

---

1005        SCT CU; SCT AC; FEW CI; T = 80<sup>0</sup>F; WIND 165/02

---

1055        THN SCT CUMULUS HUMILIS; FEW CS DSNT S; T = 83<sup>0</sup>F;  
WIND 210/05

---

1500        SCT CUMULUS; ACCAS WNW-NW; RWU DSNT NW; FEW CI-CS NW;  
T = 91<sup>0</sup>F; WIND 330/02

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\*\*\*\*\*TEXAS HIPLEX STATUS REPORT\*\*\*\*\*  
VALID FOR JUNE 24, 1979

\*\*\*WEATHER SUMMARY\*\*\*

A HIGH SCATTERED CIRROFORM DECK WAS OBSERVED OVER THE OPERATIONAL AREA DURING THE AM. A CUMULUS LAYER NEXT DEVELOPED BY 1000 CDT. THE SCATTERED CUMULUS DECK REMAINED THROUGHOUT THE FORECAST PERIOD. BY MID AFTERNOON ACCAS BEGAN TO DEVELOP IN THE NW PORTION OF THE OPERATIONAL AREA. SEVERAL SMALL RAINSHOWERS WERE NOTED IN THE NW PORTION OF THE OPERATIONAL AREA DURING THE AFTERNOON, BUT MOST BASES WERE OBSERVED TO BE AT 15-16K FT. A FEW RWS WITH LOW (7500 FT) BASES OCCURED.

\*\*\*OPERATIONS\*\*\*

THE DAY WAS BRIEFED OPERATIONAL FOR BOTH THE MESOSCALE AND THE HIPLEX PROGRAMS. RAWINSONDES WERE LAUNCHED THROUGHOUT THE PERIOD.

\*\*\*EQUIPMENT STATUS\*\*\*

SMR-75: OPERATIONAL

P-NAVAJO: A TEST FLIGHT WAS MADE DURING THE AFTERNOON. THE 9-TRACK RECORDER WAS NOT OPERATIONAL, AND THE ROSEMONT AND PRESSURE RECORDING INSTRUMENTS DID NOT FUNCTION, AS WELL AS THE JW. THE REST WERE OPERATIONAL.

MRI NAVAJO: OPERATIONAL

RAWINSONDES: ALL OPERATIONAL EXCEPT THE STERLING CITY SONDE. IT SHOULD BE OPERATIONAL TOMORROW.

\*\*\*REMARKS\*\*\*

CARR WILL REPLACE SCOGGINS TOMORROW FOR THE WEEK AND BOMAR WILL REPLACE RIGGIO FOR THE WEEK.

AUTO WX STATIONS: 17 WERE BROADCASTING GOOD DATA. THE REMAINDER WERE SENDING INTERMITTENTLY GOOD DATA.

RIGGIO

1979 TEXAS HIPLIX - AIRCRAFT OBSERVER LOG

Date 24 June 1979 Pilot(s) Roberts Time at -5C (CDT) \_\_\_\_\_  
 Flight 1 Observer Long Time at -10C (CDT) \_\_\_\_\_  
 Aircraft p-Navajo Instrument Operator Long Time at Initial Point (CDT) \_\_\_\_\_  
 Takeoff Time (CDT) 150718  
 Landing Time (CDT) 162445

Data Tape No. no tape obtained  
 nine-track tape recorder down

Temp (°C) and Dewpoint Profile (1000 ft.)

	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	
ASDG T	30*	23*	23.6	20.2	17.1	15*	12*	10*		9*	6*	3*		0*	-3*	-6*	-8*	-10*							
ASDG T <sub>d</sub>			10.7	11.2	8.2																				
DSDG T																									
DSDG T <sub>d</sub>																									

A	D
Cld Base (1000 ft)	Cld Base (1000 ft)

Nine-track tape recorder would not operate at all on this flight. Any data that were recorded will appear on the data cassette.

\* Temperatures denoted by asterisk obtained with aircraft's own thermometer rather than with data system reverse flow probe.

Date: 24 June 1979

Aircraft: p - Navajo

1979 TEXAS HI PLEX - AIRCRAFT OBSERVER LOG

Time In	Time Out	Cld or Turret No.	Pass No.	Hdg	Speed	VOR/DME	Alt in (ft)	Alt Out	Comments (Cld Temp, U/Down, Turb, LWC, Ice, No. Flares, etc.)
1517						/	7500		Power off to CRT, keyboard, computer, cassette taperecorder penetrated a small cumulus. There is a field of cumulus at this level. Cloud about 300 ft. deep. A higher layer of small cu above.
1540						/			We have been flying over a field of alto-cumulus with tops at about 24000 ft. Above that level tops fall apart. There is also a definite top to a haze layer at 24000 ft. All this suggests a dry layer and an inversion at about 23-24000 ft.
1552						/			Data system up again except for nine-track tape recorder.
160413						/			First appearance of ice crystals for 4 seconds.
160630						/			Hundreds of ice crystals. No IW LWC or total water content. IPC may be working.
1609						/			VOR is noisy. All digits are fluctuating.
161058						/			Considerable ice. Very little if any liquid water.
1611						/			Pressure, indicated airspeed, and Rosemount temperature all down.
1612						/			Hundreds of ice crystals per liter. JW LWC of about 0.5 to 1 gm <sup>-3</sup> . Total water content device output in clear air.
						/			
						/			
						/			
						/			
						/			

MRI

HIPLEX NAVAJO LOG-1979

Date: June 25, 1979

Page No. 1 of 2

Site: Big Spring, Texas

Observer Humbert

Tape No. 909

Take Off Time 1429 Land Time 1636

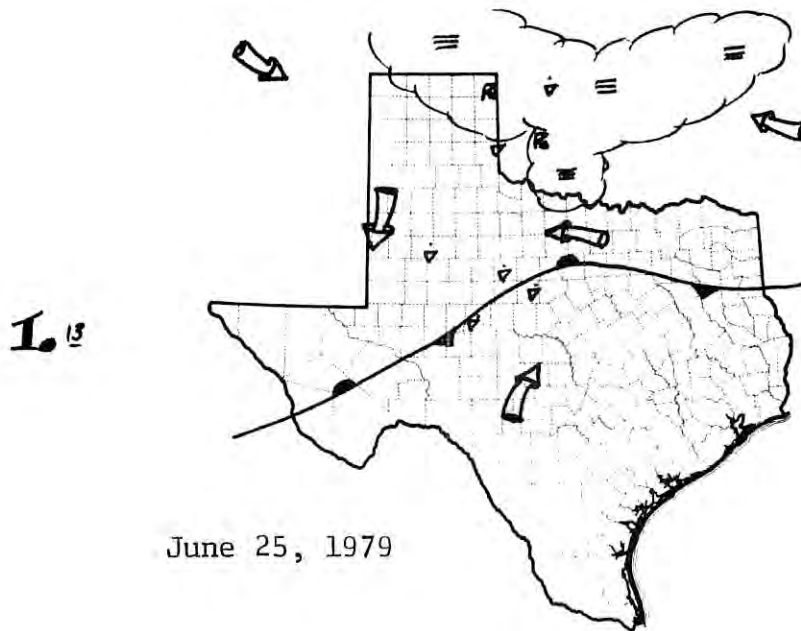
BMS Time \_\_\_\_\_ = Aircraft Time \_\_\_\_\_

Aircraft Time \_\_\_\_\_ = Radar Time \_\_\_\_\_

Altitude (29.92) = Initial 2340  
 = Final 2380

Time	Event #	Altitude (kft)	Temp (°C)	Cloud #	Pass #	Type of Pass	COMMENTS
							(VOR, DME, HDG, Cl. Base Ht., Foil)
1431	5	3.0					Altitude Event - climbing to S of BGS
1434	5	4.0					Altitude Event - still in climb RW to SE
1436							Enroute to 170/25 as given by radar still climbing
1438	5	6.0					Altitude Event - climbing while dodging TRW in area
1440		7.2					Cloud base - radar advises echo Areas @ 120/30
1445	5	9.0					Altitude Event - finding it difficult to weave in and around cells while climbing
1446		9.3					Climbing N of largest cell
1448	5	10.0	8.5				Altitude Event - just realized I haven't been posting temps (take-off +20 min)
1452	5	12.0	3.4				Altitude Event





### Weather Summary

A Pacific front lies from southeast Texas near Lufkin to north of Abilene, then southwest to near Big Spring and into the Trans-Pecos. Numerous very light rainshowers are occurring over the northwest portion of the operational area.

A 500 mb trough lies across the operational area above the surface feature, with a cool pool providing additional upper air instability. The air mass is quite moist, cool and very unstable. However, a layer of stable, more subsident air is above 500 mb and is ridging over the area.

Early morning rainshowers had dissipated by mid-morning, but considerable mid and upper level cloudiness persisted until early afternoon. With a convective temperature of 81<sup>0</sup>F, heavy cumulus had developed by late morning. First rainshowers of the forecast period developed by 2 p.m. By mid-afternoon, heavy thunderstorms developed over the southern and eastern portions of the operational area, along the frontal zone. Elsewhere, away from the front, light rainshowers were capping at 20K.



June 25, 1979 (continued)  
Weather Observations

TIME  
(CDT)

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0750	SCT CUMULUS; SCT AC; BKN CI-CS; T = 72 <sup>0</sup> F; RWU E, DSNT NW; WIND 050/07; TCU E-SE
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0855	BROKEN CS; CU NE-SE-S-SW; FEW AS S; T = 75 <sup>0</sup> F; WIND 060/09; AC LVR E-SE
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0955	SCT AC-AS; THN OVC CS; LWR CU SE-SE; T = 78 <sup>0</sup> F; WIND 110/09
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1150	SCT CUMULUS; BKN AC-AS; BKN CI-CS; FEW TCU-RWU NW-N; T = 82 <sup>0</sup> F; WIND 210/02
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1450	BKN CU-CB; BKN AC; BKN CI-CS; TCU-CB LN BLDG SW-SE-NE MVG E; LTGCG SW-SE; PCPN APCHG FM SW; T = 80 <sup>0</sup> F; WIND 160/15
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1555	BKN CU; AC-CI ABV; LN TCU-CB SW-SE-E; RWU NW-NE; T = 73 <sup>0</sup> F; WIND 160/19G25; OCNL SPRKL
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\*\*\*\*\*TEXAS HIPLEX STATUS REPORT\*\*\*\*\*  
VALID FOR JUNE 25, 1979

\*\*\*WEATHER SUMMARY\*\*\*

AT MID-MORNING A MARITIME POLAR FRONT LAY ACROSS THE SOUTHERN PORTION OF THE TEXAS HIPLEX OPERATIONAL AREA. NUMEROUS LIGHT RAIN SHOWERS OCCURRED OVER THE AREA BEFORE AND JUST AFTER DAWN. THESE SHOWERS DISSIPATED WITHIN A FEW HOURS AFTER DAWN. HOWEVER, CONSIDERABLE MID AND UPPER-LEVEL CLOUDINESS PERSISTED OVER THE AREA INTO THE EARLY AFTERNOON. SOME CUMULUS CONGESTUS HAD DEVELOPED SHORTLY BEFORE NOON, AND BY EARLY AFTERNOON THE FIRST RAIN SHOWERS OF THE FORECAST PERIOD WERE OBSERVED. BY MID AFTERNOON SEVERAL HEAVY THUNDERSTORMS AND NUMEROUS MODERATE THUNDERSTORMS OCCURRED IN THE SOUTHERN AND EASTERN PORTIONS OF THE AREA ALONG THE FRONTAL BOUNDARY. ELSEWHERE THE CUMULI WHICH DEVELOPED EXTENDED TO NO MORE THAN 20 THOUSAND FEET.

\*\*\*OPERATIONS\*\*\*

THE DAY WAS NOT DECLARED OPERATIONAL FOR THE MESOSCALE PROGRAM. AT MID AFTERNOON ALL THREE AIRCRAFT OPERATED IN THE EASTERN PORTION OF THE PROJECT SITE; SEEDING WAS DONE ON A CLUSTER OF GROWING CUMULI.

\*\*\*EQUIPMENT STATUS\*\*\*

SWR-75 : OPERATIONAL  
P-NAVAJO : SOME QUESTION ABOUT THE IPC. ALL OTHER INSTRUMENTS NOW FUNCTIONING.  
MRI NAVAJO : OPERATIONAL  
RAWINSONDES : ALL OPERATIONAL EXCEPT THAT AT STERLING CITY.  
AUTO WX STATIONS : 18 TRANSMITTING GOOD DATA. SOME INTERMITTENT DATA FROM THE REMAINDER.



1979 TEXAS HIPLIX - AIRCRAFT OBSERVER LOG

Date 25 June 1979 Pilot(s) Roberts Time at -5C (CDT) 1442  
 Flight I Observer Long Time at -10C (CDT) 1447  
 Aircraft p-Navajo Instrument Operator Long Time at Initial Point (CDT) 1440  
 Takeoff Time (CDT) 142416 Data Tape No. no tape obtained  
 Landing Time (CDT) 165510 Nine-track tape recorder down

Temp (°C) and Dewpoint Profile (1000 ft.)

	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	
ASDG T		23.5	20.2	17.8	15.1		10.0	10.2	8.0	3.6	1.8	-1.6			-4.7	-7.0	-8.8	-10.8	-12.4						
ASDG T <sub>d</sub>		14.5	14.4	13.0	12.3		8.2	5.4	3.0	1.3	0	-3.3			-5.7	-8.0	-10.6	-12.1	-14.6						
DSDG T																									
DSDG T <sub>d</sub>																									

Cld Base (1000 ft)  
 7200 ft. (at  
 143115 CDT)  
 A 13.6 reverse  
 flow temperature  
 12.1 dew point  
 D

Jerry Jurica was aboard to obtain supplemental observations.

Date: 25 June 1979

Aircraft: p - Navajo

1979 TEXAS HIPLEX - AIRCRAFT OBSERVER LOG

Time In	Time Out	Cld or Turret No.	Pass No.	Hdg	Speed (kt)	VOR/IME	Alt in (ft)	Alt Out	Comments (Cld Temp, U/Down, Turb, LWC, Ice, No. Flares, etc.)
1425						/			Pressure, IAS, and Rosemount temperature are all working.
1436						/			Occasional spurious counts in ice particle channel (20 to 30 $\mu$ -I at > 0C)
1444						/			500 - 4000 $\mu$ -I ice crystal concentration even with "outside" switch on. Continued until 144550 CDT.
1455						/			Loitering at about 1250/40 n. mi. Waiting for other aircraft to get to our area.
1500				360°		125°/55			Frame #26 to SW shows substantial natural icing in this area.
1507						/			In ice cloud (10-100 $\mu$ -I concentration). Heading toward SW to locate any new development SW side of large storm at 180°/30.
1509						/			Occasional spurious data in pressure. IAS, and Rosemount temperature channels.
1511						~170°/25	21000		1500 ft min <sup>-1</sup> updraft. Snow pellets. Downdraft.
1512						/			Pressure, IAS, and Rosemount temperature very noisy during turbulence. Better out of cloud.
1516				270°		197°/26			Frame #27 of cloud 1.
151634		1	1	260°	150	198°/26.4	20500		500 ft min <sup>-1</sup> updraft. JW LWC ~ 5 g m <sup>-3</sup> .
151948		1	2	70°	150	198°/26.4	20800		Cloud has collapsed on second pass.
1522		1	3	220°		/	21000		We have been flying over a shelf of vigorous altocumulus to SW of main iced-out clouds. There are some turrets popping up but they do not last long.
152316	152320	2	1	270°		200°/29.2	20800		VOR giving spurious data near 2000 but only on CRT. Does not happen on aircraft instruments. SW LWC.

Date: 25 June 1979

Aircraft: p - Navajo

1979 TEXAS HIPLEX - AIRCRAFT OBSERVER LOG

Time In	Time Out	Cld or Turret No.	Pass No.	Hdg	Speed (kt)	VOR/IME	Alt in (ft)	Alt Out	Comments (Cld Temp, U/Down, Turb, LWC, Ice, No. Flares, etc.)
1524		2	2	80°		/	20500		VOR problems
152630		3	1	290°		200°/28	20800		JOW LWC up to 4-5 g m <sup>-3</sup> .
1528						/			VOR problems.
1530		4	1	120°		194°/31	20900		300 ft min <sup>-1</sup> updraft. 800 ft min <sup>-1</sup> updraft. Liquid water observed.
1534				10°		/			Heading toward 1809/25 n. mi. Where an echo near Garden City has been observed by the Skywater Radar. The cloud here is mainly ice.
153630	153832	5	1			~180°/21	21000		Only ice observed.
1540						/			Pressure, IAS, and Rosemount temperature are all erroneous. This began in penetration of last cloud.
1544						/			Data cassette malfunctioned. Replaced it with another.
1548						/			We passed through the line of clouds south of Big Spring. In the clear air to the north (where there may have been subsidence) a few clouds were growing. This area is much better for aircraft operations due to the clearer air.
155220				70°		78°/30			Frame #28 toward '7 o'clock' of area of subsidence behind front.
155350	155430	6	1	70°	150	~77°/36	20500		800 ft min <sup>-1</sup> updraft. JW LWC ~ 1 g m <sup>-3</sup> . Ice particle concentration about 2-5000
						/			& 1 Pressure, IAS, and Rosemount temperature are all out.
	155645	6	2	235°		/	20500		JW LWC ~ 5-6 g m <sup>-3</sup> . IP Concentration is 100-1000 & 1 Intermittently. Light turbulence.
160016		6	3	50°	140	72°/36	20500		JW LWC ~ 4-5 g m <sup>-3</sup> . Ice particle concentration ~ 2-4000 & 1. 2000 ft min <sup>-1</sup> updraft. Total water content probe output on CRT is no different from clear air value.

Date: 25 June 1979

Aircraft: p - Navajo

1979 TEXAS HIPLEX - AIRCRAFT OBSERVER LOG

Time In	Time Out	Cld or Turret No.	Pass No.	Hdg	Speed (kt)	VOR/IME	Alt in (ft)	Alt Out	Comments (Cld Temp, U/Down, Turb, LWC, Ice, No. Flares, etc.)
~160350	~160445	6	4	~205°		72°/36	21000		2500 ft min <sup>-1</sup> updraft at 160400 CDT. JW LWC ~ 1.5 g m <sup>-3</sup> . Lower than on pass 3.
160750	160854	6	5	30°		/	20900		2700 ft min <sup>-1</sup> updraft. Cloud top estimated at 35000 ft.
161050		7	1	150°		/			JW LWC up to 5.5 g m <sup>-3</sup> . Ice particle concentration is about 200 l <sup>-1</sup> . This is a new turret on main cloud.
161222		6	6	~200°		74°/39			In main cloud again. All these clouds have been east of and outside of the target area.
1614						/			Pressure, IAS, and Rosemount temperature are occasionally correct but for only a few seconds.
1617						/			Heading NW back into the target area. So far a cloud for treatment has not been found.
~161730		8	1	275°	170	75°/23	21000		JW LWC ~ 2 g m <sup>-3</sup> .
1619						/			Data system on MRI Navajo has ceased to function.
1621		8	2	85°	160	75°/23	20500		JW LWC is increasing. It was up to 5 g m <sup>-3</sup> on this pass.
1623		8	3	260°		75°/23	20300		Treated cloud, seven flares dropped into it. Ice particle counter showing concentrations of 100 to 10000 l <sup>-1</sup> .
~162915	~162945	9	1	~200°	160	62°/20	20500		
~1632		9	2	10°		/	20400		Eight flares mistakenly dropped into cloud on this pass.
163530						/			Pressure, IAS, and Rosemount temperature are intermittently correct.
1635	1636	9	3	190°		68°/20	20000		JW LWC ~ 3.5 g m <sup>-3</sup> .

Date: 25 June 1979

Aircraft: p - Navajo

1979 TEXAS HIPLEX - AIRCRAFT OBSERVER LOG

Time In	Time Out	Cld or Turret No.	Pass No.	Hdg	Speed	VOR/DME	Alt in (ft)	Alt Out	Comments (Cld Temp, U/Down, Turb, LWC, Ice, No. Flares, etc.)
163745						/			Must fly in clear air to shed some ice.
163945		9	4	5°		669 23	18500		JW LWC ~ 1 to 2 g m <sup>-3</sup> .
						/			There was more than one turret in the area. They all could have been providing the rain at the ground observed by the Aztec.
						/			The seeded cloud was in a larger field of clouds. A lot of altocumulus surrounded its base. It appears we may have overseded cloud 9. It collapsed a few minutes after seeding. It appeared to enlaye again but this may have been due to our lower vantage point on pass 4.
164230						/			Returning to Big Spring.
						/			
						/			
						/			
						/			
						/			
						/			
						/			
						/			
						/			
						/			
						/			



6-25-79 Date 13816 P/C Number 2418.4 (14:20) Engine Off 2.7 Flight Time Flares This Month

S. Gabrick Pilot Hiplex Type Flight 2421.2 (17:00) Engine Off 78 Flight Number Flares to Date

SOUNDING Temp. °C K. Asc. Des.	EVENT & TIME	POSITION Radial-DME	CLOUD BASE (FL.)	BASE TEMP (°C)	WIND VELOCITY (KTS)	UPDRAFT AXIS (S.MI)	FLARE NO.	HDR. (DEG)	A/C SPEED (MPH)	NOTES
6 23 26	1 14:30	135/16	7K	15				120	160	Rainshaft oriented E-W approximately
3 21 24										2 mi x 20 mi (to-south)
4 17 17										North end of cloud
5 15 14	2 14:35	120/18	7.4K	12				090	160	base increasing to N
6 12 13										Marginal turret
7 11 10	3 14:45	120/31	7K	12				030	160	Development to E
8 8 8										Two vis turrets
9 6 7	4 14:50	120/31	6.8K	13				060	160	appear to be flattening
10 2	5 14:56	115/30	7.5K	11	500	2		060	140	No visible shelf, good inflow on far easterly turret
12										Light turbulence at west end of base
13	6 15:05	110/27	6.8K	14				330	150	Most intense part of cell appears to be at CGF
15	7 15:14	125/26	7.0K	13				350	160	Lightning to west
16										
17										
18	8 15:18	140/18	6.0K	14				060	155	Lightning continuing
	9 15:20	175/21	5.5K	19				190	150	E-W Rainshaft now becoming oriented
	10 15:29	190/27	9.2K	8				210	135	SF-N-SW Location: Southern edge of largest storm sys
	11 15:38	190/29	9.0K	8						
	12 15:42	180/23	8.5K	9						
	13 15:50	185/12	8.5K	10				070	120	Moderate rain to S. CG lightning

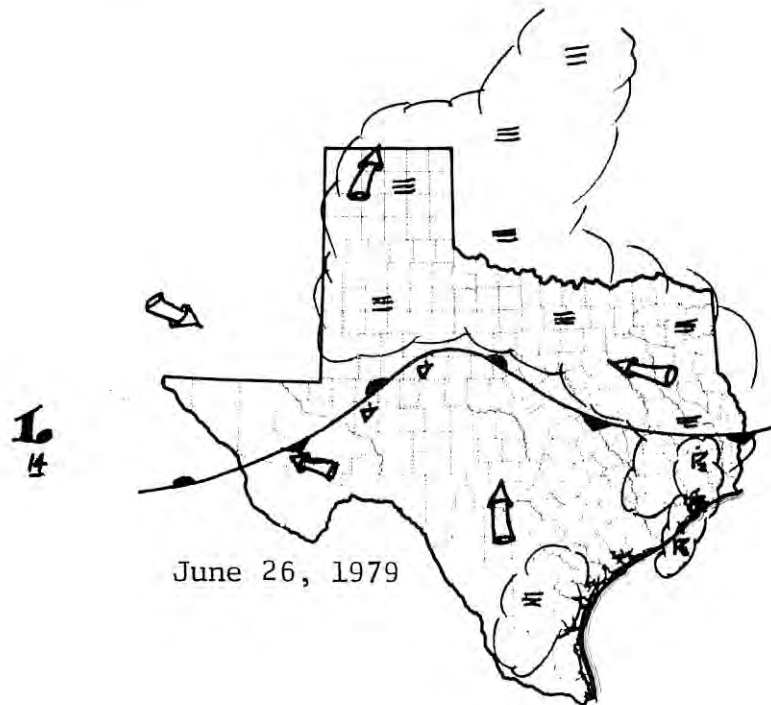
REMARKS:

6-25-79 Date 13816 P/C Number 2418.3 (14:20) Engine Off 2.9 Flight Time Flares This Month

S. Gabrick Pilot Hiplex Type Flight 2421.2 (17:10) Engine Off 78 Flight Number Flares to Date

SOUNDING Temp. °C K Asc. Des.	EVENT & TIME	POSITION Radial-DME	CLOUD BASE (FL.)	BASE TEMP (°C)	UPDRAFT VEL. (FPM)	UPDRAFT AXIS (S.MI)	FLARE NO.	Hdg. (DEG)	A/C SPEED (MPH)	NOTES
3	14 15:54	125/10	8.0K	11				070		Cell to South extend to N-NE appears to be icing out
4										
5										
6										
7	15 15:55	130/15	8.5K	11				150	145	E-NE end of south system deteriorating
8										
9	16 16:15	075/34	6.0K	16				060		Large system to south, although BKN, appears to be intensifying
10	"	"	"	"				"		on east end and moving NE, CG lightning
11										
12										
13	17 16:27	085/24	7.0K	12				030		Small shelf at base Target Cloud
14										
15	18 16:34	070/20	7.0K	13				120	150	Sighted
16										
17	19 16:37	070/21	7.0K	12				090		Rainshaft below what is believed to be target cloud, increasing
18										
19	20 16:43	073/25	7.0K	12				060		No apparent change from event #19
	21 16:50	070/25	6.7K	12				240		Rainshower increasing in vic of target cloud
	22 16:54	070/21	7.0K	12				360		Two rainshafts appear to have joined
	23 16:57	070/21	7.0K	13				260		Third rainshaft spread- ing toward larger shaft to East
	24 16:59	070/17	6.5K	15				230		Third rainshaft incr. toward east

REMARKS: 22, 23, 24: Fast movement of spreading and joining areas of rain fairly impressive.



### Weather Summary

A stationary Pacific front continues over the operational area. A 500 mb trough has moved to a position in the southeast portion of the operational area, and widespread rainshower/thunderstorm activity is occurring from Big Spring eastward to near Sweetwater. Air mass is quite moist and cool, but is more stable than previous forecast period. Some subsidence is apparent above 500 mb.

Ample low level moisture over the operational area was able to provide a broken cumulus deck throughout the morning hours. Light rain fell over Big Spring and much heavier rainshowers and thunderstorms occurred during the morning. Deep convection continued through the forecast period in the south and southeast portion of the operational area. Elsewhere, scattered cumulus, cumulus congestus and a few towering cumulus dominated.

June 26, 1979 (continued)  
Weather Observations

TIME  
(CDT)

---

0750 BKN CU; LWR ST ALQDS; DRK SE-SW; RWU SE-SW; TCU ALQDS; T = 69<sup>0</sup>F;  
WIND 040/06; RW- AT STN

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0850 BKN CUMULUS; FEW LWR SCUD SE-SW; TCU RWU ALQDS; T = 72<sup>0</sup>F;  
WIND 060/02

---

0955 BKN CU; SCUD ALQDS; RWU-TRWU ALQDS; TRW++ E; T = 73<sup>0</sup>F;  
WIND 080/05

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1455 SCATTERED CUMULUS; CU CONGESTUS ALQDS; TCU-CB SW-E-DSNT NE;  
TCU N; T = 85<sup>0</sup>F; WIND 120/03

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\*\*\*\*\*TEXAS HIPLEX STATUS REPORT\*\*\*\*\*

VALID FOR JUNE 26, 1979

\*\*\*\*\*WEATHER SUMMARY\*\*\*\*\*

A STATIONARY COOL FRONT PERSISTED IN THE SOUTHERN AND EASTERN PORTIONS OF THE PROJECT AREA, WITH A WEAK UPPER-AIR LOW SITUATED TO THE SOUTH BETWEEN DEL RIO AND SAN ANGELO. ABUNDANT LOW-LEVEL MOISTURE RESULTED IN SEVERAL HEAVY THUNDERSTORMS THAT YIELDED APPRECIABLE RAINS IN THE SOUTHERN AND EASTERN EXTREMITIES OF THE AREA. THESE SYSTEMS DEVELOPED EARLY IN THE AFTERNOON IN THE VICINITY OF THE EASTERN/SOUTHERN BORDER OF THE PROJECT AREA. UPPER-LEVEL RIDGING FROM THE WEST PERMITTED ONLY SCATTERED TO BROKEN CUMULUS HUMILIS TO DEVELOP ELSEWHERE WITHIN THE PROJECT SITE.

\*\*\*OPERATIONS\*\*\*

THE DAY WAS NOT DECLARED OPERATIONAL FOR THE MESOSCALE PROGRAM. THE P-NAVAJO OPERATED IN THE EAST CENTRAL PORTION OF THE OP AREA AT MID-AFTERNOON; NO SEEDING PERFORMED HOWEVER. LATER, BOTH THE P-NAVAJO AND AZTEC OPERATED IN THE SAME GENERAL AREA. NO HIPLEX SEEDING DONE ON THIS MISSION EITHER. THE SECOND P-NAVAJO MISSION WAS CONDUCTED PRIMARILY TO TEST THE IPC. THREE FLARES WERE DROPPED INTO A TURRET OF A CUMULUS CONGESTUS TO GENERATE ICE WITH WHICH TO TEST THE IPC; EFFORT WAS UNPRODUCTIVE HOWEVER.

\*\*\*EQUIPMENT STATUS\*\*\*

SWR-75 : OPERATIONAL  
P-NAVAJO : ALL SYSTEMS FUNCTIONAL EXCEPT THE IPC. THE FIRST MISSION OF THE DAY HAD TO BE ABORTED WHEN THE IPC WAS DISCOVERED TO NOT BE OPERATING. WORK ON THE UNIT WAS DONE AT BASE OPS. A SECOND FLIGHT LATER IN THE AFTERNOON WAS DESIGNED TO CHECK OUT THE SYSTEM; NOTHING LEARNED.  
MRI NAVAJO : PRINTED CIRCUIT BOARD WENT BAD. AIRCRAFT FLEW TO DALLAS FOR A NEW ONE. THE CRAFT WAS NOT AVAILABLE FOR TODAY'S OPERATIONS.  
RAWINSONDES : ALL OPERATIONAL EXCEPT THE ONE AT STERLING CITY.  
AUTO WX STATIONS : 12 STATIONS SENDING CONTINUOUSLY GOOD DATA. 11 OTHERS ARE PROVIDING INTERMITTENTLY GOOD DATA.

\*\*\*REMARKS\*\*\*

CORRECTION TO ENTRY UNDER "EQUIPMENT STATUS": THE RAWINSONDE AT STERLING CITY IS FUNCTIONAL. INSTEAD, THE UNIT AT LAMESA IS DOWN. A MESOSCALE OPERATIONAL DAY IS NEEDED TO DETERMINE IF THE LAMESA UNIT IS FUNCTIONAL. CARR IS THE PROJECT DIRECTOR FOR THIS WEEK; BOMAR THE FIELD OPERATIONS MANAGER.  
BOMAR  
READY.

1979 TEXAS HIFLEX - AIRCRAFT OBSERVER LOG

Date 26 June 1979 Pilot(s) Roberts Time at -5C (CDT) \_\_\_\_\_  
 Flight 1 Observer Long Time at -10C (CDT) 1449  
 Aircraft p-Mavajo Instrument Operator Long Time at Initial Point (CDT) \_\_\_\_\_  
 Takeoff Time (CDT) 141323 Data Tape No. PI9177  
 Landing Time (CDT) 1519

Temp (°C) and Dewpoint Profile (1000 ft.)

	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	
ASDG T	23	20	19	16	13	10	9	8	7	5	5	4	2	1	-1	-3	-6	-8	-10						
ASDG T <sub>d</sub>																									
DSDG T			20						6					1											
DSDG T <sub>d</sub>						14																			

Clid Base (1000 ft)  
 A 5800-6800 ft.  
 Reverse flow  
 temperature  
 -16.8 C  
 D

Initial point was 30°/25 n. mi.; but then changed to 160°/25 n. mi.

George Bomar was aboard to obtain supplemental observations.

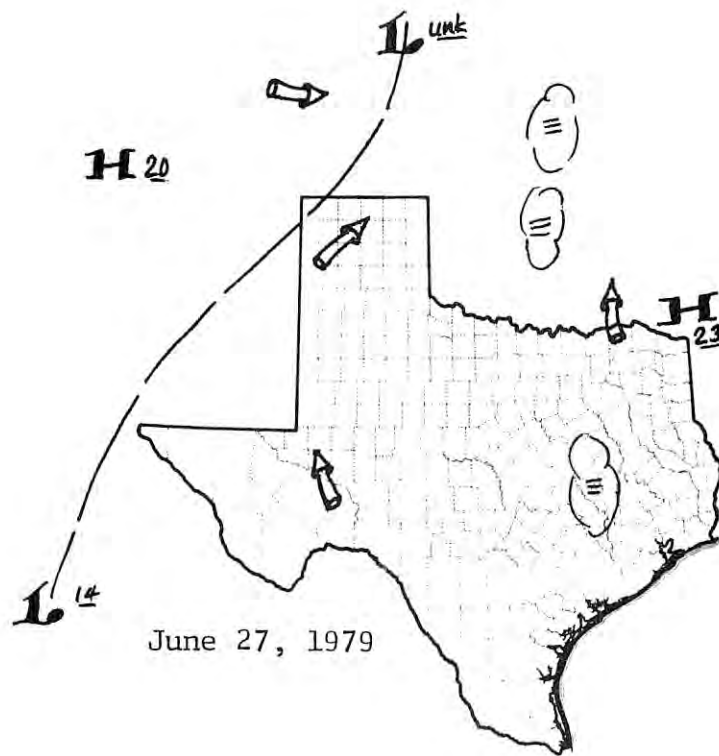
Paul Lawson of CIC is aboard to observe the operation of the data system.

Temperature profile obtained with aircraft thermometer rather than with data system temperature probe.









Weather Summary

Southerly flow in the lowest levels over the operational area continues to provide low level moisture. However, mid- and upper-air ridging is providing warm, stable subsident conditions above the moisture. A 500 mb high is over the operational area, and ridges west to the main sub-tropical high over eastern Arizona. A weak dry line lies from southwest Kansas to Dalhart and west of El Paso.

Skies were clear early morning, with a few stratus. By 11 a.m., cumulus began developing with a temperature of 81°F. Scattered cumulus dominated the area the balance of the forecast period.

June 27, 1979 (continued)  
Weather Observations

TIME  
(CDT)

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0850 CLR SC ALQDS; T = 72<sup>0</sup>F; WIND 181/02

---

0955 CLR T = 76<sup>0</sup>F; FEW SC N-E; WIND 180/13

---

1355 SCT CUMULUS; T = 89<sup>0</sup>F; WIND 160/14

---

\*\*\*\*\*TEXAS HIPLEX STATUS REPORT\*\*\*\*\*

VALID FOR JUNE 27, 1979

\*\*\*\*WEATHER SUMMARY\*\*\*\*

ALTHOUGH LOW-LEVEL MOISTURE WAS ADVECTED INTO THE PROJECT AREA BY A MODERATE SOUTHERLY FLOW, A STRONG RIDGE ALOFT PREVENTED ANY SIGNIFICANT VERTICAL DEVELOPMENT OF CUMULI. MODERATE RIDGING PERSISTED THROUGHOUT THE DAY, WITH THE CENTER OF THE UPPER-AIR HIGH OVER CENTRAL ARIZONA SHIFTING SLOWLY EASTWARD. SKIES WERE CLEAR DURING THE MORNING. A FEW STRATUS WERE OBSERVED AROUND DAWN. CUMULUS CLOUDS BEGAN APPEARING ONE HOUR BEFORE NOON, WHEN THE TEMPERATURE WAS 81 DEGREES. SCATTERED CUMULUS HUMILIS PREVAILED IN THE AREA FOR THE DURATION OF THE DAY.

\*\*\*OPERATIONS\*\*\*

THE DAY WAS DECLARED NON-OPERATIONAL FOR THE MESOSCALE PROGRAM. NO HIPLEX AIRCRAFT OPERATIONS WERE CONDUCTED.

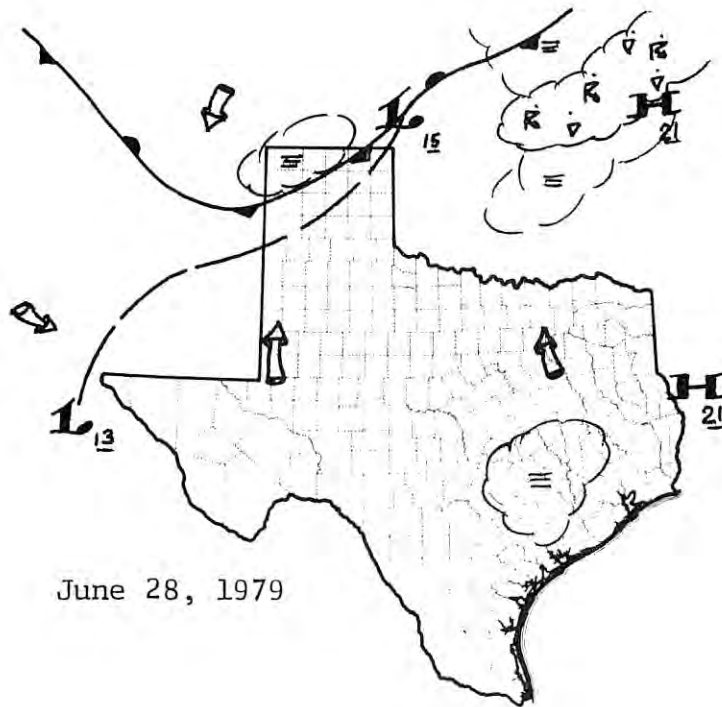
\*\*\*EQUIPMENT STATUS\*\*\*

SWR-75 : OPERATIONAL  
P-NAVAJO : ALL INSTRUMENTATION, INCLUDING THE IPC, FUNCTIONAL.  
MRI NAVAJO : THE NEW PRINTED CIRCUIT BOARD OBTAINED IN DALLAS ON JUNE 26 WAS FOUND UNSATISFACTORY WHEN TESTED AT BASE OPERATIONS THIS MORNING. CREW RETURNED IN NAVAJO TO DALLAS DURING THE AFTERNOON TO SECURE A WORKING SYSTEM. AIRCRAFT IS NOW GO.  
RAWINSONDES : ALL ARE OPERATIONAL. ANOTHER MESO DAY DECLARED IS NEEDED TO VERIFY THAT THE SYSTEM AT LAMESA IS OPERATING SATISFACTORILY. THAT UNIT NEEDS SOME TUNING DURING AN OPERATIONAL PERIOD.  
AUTO STATIONS : 18 STATIONS SENDING GOOD DATA ON A CONTINUOUS BASIS. THE UNIT AT GAIL IS NOT INTEGRATING; AT VEALMOOR THE UNIT IS GIVING BAD PRESSURE READINGS; THE SYSTEM AT TAHOKA IS OUT OF COMMISSION AS A RESULT OF TORNADIC WINDS; THE UNIT AT SNYDER IS NOT TRANSMITTING.

\*\*\*REMARKS\*\*\*

PLEASE NOTE THAT SUMMARY REPORTS FOR JUNE 25 AND 26 WERE BOTH TRANSMITTED AS "TEXP36."

BOMAR



Weather Summary

A weak surface front lies from a low in southwestern Kansas to Dalhart, Tucumarcari, and northwest to Farmington. South-southeast flow is strong over the operational area, but low level moisture advection is essentially nil. 500 mb ridging is strong over the operational area and moisture is shallow. The air mass is quite dry, warm and stable.

Skies remained clear throughout the forecast period, although a few small cumulus humilis appeared briefly during the early afternoon.

June 28, 1979 (continued)  
Weather Observations

TIME  
(CDT)

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0755 CLR CI N; T = 73<sup>0</sup>F; WIND 170/15

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0850 CLR CI N-NE; T = 77<sup>0</sup>F; WIND 170/17

---

0955 CLR CI N-NE; T = 82<sup>0</sup>F; WIND 180/15G24

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1055 CLR FEW CI NNE; T = 84<sup>0</sup>F; WIND 180/15

---

1255 FEW SML CU HU; T = 87<sup>0</sup>F; WIND 150/10

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1455 CLR T = 92<sup>0</sup>F; WIND 150/10

---

1550 CLR T = 93<sup>0</sup>F; WIND 130/10

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◆◆◆◆TEXAS HIPLEX STATUS REPORT◆◆◆◆

VALID FOR JUNE 28, 1979

◆◆◆: : : WEATHER SUMMARY : : :◆◆◆

A STRONG RIDGE MAINTAINED FAIR WEATHER IN THE PROJECT AREA THROUGHOUT THE DAY. EXCEPT FOR A FEW SMALL CUMULI THAT DEVELOPED EARLY IN THE AFTERNOON, SKIES WERE CLEAR. THE AIR MASS THAT ENVELOPED THE PROJECT AREA WAS HIGHLY STABLE, WITH ONLY MODEST AMOUNTS OF MOISTURE IN A THIN LAYER JUST ABOVE THE SURFACE.

◆◆◆OPERATIONS◆◆◆

THE DAY WAS DECLARED NON-OPERATIONAL FOR THE MESOSCALE PROGRAM. NO HIPLEX AIRCRAFT OPERATIONS WERE CONDUCTED.

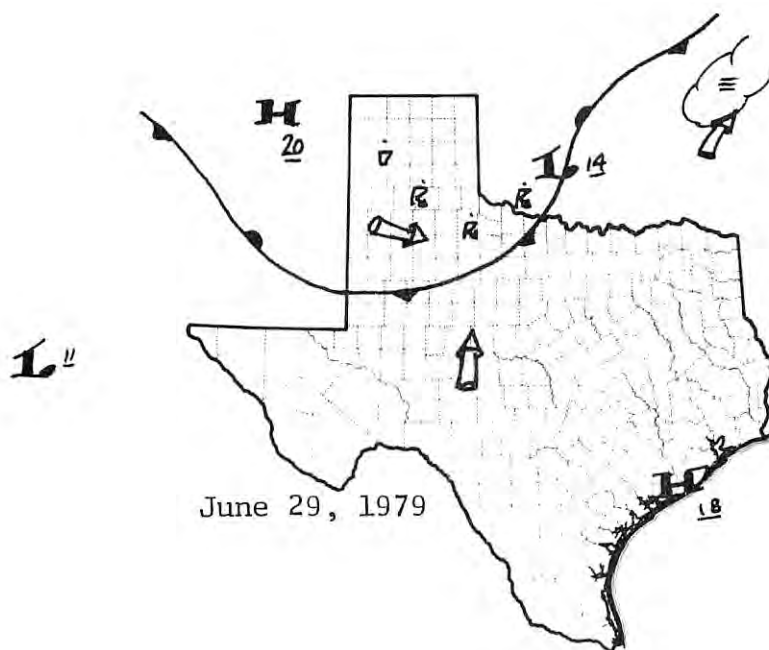
◆EQUIPMENT STATUS◆

SMR-75	:	OPERATIONAL
P-NAVAJO	:	ALL SYSTEMS BELIEVED TO BE FUNCTIONAL
MRI NAVAJO	:	PROBLEMS PERSIST WITH PRINTED CIRCUIT BOARD. TESTS DURING THE DAY INDICATED THE SYSTEM WAS NOT FUNCTIONING. THE AIRCRAFT WAS FLOWN TO DALLAS AGAIN TO MAKE NECESSARY ALTERATIONS.
RAWINSONDES	:	ALL STATIONS OPERATIONAL.
AUTO WX STATIONS	:	ABOUT THREE-FOURTHS OF THE STATIONS ARE TRANSMITTING DATA ON A CONTINUOUS OR NEAR-CONTINUOUS BASIS, ALTHOUGH A FEW OF THE DATA ARE SUSPECT.

◆◆◆ REMARKS ◆◆◆

OUR BEST WISHES TO DR KAHAN.

BOMAR



### Weather Summary

Weak cool front is advancing slowly southward from a low near Hobart to south of Lubbock and Clovis to near Farmington. Thunderstorms occurring behind the front in the Texas Panhandle and into southwest Oklahoma. Fog and haze over the upper Texas Coast, into east and northeast Texas indicative of low level moisture. A cool pocket exists over the operational area at 500 mb. Air mass is warm and dry but moderately unstable.

Scattered cirrus, left over from yesterday's Panhandle thunderstorms, were over the area during the morning hours. By early afternoon a scattered cumulus layer had developed ( $T = 96^{\circ}\text{F}$ ). Near 1700 frontal forcing combined with buoyancy induced by strong surface heating ( $T = 100^{\circ}\text{F}$ ) produced a cluster of towering cumulus and cumulonimbus (MT 410) between Snyder and Post. Activity moved southeast and dissipated before dusk.

June 29, 1979 (continued)  
Weather Observations

TIME  
(CDT)

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0750      SCT CIRRUS T = 74<sup>0</sup>F; WIND 160/06; K LVR WSW-NE

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0855      CLR FEW CI N-SE; T = 78<sup>0</sup>F; WIND 180/09

---

0950      CLR FEW CI E; T = 81<sup>0</sup>F; WIND 190/11

---

1450      SCT CUMULUS; SCT CI; CS BNK N-NE; FEW AS N-NE; T = 96<sup>0</sup>F;  
WIND 110/10

---

1555      SCT CU; FEW AC; SCT CI-CS; T = 99<sup>0</sup>F; WIND 130/10G18

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1655      SCT CUMULUS; CLUSTER TCU-CB NE-E; T = 100<sup>0</sup>F; WIND 150/08G14

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♦♦♦♦♦TEXAS HIPLEX STATUS REPORT♦♦♦♦♦

VALID FOR JUNE 29, 1979

::::: WEATHER SUMMARY :::::

MOSTLY CLOUDLESS SKIES PREVAILED OVER THE PROJECT AREA DURING THE DAY, ALTHOUGH ONE ISOLATED CUMULONIMBUS DEVELOPED LATE IN THE AFTERNOON IN THE VICINITY OF SNYDER.

A WEAK COOL FRONT ADVANCED THROUGH THE TEXAS PANHANDLE DURING THE MORNING AND REACHED AS FAR SOUTH AS LUBBOCK BEFORE STALLING AND THEN RETREATING NORTHWARD AS A WARM FRONT. ONLY SCATTERED CIRRUS--THE REMAINS OF THUNDERSTORMS THAT SPREAD OVER THE NORTHERN TEXAS HIGH PLAINS LATE YESTERDAY--WERE VISIBLE DURING THE MORNING HOURS. THE AIRMASS COVERING THE PROJECT AREA WAS WARM AND DRY, WITH ONLY SLIGHT CONVECTIVE INSTABILITY DISCERNIBLE.

BY EARLY AFTERNOON A LAYER OF CUMULUS HUMILIS APPEARED. THE SURFACE COOL FRONT THAT EDGED CLOSE TO THE PROJECT AREA AT MID-MORNING BECAME ACTIVE AND PUSHED INTO THE NORTHEASTERN CORNER OF THE PROJECT AREA AT MID-AFTERNOON. AT 1630 LDT A SMALL CLUSTER OF CUMULUS CONGESTI WAS SPANNED BY THE MOVEMENT OF THE FRONT. BY 1800 LDT ONE OF THE CUMULI HAD BLOSSOMED INTO A TOWERING CB. ICE FROM THE STORM WAS BLOWN OVER MUCH OF THE PROJECT AREA AS DUSK SETTLED.

♦♦♦♦♦OPERATIONS♦♦♦♦♦

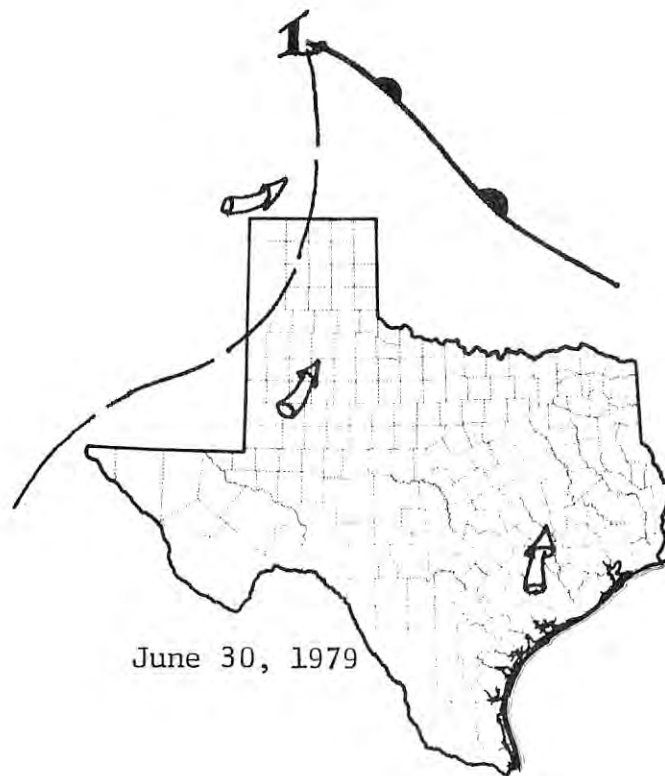
THE DAY WAS DECLARED NON-OPERATIONAL FOR THE MESOSCALE PROGRAM. (NOTE: EXPENDABLES FOR ABOUT 7 MESO DAYS REMAIN FOR USE DURING THE LAST 21 DAYS OF THE PROGRAM.) NO HIPLEX AIRCRAFT OPERATIONS WERE CONDUCTED.

♦EQUIPMENT STATUS♦

SMR-75 : IN FINE OPERATING CONDITION  
P-NAVAJO : AIRCRAFT WAS OUT OF COMMISSION DURING THE AFTERNOON FOR MINOR REPAIRS. NO KNOWN PROBLEMS NOW.  
MRI NAVAJO : ANOTHER TRIP TO DALLAS ON THE EVENING OF THE 28TH WAS REQUIRED TO CORRECT A MALFUNCTIONING MAGNETIC TAPE CONTROLLER. ALL SYSTEMS--INCLUDING THE PRINTED CIRCUIT BOARD THAT GAVE PROBLEMS EARLIER IN THE WEEK--NOW APPEAR TO BE FUNCTIONING SATISFACTORILY.  
RAWINSONDERS : ALL SYSTEMS GO  
AUTO WX STATIONS: SOME QUESTIONABLE DATA FROM SEVERAL OF THE STATIONS CONTINUE TO BE RECEIVED. MOST ARE REPORTING, AND THE DATA FROM THOSE FOR THE MOST PART APPEAR GOOD.

♦♦♦♦♦REMARKS♦♦♦♦♦

AS REQUESTED BY THE BUREAU'S HARRISON ON THE AFTERNOON OF THE 29TH, ANOTHER ONE-POUND WEIGHT WAS ADDED TO THE GAGE AT THE BIG SPRING STATION.  
RDMAR



### Weather Summary

The surface front has receded to central Oklahoma and southwest Kansas. A weak dry line drops from the frontal low near Dodge City to northwest of Amarillo, Roswell, and El Paso. 500 mb high is centered over central New Mexico, and ridging is becoming dominant over the operational area. Air mass is warm, very slightly moist, and moderately unstable.

A few cirrus were observed both during the morning and late afternoon, but no cumulus activity was noted within the operational area throughout the forecast period.

June 30, 1979 (continued)  
Weather Observations

TIME  
(CDT)

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0755 CLEAR FEW CI N-E-SE; T = 77<sup>0</sup>F; WIND 180/06

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0855 CLEAR FEW CI NW NE-E; T = 80<sup>0</sup>F; WIND 200/14

---

0950 CLEAR T = 87<sup>0</sup>F; WIND 210/13

---

1450 CLEAR FEW CIRRUS HRZN W-NW; T = 96<sup>0</sup>F; WIND 180/14

---

1755 SCT CIRRUS; T = 99<sup>0</sup>F; WIND 210/12

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◆◆◆◆TEXAS HIPLEX STATUS REPORT◆◆◆◆

VALID FOR JUNE 30, 1979

\*\*\*\*\* WEATHER SUMMARY \*\*\*\*\*

WITH THE EXCEPTION OF ONE TINY CUMULUS THAT APPEARED OVER THE EAST CENTRAL PORTION OF THE PROJECT SITE AT MID-AFTERNOON, THE DAY WAS WITHOUT SIGNS OF CONVECTION. A FEW HIGH CIRRIFORM CLOUDS WERE OBSERVED DURING THE MORNING AND LATE AFTERNOON HOURS. THE VIRTUALLY CLEAR SKIES AND DAYTIME TEMPERATURES IN THE 90'S AND LOW 100'S WERE THE RESULT OF THE PERSISTENCE OF THE DOMINANT SUBTROPICAL RIDGE THAT PRODUCED A VERY WARM AND DRY LOWER ATMOSPHERE.

\*\*\*\*\* OPERATIONS \*\*\*\*\*

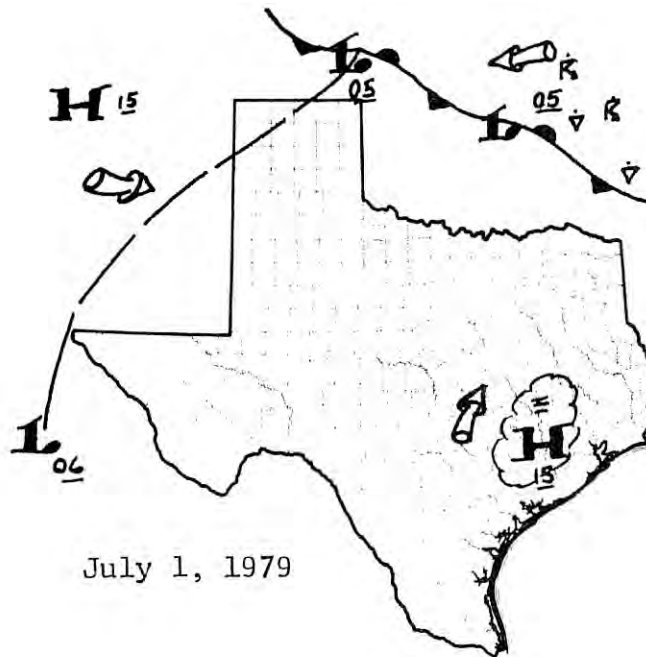
THE DAY WAS DECLARED NON-OPERATIONAL FOR THE MESOSCALE PROGRAM. NO HIPLEX AIRCRAFT OPERATIONS WERE CONDUCTED.

\*\*\*\*\* EQUIPMENT STATUS \*\*\*\*\*

SMR-75 : WORKING WELL  
P-NAVAJO : ALL SYSTEMS GO  
MRI NAVAJO : ALL SYSTEMS GO  
RAWINSONDES : ALL UNITS IN WORKING ORDER  
AUTO WX STATIONS : ONLY ABOUT HALF OF THE SYSTEMS ARE YIELDING DATA ON A CONTINUOUS BASIS WHICH ARE RELIABLE. SEVERAL ARE NOT TRANSMITTING AT ALL, WHILE SEVERAL OTHERS ARE GIVING DATA OF QUESTIONABLE VALUE.

BOMAR  
READY.  
STOP  
◆TERMINATED◆  
BYE

ER1200R LOG OFF 14.41.16.  
ER1200R SRU 1.000 UNTS.



Weather Summary

A stationary front lies southeast-northwest over Oklahoma into Kansas, with a weak dry line from a southwest Kansas frontal low to Roswell and El Paso. Scattered cirrus is over the operational area, but no lower clouds are noted. Ridging continues over the operational area, with air mass quite dry, warm, and stable.

Cirrus was scattered during the morning hours, and cirrus became broken during the afternoon hours, but no lower clouds of significance were seen.

July 1, 1979 (continued)  
Weather Observations

TIME  
(CDT)

---

0755      SCT CIRRUS; T = 75<sup>0</sup>F; WIND 170/22

---

0855      SCT CIRRUS; T = 79<sup>0</sup>F; WIND 180/20

---

1050      SCT CIRRUS; T = 87<sup>0</sup>F; WIND 190/22

---

1655      BKN CIRRUS; T = 98<sup>0</sup>F; WIND 170/14

---

79/07/02. 08.51.07.  
PROGRAM TEXP42

\*\*\*\*\*TEXAS HIPLEX STATUS REPORT\*\*\*\*\*  
VALID FOR JULY 1, 1979

\*\*\*\*\* WEATHER SUMMARY \*\*\*\*\*

THE SUBTROPICAL RIDGE CONTINUED TO DOMINANT WEATHER CONDITIONS WITHIN THE PROJECT AREA. ONLY HIGH CIRRIFORM CLOUDS WERE OBSERVED DURING THE DAY. SCATTERED CIRRUS OCCURRED DURING THE LATE MORNING, WHILE LOWER AND THICKER CIRRUS AND CIRROSTRATUS PARTIALLY COVERED THE SKY DURING THE AFTERNOON. THE EASTWARD MIGRATION OF A DRY LINE OUT OF CENTRAL NEW MEXICO SET OFF SEVERAL HEAVY THUNDERSTORMS ALONG THE TEXAS-NEW MEXICO BORDER ABOUT 50 MILES BEYOND THE NORTHWESTERN BORDER OF THE PROJECT AREA LATE IN THE AFTERNOON.

\*\*\*\*\* OPERATIONS \*\*\*\*\*

THE DAY WAS DECLARED NON-OPERATIONAL FOR THE MESOSCALE PROGRAM. NO HIPLEX AIRCRAFT OPERATIONS WERE CONDUCTED.

\*\*\*\*\* EQUIPMENT STATUS \*\*\*\*\*

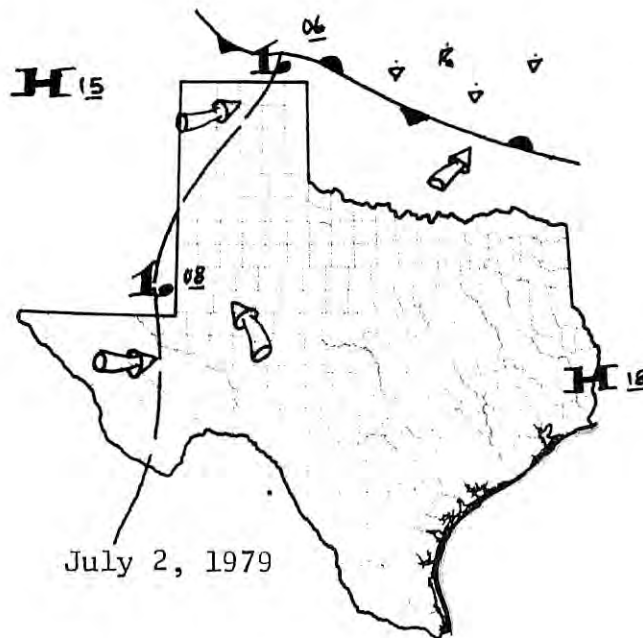
SWR-75 : WORKING WELL  
P-NAVAJO : ALL SYSTEMS GO  
MRI NAVAJO : ALL SYSTEMS GO  
RAWINSONDES : ALL UNITS READY  
AUTO WX STATIONS : FIVE OF THE 25 UNITS DID NOT TRANSMIT DATA. SEVERAL OF THE REMAINING 20 STATIONS GAVE SOME QUESTIONABLE DATA.

\*\*\*\*\* REMARKS \*\*\*\*\*

THE FOLLOWING IS A SUMMARY OF TEXAS HIPLEX OPERATIONS FOR JUNE 1979:

1ST MESOSCALE DAY  
4TH MESOSCALE DAY  
TWO MISSIONS--SEEDING AND SAMPLING  
5TH MESOSCALE DAY  
TWO MISSIONS--SAMPLING  
7TH FLY-BY OF HIPLEX AIRCRAFT  
8TH MESOSCALE DAY  
25TH ONE MISSION--SEEDING AND SAMPLING  
26TH TWO MISSIONS--SAMPLING

BOMAR  
READY.



Weather Summary

A weakening stationary front lies from northeast Oklahoma into southwest Kansas. A dryline lies from frontal low in southwest Kansas and northeast Texas Panhandle to southeast New Mexico and into the Trans-Pecos region of Texas. Air mass is warm, dry, and neutrally stable.

Skies remained clear throughout the afternoon with a few cumulus occurring during the early morning and through the early evening. Thunderstorms began developing off the Davis Mountains and moving northeast. These storms were approximately 100 miles southwest of the operational area by late afternoon. This activity moved into the operational area near 2100 CDT.



July 2, 1979 (continued)  
Weather Observations

TIME  
(CDT)

---

0755      SCT CI; T = 74<sup>0</sup>F; WIND 160/18

---

0955      FEW CI NW; T = 81<sup>0</sup>F; WIND 160/16G25

---

1150      SCT CIRRUS; T = 87<sup>0</sup>F; WIND 180/15G21

---

1355      CLEAR; FEW CI N-NE; T = 93<sup>0</sup>F; WIND 170/13G22

---

1455      CLEAR; FEW SML CU HU ALQDS; T = 94<sup>0</sup>F; WIND 180/12

---

1555      CLEAR; FEW SML CU HU ALQDS; T = 96<sup>0</sup>F; WIND 170/15G21

---

1650      CLEAR; FEW SML CU HU ALQDS; T = 96<sup>0</sup>F; WIND 170/20

---

2055      SCT CIRRUS; LINE CB SSW-NW; T = 92<sup>0</sup>F; WIND 210/13

---

\*\*\*\*\* TEXAS HIPLEX STATUS REPORT \*\*\*\*\*  
VALID FOR JULY 2, 1979

\*\*\*\*\* WEATHER SUMMARY \*\*\*\*

THERE WERE INDICATIONS OF SIGNIFICANT CHANGES IN THE STATE OF THE ATMOSPHERE IN THE PROJECT AREA AS THE DAY TRANSPIRED. THE SUBTROPICAL RIDGE WHICH HAS DOMINATED THE WEATHER IN THE REGION FOR A WEEK SHIFTED EASTWARD DURING THE DAY. ALTHOUGH SKIES WITHIN THE PROJECT AREA WERE VIRTUALLY CLOUDLESS THROUGHOUT THE DAYTIME, REMNANTS OF THUNDERSTORMS THAT DEVELOPED IN EASTERN NEW MEXICO IN ASSOCIATION WITH AN ACTIVE DRY LINE MOVED TO WITHIN THE WESTERN EDGE OF THE PROJECT AREA SHORTLY BEFORE DUSK. A FEW CUMULUS HUMILIS WERE OBSERVED OVERHEAD AT MID-AFTERNOON.

\*\*\*\*\* OPERATIONS \*\*\*\*

MESOSCALE SOUNDINGS WERE TAKEN AT ALL SEVEN RAWINSONDE STATIONS AT 10 AM, 1 AND 4 PM. THE DAY WAS DECLARED AS OPERATIONAL FOR THE MESOSCALE PROGRAM, ALTHOUGH LAUNCHES WERE TERMINATED WITH THE 1600 LDT SOUNDING. NO HIPLEX AIRCRAFT OPERATIONS WERE CONDUCTED.

\*\*\*\*\* EQUIPMENT STATUS \*\*\*\*

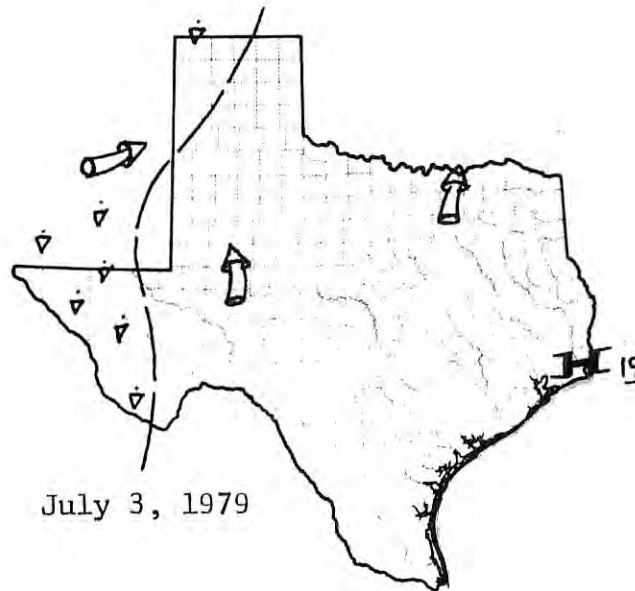
SWR-75 : WORKING WELL  
P-NAVAJO : ALL SYSTEMS GO  
MRI NAVAJO : ALL SYSTEMS GO  
RAWINSONDES : ALL UNITS OPERATED SATISFACTORILY  
AUTO WX STATIONS : TWENTY OF THE 25 STATIONS TRANSMITTING DATA ON A NEAR CONTINUOUS BASIS. NO DATA FROM THE REMAINING FIVE.

\*\*\*\*\* REMARKS \*\*\*\*

TEXP41 WAS ENTERED AT 1535 LDT, MONDAY, JULY 2. A CATLIST MADE AT 08.05.04 ON 79/07/02 REVEALED "TEXP41" WAS AN ENTRY IN THE LIST OF FILE NAMES. ANOTHER CATLIST MADE AT 1530 LDT ON THE 2ND INDICATED THAT THE ORIGINAL "TEXP41" HAD BEEN PURGED FROM THE SYSTEM SOME-TIME DURING THE DAY.

BOMAR  
READY.  
BYE

ER1200R LOG OFF 13.30.16.  
ER1200R SRU 1.000 UNTS.



### Weather Summary

Dryline lies across the Texas Panhandle to southeastern New Mexico and into Trans-Pecos Texas. Low level moisture is increasing over the operational area, while satellite imagery indicates strong positive advection of moisture into the region. Air mass is warm, quite moist, and unstable. 500 mb short wave near Chihuahua, Mexico moving slowly northeast.

Scattered cirrus leftover from previous day's activity remained over the operational area throughout the morning. First cumulus was noted at 1300. Scattered cumulus remained throughout the afternoon. By late afternoon activity began developing in the northwest portion of the operational area near Lamesa in response to low level convergence associated with dryline. Activity built into a line over the western portions of the operational area by 1800 CDT. A few tops reached 60,000 ft.

July 3, 1979 (continued)  
Weather Observations

TIME  
(CDT)

---

0755      SCT CIRRUS; T = 77<sup>0</sup>F; WIND 170/20G26; FEW SC N-E

---

0950      SCT CIRRUS; T = 80<sup>0</sup>F; WIND 180/19

---

1145      SCT CIRRUS; CU N-E-S-SW; FEW AS S-NW; T = 85<sup>0</sup>F; WIND 175/12

---

1355      SCT CUMULUS; SCT CIRRUS; FEW AS W-NW; T = 91<sup>0</sup>F; WIND 180/08G17

---

1555      SCT CU; SCT CI-CS; TCU-CB BLDG RPDLY NW; T = 94<sup>0</sup>F; WIND 180/10

---

1755      FEW CU; BKN CS; LN TCU-CB SW-N MVG NNE; T = 90<sup>0</sup>F; WIND 165/12

---

H

\*\*\*\*\* TEXAS HIPLEX STATUS REPORT \*\*\*\*\*  
VALID FOR JULY 3, 1979  
\*\*\*\*\* WEATHER SUMMARY \*\*\*\*\*

THE EASTWARD PROGRESSION OF A SURFACE DRY LINE, COMBINED WITH A SIGNIFICANT INCREASE IN INSTABILITY BROUGHT ABOUT BY A PERTURBATION IN THE UPPER-AIR FLOW PATTERN, SET OFF A SERIES OF HEAVY THUNDERSTORMS THAT MOVED ACROSS THE WESTERN PORTION OF THE PROJECT AREA LATE IN THE AFTERNOON. TWO OF THE CELLS IN THE BROKEN LINE OF CB'S REACHED UP TO MORE THAN 50 THOUSAND FEET AN HOUR OR SO BEFORE SUNSET. THE LINE OF THUNDERSTORMS EXTENDED FOR MORE THAN 100 MILES IN A SOUTH-SOUTHWEST TO NORTH-NORTHEAST ORIENTATION. MOVEMENT OF THE CELLS WAS SLOW (10 MILES PER HOUR OR LESS) AND GENERALLY PARALLEL TO THE LINE ITSELF.

\*\*\*\*\* OPERATIONS \*\*\*\*\*

THE DAY WAS DECLARED AS OPERATIONAL FOR THE MESOSCALE PROGRAM. SOUNDINGS WERE TAKEN AT ALL SEVEN RAWINSONDE SITES FROM 10 AM TO 10 PM (15 00Z TO 0300Z), WITH THE EXCEPTION OF A 0000Z SOUNDING FROM SEAGRAVES. TWO MISSIONS WERE FLOWN BY HIPLEX AIRCRAFT DURING THE AFTERNOON AND EVENING. BOTH MISSIONS INCLUDED BOTH SAMPLING AND SEEDING, AND ALL THREE AIRCRAFT WERE EMPLOYED DURING EACH MISSION. THE INITIAL MISSION DEALT WITH AN ISOLATED TCU/CB THAT DEVELOPED IN THE NORTH CENTRAL PORTION OF THE PROJECT AREA AT 1630 LDT. THE SECOND MISSION, WHICH LASTED UNTIL DUSK (OR ABOUT 0200Z), INVOLVED THE LINE OF CB'S THAT ENTERED THE PROJECT AREA DURING THE EARLY EVENING.

\*\*\*\*\* EQUIPMENT STATUS \*\*\*\*\*

SWR-75 : WORKING WELL  
P-NAVAJO : THE ICE PARTICLE COUNTER FAILED TO GIVE RELIABLE DATA DURING THE INITIAL MISSION OF THE DAY. PAUL LAWSON IS EN ROUTE TODAY (JULY 4) TO EXAMINE THE SYSTEM.  
MRI NAVAJO : ALL SYSTEMS GO  
RAWINSONDES : THE UNIT AT SEAGRAVES FAILED ONCE DURING THE EVENING BUT IS FUNCTIONAL. THE UNIT AT LAMESA IS DOWN; IT MAY BE OPERATING BY 0000Z TODAY.  
AUTO WX STATIONS : NO DATA FROM FIVE OF THE STATIONS. DATA MOST OF THE TIME FROM THE REMAINDER.

\*\*\*\*\* REMARKS \*\*\*\*\*

PLEASE ADVISE B. GIRARDO: RD65A ANTENNA CONTROL WAS BLOWING FUSES AT MID-AFTERNOON ON THE 4TH. NO APPARENT CAUSE. H. HANCOCK HAS A CALL IN FOR ASSISTANCE FROM D. COBB.

OMAR  
.

LOG OFF 16.38.36.  
SRU 1.000 UNTS.

MRI

HIPLEX NAVAJO LOG-1979

Date: 7/3/79 Mission A

Page No. 1 of 3

Site: Big Spring, Texas

Observer Humbert

Tape No. 910

Take Off Time 1615 Land Time 1825

BMS Time \_\_\_\_\_ = Aircraft Time \_\_\_\_\_

Aircraft Time \_\_\_\_\_ = Radar Time \_\_\_\_\_

Altitude (29.92) = Initial 2500  
Final 2810

Time	Event #	Altitude (kft)	Temp (°C)	Cloud #	Pass #	Type of Pass	COMMENTS
							(VOR, DME, HDG, Cl. Base Ht., Foil)
1620		2.5	32.2				Probes Read Zero
		3.0	30.3				Altitude Event Dew Pt 16.7°
		3.5	28.5				" 16.4° HDG 017
		4.0	27.4				" 342
		5.0	24.1				Dew Pt 15.3° " 357
		6.0	21.5				336/5.7 " 14.4° " 330
		7.1	18.3				337/10.4 " 13.5° " 334
							Radar observed cloud in sight, others
							appear entraining
		8.0	15.4				DP = 11.9 336/16.0 HDG 337
		9.0	12.8				DP = 10.6 336/20/7 HDG 332
		9.1	12.8				DP = 10.6 Cloud Base
		12.0	6.6				DP = 3.1 319/29.9 HDG 282
1649		13.9	1.3	1	1		317 37 018 1.5 - 1400 -5







MRI

HIPLEX NAVAJO LOG-1979

Date: 7/3/79 Mission B

Page No. 1 of 3

Site: Big Spring, Texas

Observer Humbert

Tape No. 911

Take Off Time 1923 Land Time 2121

BMS Time \_\_\_\_\_ = Aircraft Time \_\_\_\_\_

Aircraft Time \_\_\_\_\_ = Radar Time \_\_\_\_\_

Altitude (29.92) = Initial 2570 IP #1 250/30  
 Final 2570 IP #2 270/35

Time	Event #	Altitude (kft)	Temp (°C)	Cloud #	Pass #	WX Type of Pass	COMMENTS (VOR, DME, HDG, Cl. Base Ht., Foil)						
							VOR	DME	HDG	O/M <sup>5</sup> LWC	M/S W+	L-1 ASP	M/S VV-
1924		3.0	31.3				Altitude Event						
1930		5.0	25.5				" "						
1936		7.0	19.5				" "						
1941		9.0	14.6				" "						
1942		9.1	12.2				Cloud Base						
1946		11.0	9.2				Altitude Event						
1954		13.0	4.0				" "						
--		-	-	-	-	-	VOR	DME	HDG	O/M <sup>5</sup> LWC	M/S W+	L-1 ASP	M/S VV-
2004				1	1				330	.3	+7	1100	
2008		16.2		2	1		310	36	102	2.2	+11	1400	
2012		16.4		3	1		317	40	270	2.2	+ 7	1400	
2016		16.3		3	2		315	41	090	1.9	+ 3	1100	
2021		16.1	- 2.8	3	3		320	40	270	2.3	+11	1300	-4
2026		16.1	- 2.1	3	4	\$	319	41	090	1.8	+ 7	1100	-7





1979 TEXAS HIPLEX - AIRCRAFT OBSERVER LOG

Date 3 July 1979 Pilot(s) Roberts Time at -5C (CDT) \_\_\_\_\_  
 Flight 1 Observer Long Time at -10C (CDT) \_\_\_\_\_  
 Aircraft p-Navajo Instrument Operator Long Time at Initial Point (CDT) \_\_\_\_\_  
 Takeoff Time (CDT) 163734 Data Tape No. P191841

Landing Time (CDT) 1813

Temp (°C) and Dewpoint Profile (1000 ft.)

	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
ASDG T			25.3	22.7	19.5	16.5	13.8	9.4			5.0	2.5	-0.2				-6.6	-8.8	-10.2					
ASDG T <sub>d</sub>			13.7	13.2	12.7	11.9	9.9	8.2			-4.3	± 1	± 1				-22.2	-30.9	-22.6					
DSDG T																								
DSDG T <sub>d</sub>																								

A	~9500 ft.
D	~9800 ft.

Jerry Jurica is aboard to obtain supplemental observations.

Initial point is 335°/50 n. mi.

Time check showed p-Navajo time = MPI Navajo time minus 10 seconds.

Date: 3 July 1979

Aircraft: p - Navajo

1979 TEXAS HIPLEX - AIRCRAFT OBSERVER LOG

Time In	Time Out	Cld or Turret No.	Pass No.	Hdg	Speed	VOR/DME	Alt in (ft)	Alt Out	Comments (Cld Temp, U/Down, Turb, LWC, Ice, No. Flares, etc.)
1655						/			Flying in and out of small cumulus. Dewpoint fluctuating because of this.
1659						/			Air traffic control is holding us at 15000 ft.
1702						/			There appears to be about a 15 sec lag in dewpoint values.
1703						/			Considerable cirrus plumes from west extending into our area. Some may be seeding the cumulus below.
170530						/			Approximately 2C rise in reverse flow temperature as we entered a cloud.
170616				360°		325°/37			Air traffic control is allowing us to ascend to 20-22000 ft block. We must use a northerly heading to do this.
1708						328°/41			Frame #34 to west of cirrus and cumulus.
1709						/	17000		25C dewpoint depression.
1717						/	21000		Finally reached 21000 ft.
172121				180°		341°/49			Just east of cirrus.
172722		1	1	200°		/			1500 ft min <sup>-1</sup> downdraft.
	172844	2	1			/			500 ft min <sup>-1</sup> updraft. This cloud is just SSW of first one.
173210	173229	2	2			320°/35			Frame #35 of cloud?. View is from the west. 1200 ft min <sup>-1</sup> updraft.
1735						/			Nine track tape recorder down. All power lost to tape recorder.
						/			

Date: 3 July 1979

Aircraft: P - Navajo

1979 TEXAS HIPLEX - AIRCRAFT OBSERVER LOG

Time In	Time Out	Cld or Turret No.	Pass No.	Hdg	Speed	VOR/DME	Alt in (ft)	Alt Out	Comments (Cld Temp, U/Down, Turb, LWC, Ice, No. Flares, etc.)
1737						/			All power down to system.
173730		2	3	crosswind		/			Treatment pass: no-seed. Cloud appearing to subside. This is HIPLEX Mission 4.
174300		2	4			/			Cloud is dissipating some. No updraft.
1747						326 <sup>9</sup> 46	21500		Returned over cluster of turrets. Continued to circle in area watching turrets bob up and down.
1751						350 <sup>0</sup> 57			For the past 25 minutes we have been flying back and fourth over and through some turrets popping up here and there. They appear to be pulsating and form a cluster 5-10 mi on a side. Decision made for MRI Navajo to penetrate natural clouds so long as time is available. p - Navajo will fly above and take photographs and notes.
1757						/			Frames #1 and #2 of Roll 2 show the typical scene.
1758						327 <sup>9</sup> 59.6	21800		Since 1745 we have been flying in the clear above the turrets.
1800						/			Returning to Big Spring.
						/			NOTE: MRI Navajo apparently penetrated clouds 1 and 2 shortly after us.
						/			
						/			
						/			
						/			
						/			

1979 TEXAS HIPLEX - AIRCRAFT OBSERVER LOG

Date 3 July 1979 Pilot(s) Roberts Time at -5C (CDT) 1947  
 Flight 2 Observer Long Time at -10C (CDT) \_\_\_\_\_  
 Aircraft p-Navajo Instrument Operator Long Time at Initial Point (CDT) \_\_\_\_\_  
 Takeoff Time (CDT) 192555 Data Tape No. P191842  
 Landing Time (CDT) 212527

Temp (°C) and Dewpoint Profile (1000 ft.)

	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	
ASDG T	30*	26*	24*	21*	19*	16.5	13*	12.5			4.6	4*	1.2		-4.1	-5*	-5*								
T <sub>d</sub>						11.3		3.1			-7.8		-5.6		-6.9										
DSDG T											5*				-1.1*										
T <sub>d</sub>																									

Cld Base (1000 ft)  
 A ~9500 ft.  
 D

Jerry Jurica is on-board to provide supplemental observations.

\* Denotes temperatures from aircraft thermometer rather than from reverse flow probe.

Usually thermometer temperature is 1-2C below reverse flow temperature.

Initial point is 250°/30 n. mi. near a thunderstorm in the Midland area.

Date: 3 July 1979

Aircraft: P - Navajo

1979 TEXAS HI-PLEX - AIRCRAFT OBSERVER LOG

Time In	Time Out	Cld or Turret No.	Pass No.	Hdg	Speed	VOR/DME	Alt in (ft)	Alt Out	Comments (Cld Temp, U/Down, Turb, LWC, Ice, No. Flares, etc.)
1936						261 <sup>9</sup> /5	9500		Cloud base.
1942				270°		270 <sup>9</sup> /20			Frame #4 to SW of cumulonimbus. We are heading toward the turrets to the north of it.
194420	~1945	1	1	270°		270 <sup>9</sup> /22.2	16100		Hard cloud, -1 updraft. Approached NE corner of turret.
~1947						/			Initial point moved to about 270°/25 n. mi.
194840						275 <sup>9</sup> /31	18700		Frame #5 to east of typical turret on north side of cumulonimbus clouds.
1951						/	20000		
195320	195355	2	1	60°		297 <sup>9</sup> /24	21000		JW LWC is as high as 2 g m <sup>-3</sup> . T <sup>w</sup> ~ -10.5C. Dewpoint ~ -34.7C. 1000 ft min <sup>-1</sup> , then 1500 ft min <sup>-1</sup> , then 1800 ft min <sup>-1</sup> updrafts. Cloud top about 26000 ft.
195730	195800	2	2	255°		302 <sup>9</sup> /24	21000		JW LWC is not higher than 0.3 g m <sup>-3</sup> . Cloud is drying out. We will proceed to another cloud.
200041	200116	3	1	340°		~307 <sup>9</sup> /34			JW LWC is as high as 2.8 g m <sup>-3</sup> . 800 ft min <sup>-1</sup> updraft. This growing turret was in front of another higher turret.
2003						309 <sup>9</sup> /37			Frame #6 of turrets to southwest.
200644						/			Turrets are not lasting very long.
~200845	200930	4	1	270°		~310 <sup>9</sup> /36	20800		Not much updraft.
						315 <sup>9</sup> /40	20500		JW LWC is as high as 2.2 g m <sup>-3</sup> . Cloud top is only about 500-1000 ft above flight level. Frame #7.

Circled to west of cloud waiting for MRI Navajo to exist the cloud on its first east-to-west pass.



Date: 3 July 1979

Aircraft: p - Navajo

## 1979 TEXAS HI-PLEX - AIRCRAFT OBSERVER LOG

Time In	Time Out	Cid or Turret No.	Pass No.	Hdg	Speed	VOR/DME	Alt in (ft)	Alt Out	Comments (Cld Temp, U/Down, Turb, LWC, Ice, No. Flares, etc.)
200930 to									
201130						/			Computer down. Restarted it.
201411						312°/43	21000		Frame #8 of cloud to east.
201459		4	2	75°		319°/37	20500		JW LWC $\sim 1.3$ to $1.4 \text{ g m}^{-3}$ . This was the seeding pass. 11 flares were fired. A check of the flare rack showed 9 flares actually dropped. Flares were dropped every 3 sec.
						/			
201907	201930	4	3	255°		318°/41	20500		A remnant of cloud was penetrated at 201820 - 30 just prior to entering the main cloud.
						/			
202128						/	20500		Frame #9. View from west of cloud.
202320	202425	4	4	70°		317°/41	20500		JW LWC $\sim 0.6 \text{ g m}^{-3}$ JW LWC $\sim 1.5 \text{ g m}^{-3}$ side of cloud $\sim 1500 \text{ ft min}^{-1}$ updraft mainly east, $1000 \text{ min}^{-1}$ , $1 \sim 12C$ , downdraft.
202750	202840	4	5	255°		320°/41	20500		Cloud tops have been growing. Good liquid water content. More ice. Cloud has two distinct more intense sections. $1600 \text{ ft min}^{-1}$ is maximum updraft. $2500 \text{ ft min}^{-1}$ max. downdraft on west side.
						/			
203025						/	20500		Frame #10 is view SE of turrets on treated cloud. Frame #11 at 203055 of turret. There are bigger clouds NE of the treated cloud.
203245	203318	4	6	70°		325°/45	20500		$1000 \text{ ft min}^{-1}$ downdraft at 203300. Considerable liquid water. No ice.
2034						/			Frame #12 of general area.
203511						/			Frame #13 of turret; looking west.
203655	203740	4	7	250°		325° 42	21000		Maximum updraft is $1400 \text{ ft min}^{-1}$ . $1200 \text{ ft. min}^{-1}$ updraft observed on east side. $900 \text{ ft min}^{-1}$ downdraft observed after updraft. JW LWC was only $0.1 \text{ g m}^{-3}$ .

203930

Cloud top is developing ice as seen from west.

204030

Aztec report rain from east side of cloud. There is new development on the lower part and the west side of the cloud.

Date: 3 July 1979

Aircraft: P - Navajo

1979 TEXAS HIPLEX - AIRCRAFT OBSERVER LOG

Time In	Time Out	Cld or Turret No.	Pass No.	Hdg	Speed	VOR/DME	Alt in (ft)	Alt Out	Comments
	204113	4	8	270°		325°/45	21100		1000 ft min <sup>-1</sup> updraft. 500 ft min <sup>-1</sup> downdraft. Passed through new development on west side of cloud.
						/			Frames #14, #15, #16 of crepuscular rays attributable to clouds in our area. Cloud had two sections. Exited first section at 204445, 500 ft min <sup>-1</sup> updraft. Entered second section a few seconds later. Had not observed two sections to cloud so distinctly earlier.
204435	204511	4	9	255°		326°/43	21000		A new turret is developing on west side again. Radar on ground reports a better echo.
204855		4	10	75°		325°/45	21100		Good ice. Lightning at 204922. 500 ft min <sup>-1</sup> downdraft. 1500 ft min <sup>-1</sup> updraft at 204939, 2000 ft min <sup>-1</sup> updraft near east side.
2050						/			Frame #17 of cloud, from the east.
2052						/			Frame #18 of Cb, to the south.
205300		4	11	270°		327°/45	21100		Considerable ice. 1500 ft min <sup>-1</sup> updraft at 205311, then 2500 ft min <sup>-1</sup> updraft, and then, 3000 ft min <sup>-1</sup> updraft at 205320 immediately followed by 1000 ft min <sup>-1</sup> downdraft. 1000 ft min <sup>-1</sup> updraft on way out of cloud.
205430						/			MRI Navajo running low on fuel and oxygen. Will have to return to Big Spring soon.
205605						/			Frame 19 of sunset from west of turret. Cloud is now producing an anvil.
205800	205835	4	12	75°		333°/46	21100		Dewpoint is -40C in clear air west of cloud. Perhaps did not pass through main part of cloud. 1600 ft min <sup>-1</sup> updraft. Liquid water
2059		4	13	265°		325°/45	20700		1500 ft min <sup>-1</sup> updraft. Passed through new development on east side of cloud. There are new clouds developing in the area. Difficult to locate treated cloud.
210029	210243					326°/45			Perhaps a new turret, but has good updraft. Situation is getting more complicated with more turrets.
210315									Query to Skywater Radar about the new development provides response that clouds do not show up on radar. Perhaps they do not have enough precip. size particles yet.



7/3/79

13816

2426.3 (16:34)

1.1

None

Date

P/C Number

Engine Off

Flight Time

Flares This Month

S. Gabrick

Hiplex

2427.4 (17:43)

81

Pilot

Type Flight

Engine Off

Flight Number

Flares to Date

SOUNDING Temp. °C	EVENT & TIME	POSITION Radial-DME	CLOUD BASE (Ft.)	BASE TEMP (°C)	UPDRAFT VEL. (FPM)	UPDRAFT AXIS (S.MI)	FLARE NO.	Hdg. (DEG)	A/C SPEED (MPH)	NOTES
G 32										
3 30 31	1 16:47	285/10	9.3K	12				320	120	Line of TCU oriented NE-SW noted in Dist.
4 27 27										
5 23 23	2 16:53	308/26	9.5K	13				315	165	No change in line of TCU to W-N-NE
6 21 23										
7 17 17	3 16:58	315/30	9.8K	10				105	160	Well formed isolated TCU to W-N
8 15 14										
9 12 12	4 17:12	335/43	9.8K	10				015	160	Light rain in clr air TCIE toward E. dissipating quickly.
10 9 9										
11										
12										
13										
14										
15										
16										
17										
18										
19										

REMARKS:

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7-3-79 Date  
 13816 P/C Number  
 2427.5 (19:25) Engine Off  
 1.7 Flight Time  
 None Flares This Month

S. Gabrick Pilot  
 Hiplex Type Flight  
 2429.2 (21:10) Engine Off  
 82 Flight Number  
 Flares to Date

SOUNDING Temp. °C K Asc. Des.	EVENT & TIME	POSITION Radial-DME	CLOUD BASE (Fl.)	BASE TEMP (°C)	UPDRAFT VEL. (FPM)	UPDRAFT AXIS (S.MI)	FLARE NO.	Hdg. (DEG)	A/C SPEED (MPH)	NOTES
G 31										Line of CB's W-N
3 30 29	1 19:33	200/10						290	160	Cell to W most mature cells at 2900, 3200,
4 27 25										3500 - icing evident on all cells, particularly cell at 3500
5 24 23										
6 20 20	2 19:39	262/17	9.5K	12				295	160	Precip noted on E edge of large cell to W
7 18 17										CG lightning;
8 14 13										Rainshaft extensive
9 11 11	3 19:42	269/23	10.1K	11				295	160	District CBS noted at 2950; 10 mi beyond closest line;
10 10										small Diam., high top;
11										Shelf beginning to
12										develop on both
13										large cell to W and smaller cell fur. E
14	4 19:48	274/23	10.0K	10				220	120	N-S line evident from cloud shadows
15										development of line
16										uniform; base & top
17	5 19:52	276/30	10.0K	10				270	130	Virga, precip from sampled cloud
18	6 19:58	303/24	10.0K	9				090	140	
19	7 20:00	310/27	10.0K	9		(MRI Insight)		315	140	TCU Noted by Hiplex 1 - target precip noted.
	8 20:02	315/32	10.0K	9		(MRI Insight)		315	140	
	9 20:05	310/40	10.0K	10				070	120	Target cloud insight S end of line

REMARKS:

7-3-79

13816

2427.5 (19:25)

1.7

Flares to Date

Date

P/C Number

Engine Off

Flight Number

S. Gabrick

Hiplex

2429.2 (21:10)

82  
Flight Number  
Flares to Date

Pilot

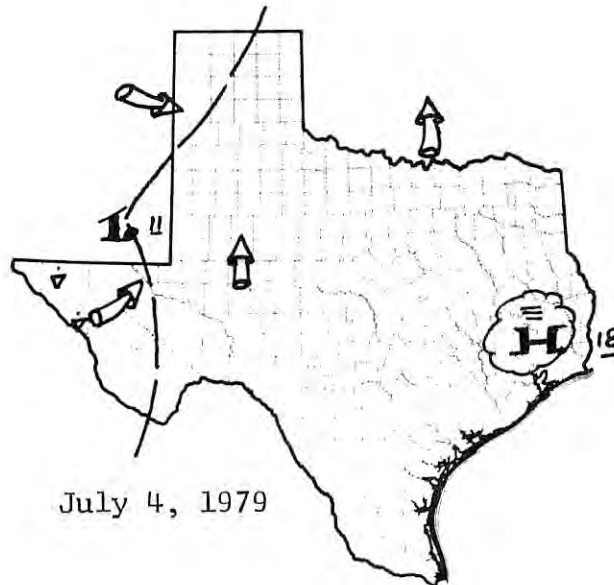
Type Flight

Engine Off

SOUNDING Temp. °C K Asc. Des.	EVENT & TIME	POSITION Radial-DME	CLOUD BASE (Ft.)	BASE TEMP (°C)	UPDRAFT VEL. (FPM)	UPDRAFT AXIS (S.MI)	FLARE NO.	Hdg. (DEG)	A/C SPEED (MPH)	NOTES
G	10 20:09	325/40	10.5K					180	150	-
3	11 20:11	324/40	10.0K					260	140	Pass made under CB Pen. by P-Nav
4										
5										
6	12 20:16	310/39		(20:15 candidate seeded)				090	140	W edge of Candidate cloud sighted
7										
8	13 20:18	315/40						360	140	line of ICK noted to N of candidate cloud
9										
10	14 20:23	328/40	10.0K					060	140	Light RW noted under target CB
11										
12	15 20:25	325/42	10.0K					290	145	RW - noted under Target CB
13										
14	16 20:28	329/42	10.0K					090	145	RW increasing upon 3rd pass
15										
16	17 20:50	330/42	10.0K		200	2½		260	135	RW Steady, mod. updraft
17										
18	18 20:33	330/42	10.0K		200	2½		070	130	RW incr.; 5th pass Hvy RW noted to N
19	19 20:35	330/44	9.5K		500			280	120	RW Steady
20	20 20:40	327/44	9.5K					090	140	RW Steady; Good dev. noted on W side
21	21 20:43	327/45	9.5K					270	140	New growth noted on W side; RW incr.

REMARKS:

Problem with right engine; returned to Webb 20:48



### Weather Summary

Dryline lies from the Texas Panhandle near Amarillo southwest to a low near Carlsbad and south-southeast to west of Marfa. A 500 mb short wave lies east of Chihuahua in Mexico and is moving northeast, being amplified by an associated vorticity sheet. Low level moisture is increasing over the operational area and considerable upper level moisture and cloudiness is moving northeast into the region. Air mass is warm, moist, and quite unstable.

Skies were clear during early morning hours with some stratus and stratocumulus. Scattered cumulus was first observed just prior to noon. By 1400, first echo in operational area noted near Lamesa, and a line of strong thunderstorms was developing well west-northwest of the operational area east of the dry line. Although scattered rainshower briefly occurred during the afternoon, the dryline activity did not affect the operational area until 2000 CDT, when thunderstorms moved in from the south-southwest.

July 4, 1979 (continued)  
Weather Observations

TIME  
(CDT)

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0755 CLR T = 76<sup>0</sup>F; CI-CS DSNT S-W-NW; HAZE, STRATUS LAYER FRMG  
S-SW-W; WIND 180/16

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0855 CLR. T = 78<sup>0</sup>F; SC SE-S-NW AND OVHD INCRSG; CI-CS S-NW;  
WIND 190/15G21

---

0950 CLR CU ALQDS EXPT OVHD; CS APCHG FM S-SW-W; T = 84<sup>0</sup>F;  
WIND 190/16

---

1055 CLEAR CU ALQDS; CI-CS S-W; T = 84<sup>0</sup>F; WIND 180/13

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1150 SCT CUMULUS; CI-CS SE-S-W; T = 88<sup>0</sup>F; WIND 150/15

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1355 SCT CUMULUS; FEW CI-CS SE-S-W; T = 93<sup>0</sup>F; WIND 130/03; TCU  
DSNT NW

---

1450 SCT CU; FEW CI; CS; CB DSNT W-NW; T = 97<sup>0</sup>F; WIND 140/06

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1655 LN CB W-NW; SCT CU; MDT CU ALQDS; SCT CI; T = 98<sup>0</sup>F; WIND 140/10

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2055 FEW CU; TCU/RWU E; CB S MVG N; T = 93<sup>0</sup>F; WIND 110/08;  
SCT CI-CS

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LNH

\*\*\*\*\* TEXAS HIPLEX STATUS REPORT \*\*\*\*\*  
VALID FOR JULY 4, 1979

\*\*\*\*\* WEATHER SUMMARY \*\*\*\*\*

A LINE OF THUNDERSTORMS DEVELOPED IN THE VICINITY OF A SURFACE DRY LINE IMMEDIATELY WEST OF THE PROJECT AREA EARLY IN THE AFTERNOON. A COUPLE OF THE CELLS JUST SKIRTED THE NORTHWESTERN CORNER OF THE PROJECT AREA AT MID-AFTERNOON. JUST BEFORE DUSK TWO ISOLATED CUMULO-NIMBI DEVELOPED WITHIN THE PROJECT AREA, ONE IN THE EAST CENTRAL PORTION OF THE AREA AND THE OTHER IN THE SOUTHERN SECTOR. RAIN SHAFTS AND LIGHTNING WERE OBSERVED FROM BOTH CELLS. BY LATE MORNING, NUMEROUS SMALL CUMULOS WERE SEEN OVERHEAD, BUT PRACTICALLY ALL WERE CONFINED TO A THIN LAYER NO MORE THAN A FEW THOUSAND FEET.

\*\*\*\*\* OPERATIONS \*\*\*\*\*

THE DAY WAS DECLARED AS A MESOSCALE PROGRAM BEGINNING AT 1600 LDT, ALTHOUGH ONLY ONE LAUNCH (THE 1600 LDT) WAS MADE. THE TWO LATEST LAUNCHES (1900 AND 2200 LDT) WERE CANCELLED. ONE HIPLEX AIRCRAFT FLIGHT WAS MADE; THE P-NAVAJO EXAMINED SOME OF THE DEVELOPING THUNDERSTORMS AT THE NORTHWESTERN CORNER OF THE PROJECT AREA. NO SEEDING WAS PERFORMED, AS THE ACTIVITY WAS NOT WITHIN THE OPERATIONAL AREA.

\*\*\*\*\* EQUIPMENT STATUS \*\*\*\*\*

SWR-75 : WORKING WELL  
P-NAVAJO : THE INSTRUMENT PACKAGE ON BOARD WAS FOUND DURING THE AFTERNOON FLIGHT NOT TO BE PROVIDING ICE PARTICLE COUNTS AND UNRELIABLE LIQUID WATER DATA WERE DISCOVERED. P. LAWSON WORKED ON THE SYSTEM LATE IN THE DAY. SYSTEM NOW READY FOR CHECK-UP.  
MRI NAVAJO : ALL SYSTEMS FUNCTIONAL  
RAWINSONDES : THE UNIT AT LAMESA IS NOT WORKING. NO SOUNDING DATA WAS OBTAINED FROM THE UNIT WHEN THE NETWORK WENT INTO OPERATION AT 1600. IT IS EXPECTED TO GO OUT OF OPERATION TODAY (JULY 5).  
AUTO WX STATIONS : MORE THAN HALF OF THE STATIONS ARE NOT REPORTING BECAUSE OF DRAINED BATTERIES. BATTERY CHARGER IS TO BE PROCURED.  
BOMAR







MRI

HIPLEX NAVAJO LOG-1979

Date: July 5, 1979

Page No. 1 of 3

Site: Big Spring, Texas

Observer Humbert

Mission #2

Tape No. 913

Take Off Time 1431 Land Time 1555

BMS Time \_\_\_\_\_ = Aircraft Time \_\_\_\_\_

Aircraft Time \_\_\_\_\_ = Radar Time \_\_\_\_\_

Altitude (29.92) = Initial 2450  
Final 2475

Time	Event #	Altitude (kft)	Temp (°C)	Cloud #	Pass #	DP Type of Pass	COMMENTS (VOR, DME, HDG, Cl. Base Ht., Foil)											
							VOR	DME	HDG	LWS	+W	ASP	IPC	-W	WX			
1432		3.0	29.8															
1439		5.0	21.8															
1445		7.0	15.8															
1449		9.0	11.6			8.6	170	32	306									
1454		11.0	7.0			4.4	171	30.8	267									
1501		13.0	4.5			.2	166	29.3	34									Still in climb to 180/20
1511		15.0	- .2			-4.5	177	15.4	124									
1514		15.3	-1.1	1	1		156	14.1	063									Cloud now level 1 on radar
1516		15.3	-2.3	1	1		135	17	060	1.6	+5	1300						-4
1519		15.0	-1.4	1	2		128	19.8	255									
1522		15.1	-2.3	1	2		132	17	256	1.3	+6	1200	5.0					-1
1526		15.2	-2.3	1	3		127	18	060	.6	+4	800	7.0					-5 R
1529		14.6	-0.0	1	4		126	18	289	1.3	+5	1200	20.0					-2 R+
1535		14.6	-0.7	1	5		134	16.5	99	.6	+3	800	-					-1 R-





1979 TEXAS HIPLIX - AIRCRAFT OBSERVER LOG

Date 4 July 1979 Pilot(s) Gabrick, Roberts Time at -5C (CDT) \_\_\_\_\_  
 Flight 1 Observer Long Time at -10C (CDT) \_\_\_\_\_  
 Aircraft P-Navajo Instrument Operator Long Time at Initial Point (CDT) \_\_\_\_\_  
 Takeoff Time (CDT) 150525 Data Tape No. P19185  
 Landing Time (CDT) 160833

Temp (°C) and Dewpoint Profile (1000 ft.)

	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
ASDG T					20*	15.9	13.6	12.3	10.5	8.3	6.4	3.9	2.0		-2.9	-4*	-5*		-9*					
ASDG T <sub>d</sub>						9.2	3.6	-2.8	-17.5	-18.5	-22.1	-23.4	-24.8		-28.2									
DSDG T																								
DSDG T <sub>d</sub>																								

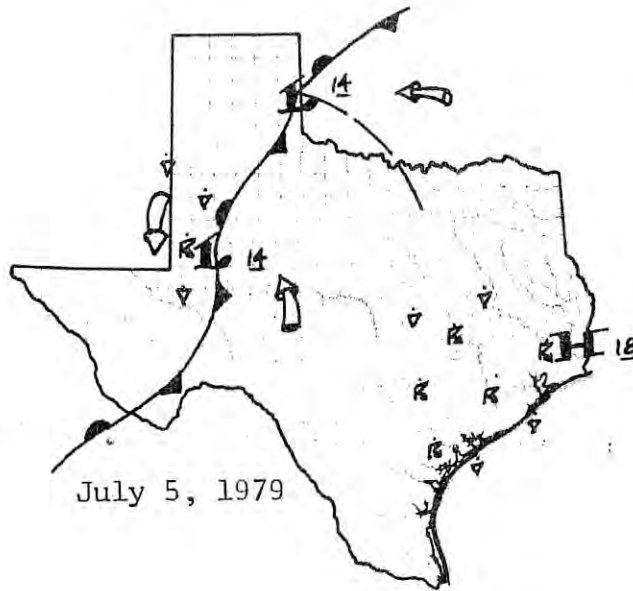
Cld Base (1000 ft)  
 9700  
 A Reverse flow  
 temp. 11.5C  
 D

George Bomar is on board to obtain supplemental observations.

\* Denotes temperatures obtained with aircraft thermometer rather than with reverse flow probe.







Weather Summary

A developing surface front is moving slowly eastward toward the operational area, and is now lying north-south from west of Plainview and Lubbock to Midland Air Terminal and east of Marfa. A 500 mb short wave lies just west of Midland Air Terminal and is approaching the operational area. Numerous rainshower/thunderstorms are occurring from near Andrews to Lubbock. Air mass is warm and moist but is somewhat stable.

Widespread altocumulus and altocumulus castellanus were over the western and northwestern operational area during the early morning hours. With stratus bank moving in slowly from the southeast and south. By late morning a cumulus deck had developed and winds began veering from southerly to southwesterly in advance of the front. Activity continued in the northwestern portion of the operational area, and aircraft were launched to sample.

During the afternoon the northwestern operational area activity moved out, but significant (Mt 460) thunderstorm activity developed ahead of slowly moving front in the south central operational area.

July 5, 1979 (continued)  
Weather Observations

TIME  
(CDT)

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0755 SCT AC; ACCAS ALQDS; ST BNK SE-S; BKN CI-CS; T = 74<sup>0</sup>F;  
WIND 190/07

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0850 SCT AC-ACCAS; BKN CC; ST SE-S; T = 78<sup>0</sup>F;  
WIND 230/11

---

0950 BKN AC/ACCAS; FEW CC-CS N-E-SE; SC SE-S; T = 81<sup>0</sup>F;  
WIND 230/12

---

1150 SCT CU; BLG CU CONG -TCU SE-S; LN TCU/ACCAS -CB W-N;  
T = 86<sup>0</sup>F; WIND 240/06

---

1355 SCT CUMULUS; TCU/CB E-S; RWU E-S; CB DSNT NW-NE; T = 93<sup>0</sup>F;  
WIND 300/05

---

1455 SCT CUMULUS; LN TCU -CB NE-S; LN CB DSNT N-NE; T = 94<sup>0</sup>F;  
TRWU NE-S; WIND 340/09

---

1550 BKN CU; TCU/CB SW-S-SE-NE; RWU-TRWU SW-E-NE; T = 84<sup>0</sup>F;  
WIND 150/20

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OLD, TEXP46  
READY.  
LIST

79/07/07. 09.29.05.  
PROGRAM TEXP46

\*\*\*\*\*TEXAS HIPLEX STATUS REPORT\*\*\*\*\*

VALID FOR JULY 5, 1979

\*\*\*WEATHER SUMMARY\*\*\*

WIDESPREAD AC AND ACCAS WERE OBSERVED OVER THE WESTERN AND NORTHWESTERN OPERATIONAL AREA DURING THE EARLY MORNING HOURS, WITH STRATUS BANK MOVING INTO THE OPERATIONAL AREA FROM THE SE AND SOUTH. BY LATE MORNING A CUMULUS DECK HAD DEVELOPED, AND WINDS BEGAN VEERING TO SOUTHWESTERLY IN ADVANCE OF THE FRONT. DURING THE AFTERNOON SIGNIFICANT TRW ACTIVITY DEVELOPED AHEAD OF THE SLOW MOVING FRONT IN THE CENTRAL PORTION OF THE OPERATIONAL AREA.

\*\*\*OPERATIONS\*\*\*

THE DAY WAS BRIEFED OPERATIONAL FOR BOTH THE HIPLEX AND THE MESOSCALE PROGRAMS. TWO HIPLEX MISSIONS WERE DOCUMENTED.

\*\*\*EQUIPMENT STATUS\*\*\*

SWR-75: OPERATIONAL

P-NAVAJO: LOST TRANSPONDER BUT FINISHED THE HIPLEX MISSIONS

MRI NAVAJO: LOST ALTERNATORS BUT COMPLETED THE HIPLEX MISSIONS

RAWINSONDES: LAMESA AND SNYDER STATIONS DOWN, BGS SOUNDING ARE BEING TRACKED BY HAND.

RIGGIO

1979 TEXAS HIPLEX - AIRCRAFT OBSERVER LOG

Date 5 July 1979 Pilot(s) Roberts Time at -5C (CDT) 122448(17750 ft)  
 Flight 1 Observer Long Time at -10C (CDT) \_\_\_\_\_  
 Aircraft p-Navajo Instrument Operator Long Time at Initial Point (CDT) \_\_\_\_\_  
 Takeoff Time (CDT) 120315 Data Tape No. P191861  
 Landing Time (CDT) 153636

Temp (°C) and Dewpoint Profile (1000 ft.)

	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
ASDG T		23*		19*			12.5			4.7		*	-0.8	*	-2.9	-5.4	-7.1							
T <sub>D</sub>							-2.6			2.4			-3.1		-10.2	-7.0	-12.0							
T																								
T <sub>D</sub>																								

A	~10750
D	

Cld Base (1000 ft)

Jerry Jurica is on-board to obtain supplemental observations.

Paul Lawson of CIC is on-board to observe the operation of the data system.

Initial point is 350°/40 n. mi.

\*Denotes temperatures obtained with aircraft thermometer rather than with reverse flow probe.

Date: 5 July 1979

Aircraft: P - Navajo

1979 TEXAS HIPLEX - AIRCRAFT OBSERVER LOG

Time In	Time Out	Cld or Turret No.	Pass No.	Hdg	Speed	VOR/TIME	Alt in (ft)	Alt Out	Comments (Cld Temp, U/Down, Turb, LWC, Ice, No. Flares, etc.)
121058						/			Skywater Radar time = p - Navajo time plus 2 sec.
122550						/			Skywater radar informs us of a good echo at 3409/45 n. mi. This is detectable on the aircraft radar.
122814		1	1	350°		340°/47	19500		Ice particle concentration up to about 50 $\mu$ -1. W LWC steady at about 1.5 - 2 g m <sup>-3</sup> . IPC appears to work. 1000 ft min <sup>-1</sup> updraft. 500 ft min <sup>-1</sup> downdraft.
123328	123420	1	2	180°		340°/51	20900		Ice particle concentration up to about 50 $\mu$ -1. Some graupel. Too much natural ice in these clouds to permit treatment.
~1237						/			Frame #24 to NW of typical clouds.
~1240						/			Frame #25 to WSW of clear area over which we are loitering as we wait to link up with the MRI Navajo.
1243						/			Visual contact established with MRI Navajo.
1251						330°/52			Have been flying in this general area. Alto cumulus are present from which some tarrets grow. It is not possible to do co-ordinated in-cloud work with the MRI Navajo in this situation because we cannot be sure of being on the same cloud. We are linking up with the MRI Navajo to do some intercomparisons.
1253						/			Descending to level of MRI Navajo at about 16,400 ft. Frame #26.
125330						/	17500		Frame #27 to N. MRI Navajo IPC is having a minor problem.
1255						/	16700		

328° 58

Frame #28 of growing cloud on left, collapsing cloud on right. This is a typical situation. Established wing-to-wing formation with MRI Navajo. Frame #29 of MRI Navajo.

130115

~1302

Date: 5 July 1979

Aircraft: p - Navajo

1979 TEXAS HIPEX - AIRCRAFT OBSERVER LOG

Time In	Time Out	Cid or Turret No.	Pass No.	Hdg	Speed	VOR/DME	Alt in (ft)	Alt Out	Comments
~1306		2	1	90°		319°/54			(Cld Temp, U/Down, Turb, LWC, Ice, No. Flares, etc.) In-cloud intercomparison with MRI Navajo, especially of ice particle counts. Data obtained for about 10-15 sec. We are apparently in an old cloud with ice at the -2C - 3C level.
1315						/			Skywater radar observes a line of echoes from growing cumulus congestion extending from 180°/40 n. mi. to 130°/40 n. mi. We are flying to 160°/40 n. mi. MRI Navajo will do a Z-R run through precipitation at about 8000 ft at ~340°/35 n. mi. They may have to refuel before rejoining us. Echoes have 25000 tops.
1337				165°		128°/6	21000		Frame #31 toward 75° of cloud field and part of line we are approaching.
134311		3	1	190°		154°/24	21000		700 ft min <sup>-1</sup> updraft, 500 ft min <sup>-1</sup> downdraft. Considerable ice. Cloud appeared to be growing prior to penetration.
134437		4	1	180°		157°/29	20900		Nothing significant.
~1346	~1347	5	1			158°/34	20800		3800 ft min <sup>-1</sup> updraft, 2500 ft min <sup>-1</sup> downdraft. Considerable ice. Too much ice for treatment.
~134845	134944	5	2	280°		156°/34	20600		Graupel at 134914. 1000 ft min <sup>-1</sup> downdraft in region of graupel. Cloud has mainly downdraft. Ice particle concentration is ~ 20-50 l <sup>-1</sup> . Maximum downdraft was 2000 ft min <sup>-1</sup> .
135618		6	1	110°		165°/44	20800		JW LWC as high as 2.2 g m <sup>-3</sup> . No ice. Some updraft. 1000 ft min <sup>-1</sup> downdraft. Cloud had hard appearance. This cloud is selected for treatment.

Frame #32 of cloud 6 before pass 2.  
Treatment is no seed.

140133	~135933	6	2	285°	160°/45	20400	No updraft. 500 ft min <sup>-1</sup> downdraft. Some liquid water.
140133	~140211	6	3	90°	161° 45'	20400	No JW LWC. Cloud dissipating. Up- draft as high as 500 ft min <sup>-1</sup> . Down- draft as high as 1000 ft min <sup>-1</sup> .
140501		7	1	280°	158° 42'	20300	JW LWC ~ 0.5 g m <sup>-3</sup> . Unimpressive cloud. Not included as a "sampled, not-treated" cloud.



Date: 5 July 1979

Aircraft: p - Navajo

## 1979 TEXAS HIPLEX - AIRCRAFT OBSERVER LOG

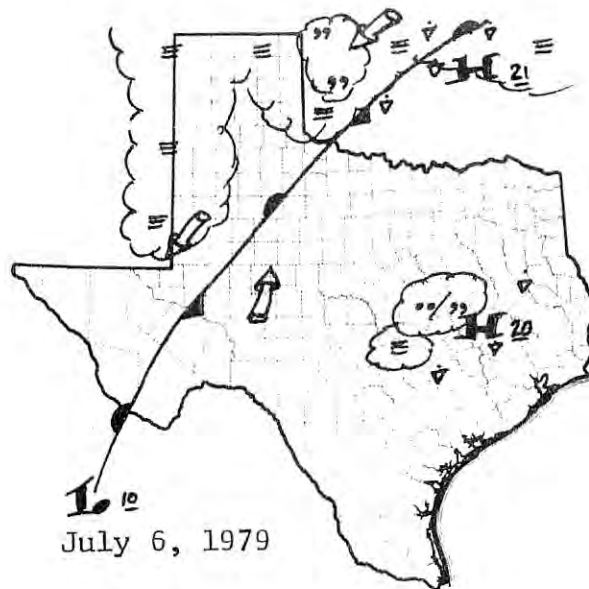
Time In	Time Out	Cld or Turret No.	Pass No.	Hdg	Speed	VOR/DME	Alt in (ft)	Alt Out	Comments (Cld Temp, U/Down, Turb, LWC, Ice, No. Flares, etc.)
140708		8	1	215°		163°/42	20200		JW LWC $\sim 1.5 \text{ g m}^{-3}$ . 500 ft $\text{min}^{-1}$ updraft. This is a "sampled, not-treated" cloud.
140853						/			Frame #33 of new turret on cloud #8.
140935	$\sim 140950$	8	2	35°		162°/42	20000		JW LWC is less. Cloud may be entraining dry air.
141205		8	3	220°		160°/41	20000		No JW LWC. Cloud is dying. 800 ft $\text{min}^{-1}$ downdraft.
	$\sim 1416$	9	1	250°		170°/38	20000		JW LWC about $1 \text{ g m}^{-3}$ . 200 ft $\text{min}^{-1}$ updraft. Selected for treatment. Treatment is: no-seed.
						/			
141813	141832	9	2	65°		$\sim 169^\circ/38$	20000		JW LWC about $1 \text{ g m}^{-3}$ . 500 ft $\text{min}^{-1}$ downdraft.
	142108	9	3	240°		168°/38	20000		JW LWC as high as $1.1 \text{ g m}^{-3}$ . 800 ft $\text{min}^{-1}$ downdraft. Updraft as high as $1200 \text{ ft min}^{-1}$ . Had to pass through a turret to navigate back to cloud #9. Downdraft of about 1000 ft $\text{min}^{-1}$ .
142158				40°		/			
						/			
1426						$\sim 180^\circ/47$			Aircraft has collected too much ice. Will descend to 12000 ft to deice.
143735						175°/47			Frame #34 of a cloud and its shadow on the ground.
143918						/			About 45 minutes flying time remaining before we have to return to Big Spring.
1441						/			Skywater radar advises us of echoes at 1900/45 n. mi.
						/			New initial point is 1800/30 n. mi. where we shall rendezvous with other aircraft. They have been refueling.
						/			
145615						/			Frame #35 of the north side of the line looking to the southwest. Smaller clouds in right-hand field of view. Bigger clouds to left.

Date: 5 July 1979

Aircraft: p - Navajo

## 1979 TEXAS HIPLEX - AIRCRAFT OBSERVER LOG

Time In	Time Out	Cld or Turret No.	Pass No.	Hdg	Speed	VOR/DME	Alt in (ft)	Alt Out	Comments (Cld Temp, U/Down, Turb, LWC, Ice, No. Flares, etc.)
150130						168°/19			Frame #36 to NE along line of clouds.
150724						182°/19			Frames #37 and #38 of some turrets that look nice. They extend well above our flight level.
						/			
	151444	10	1	75°		140°/16	21400		JW LWC as high as 3 g m <sup>-3</sup> . No ice. 1000 ft min <sup>-1</sup> downdraft. Selected for treatment. Treatment is to seed once every 4 hrs.
151631	151651	10	2	260°		135°/17	20500		Considerable ice. Still go LWC. This turret is tucked underneath cirrus (ice) anvil from a Cb to the east. Could this cirrus be seeding the turret. We fired 5 flares on pass 2. Inspection of the flare rack after the flight showed 4 flares dropped.
						/			
151919	151939	10	3	80°		153°/17	20300		Frame #1 of turret. No updraft or downdraft.
152028						/			Frame #2 of turret.
152108		10	4	260°		134°/17	20100		There seems to be a secondary turret here. No significant updraft or downdraft.
152312	152339	10	5	80°		134°/17	21000		Turret had seemed to be collapsing. But now it seems to be growing again. 500 ft min <sup>-1</sup> updraft and downdraft.
						/			
						/			Numerous turrets growing in area make difficult discerning treated cloud.
1526						/			Returning to Big Spring. Low on fuel.
						/			
						/			
						/			



### Weather Summary

The front which moved through the operational area yesterday has retrograded and become nearly stationary over the operational area. A line of towering cumulus is building over the south and southeast portions of the operational area this morning, with broken stratocumulus elsewhere. A 500 mb short wave lies over the operational area, but upper air is essentially dry.

The towering cumulus which was observed early morning dissipated by mid-morning, as the stratocumulus deck lifted to cumulus. By late morning, cumulus congestus and towering cumulus were observed. Rainshower/thunderstorms with towering cumulus and cumulonimbus all quadrants occurred the balance of the forecast period.

July 6, 1979 (continued)  
Weather Observations

TIME  
(CDT)

---

0755      BKN SC; T = 74<sup>0</sup>F; WIND 150/06

---

0855      BKN SC; LN CU CONG BLDG SE-S; TCU S; T = 76<sup>0</sup>F; WIND

---

0950      SCT CU; SCT AC; TCU SE; T = 79<sup>0</sup>F; WIND 180/08

---

1150      SCT CU; NUMRS CU CONG/TCU N-E-S; T = 86<sup>0</sup>F; WIND LV

---

1255      SCT V BKN CU; TCU ALQDS; RWU SE; T = 88<sup>0</sup>F; WIND LV

---

1355      BKN CU; TCU/CB -RWU ALQDS; T = 89<sup>0</sup>F; WIND CALM

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READY.  
LIST

79/07/07. 09.09.58.  
PROGRAM TEXP47

\*\*\*\*\*TEXAS HIPLEX STATUS REPORT\*\*\*\*\*  
VALID FOR JULY 6, 1979

◆◆WEATHER SUMMARY◆◆

TCU WHICH WAS OBSERVED DURING THE MORNING HOURS DISSIPATED BY MID-MORNING, AS THE STRATOCUMULUS DECK LIFTED TO FORM CUMULUS. BY LATE MORNING, CUMULUS CONGESTUS AND TCU WERE OBSERVED. RW/TRW WITH TCU AND CB ALQUDS OCCURRED DURING THE REMAINDER OF THE FORECAST PERIOD.

◆◆OPERATIONS◆◆

THE DAY WAS DECLARED A MESOSCALE DAY AND A HIPLEX DAY IF THE AIRCRAFT WERE MADE OPERATIONAL. RAWINSONDES WERE LAUNCHED THROUGHOUT THE PERIOD, HOWEVER, BOTH THE P-NAVAJO AND THE MRI NAVAJO WERE UNABLE TO BECOME OPERATIONAL IN TIME TO FLY A HIPLEX MISSION.

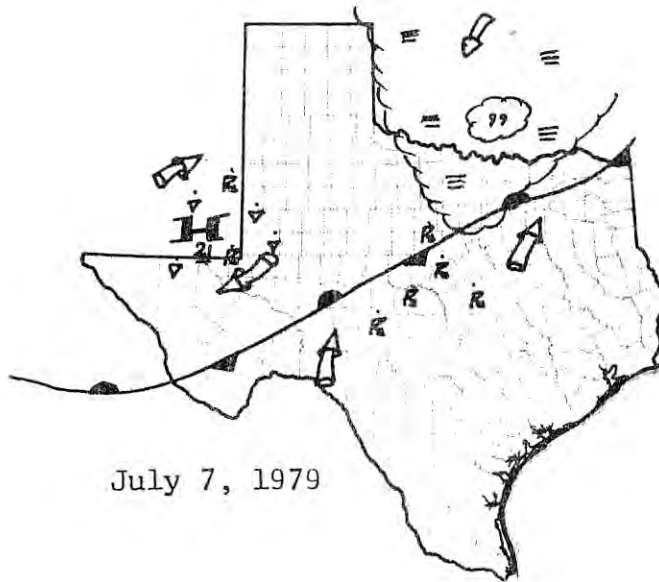
◆◆EQUIPMENT STATUS◆◆

SWR-75: OPERATIONAL

P-NAVAJO: TRANSPONDER NON-OPERATIONAL; AIRCRAFT CAN FLY VFR.

MRI NAVAJO: NON-OPERATIONAL; ALTERNATOR BELTS WERE SLIPPING BADLY DUE TO WEAR. WILL BE REPLACED TOMORROW.

RAWINSONDES: OPERATIONAL EXCEPT FOR LAMESA AND SNYDER WERE DOWN ALL DAY.  
RIGGIO



### Weather Summary

A stationary front remains over West Texas, lying just southeast of the operational area from south of Abilene to San Angelo and Sanderson. A mesoscale perturbation has moved southeast out of Colorado during the night, and is triggering thunderstorms in southeast New Mexico. This activity is beginning to enter the operational area. Air mass is warm, quite moist and unstable, although upper air appears dry.

Leftover activity from mesoscale perturbation decreased rapidly late a.m. and left operational area. Activity regenerated south of area. Scattered cumulus occurred over the operational area throughout forecast period. The front then retrograded during afternoon, setting off thunderstorms by late afternoon.

July 7, 1979 (continued)  
Weather Observations

TIME  
(CDT)

---

0750      BKN CU; TCU ALQDS; T = 73<sup>0</sup>F; WIND 010/07

---

0850      SCT CU - SC; LN TCU/SML CB SE-W-NW; T = 78<sup>0</sup>F; WIND 040/11

---

1155      SCT CUMULUS HUMILIS; FEW CB DSNT SE; SCT CI-CS; T = 86<sup>0</sup>F;  
WIND 060/12

---

1555      SCT CU; CU CONG/TCU RWU E-S; T = 93<sup>0</sup>F; WIND 070/10

---

1755      SCT CU; CB SE MVG SE; T = 96<sup>0</sup>F; WIND 090/08

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CHANGE, TEXP48/CT=PU  
READY.  
OLD, TEXP48  
READY.  
LIST

79/07/08, 13.30.25.  
PROGRAM TEXP48

\*\*\*\*\*TEXAS HIPLEX STATUS REPORT\*\*\*\*\*  
VALID FOR JULY 7, 1979

\*\*\*WEATHER SUMMARY\*\*\*

RESIDUAL RW ACTIVITY FROM MESOSCALE PERTURBATION DECREASED RAPIDLY BY LATE MORNING AND MOVED OUT OF OPERATIONAL AREA. THE MESOSCALE PERTURBATION RETROGRATED DURING THE AFTERNOON, SETTING OFF ISOLATED TRWS BY ABOUT 1600 LCL NEAR BGS.

\*\*\*OPERATIONS\*\*\*

THE DAY WAS BRIEFED OPERATIONAL FOR A PORTION OF THE MESOSCALE PROGRAM. RAWINSONDES WERE LAUNCHED BEGINNING AT 1000 LCL AND WERE TERMINATED AFTER THE 1600 LCL. A R-2 MISSION WAS FLOWN LATE THIS AFTERNOON USING THE MRI AND P-NAVAJO AIRCRAFT. THE MRI AIRCRAFT FLEW THROUGH THE RAINSHAFT, WHILE THE P-NAVAJO DOCUMENTED AMBIENT AIR CONDITIONS IN THE VICINITY OF THE RAINSHAFT.

\*\*\*EQUIPMENT STATUS\*\*\*

SWR-75: OPERATIONAL  
P-NAVAJO: OPERATIONAL EXCEPT FOR THE TRANSPONDER; THE AIRCRAFT CAN FLY VFR.  
THE CLOUD PHYSICS SYSTEM OPERATED WELL YESTERDAY.  
MRI NAVAJO: OPERATIONAL  
RAWINSONDES: OPERATIONAL EXCEPT FOR THE LAMESA AND SNYDER STATIONS, WHICH  
ARE STILL DOWN FOR MAINTENANCE.  
RIGGID









1979 TEXAS HIPLEX - AIRCRAFT OBSERVER LOG

Date 7 July 1979 Pilot(s) Roberts Time at -5C (CDT) \_\_\_\_\_  
 Flight 1 Observer Long Time at -10C (CDT) \_\_\_\_\_  
 Aircraft p-Navajo Instrument Operator Long Time at Initial Point (CDT) \_\_\_\_\_  
 Takeoff Time (CDT) 1831 Data Tape No. P19188  
 Landing Time (CDT) 194035

Temp (°C) and Dewpoint Profile (1000 ft.)

	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
ASDG	T																							
	T <sub>d</sub>																							
DSDG	T																							
	T <sub>d</sub>																							

Initial point is 70°/30 n. mi.

A	
D	

Cloud Base (1000 ft)

Date: 7 July 1979

Aircraft: p - Navajo

1979 TEXAS HIPILEX - AIRCRAFT OBSERVER LOG

Leg

Time In	Time Out	Cld or Turret No.	Pass- No.	Hdg	Speed	VOR/DME	Alt in (ft)	Alt Out	Comments
1855						/			(Cld Temp, U/Down, Turb, LWC, Ice, No. Flares, etc.) Unable to bring power to tape recorder or computer initially. Had to replace fuse labeled "60 HZ inverter in".
1845						/			Approaching shower cloud. We shall be flying legs in and around a rainshower to map the mesoscale temperature and humidity field. Thus "Leg no" is used in place of "Pass no".
1846	184750	1	1	70°		/			On NW side of cloud.
184806	184954	1	2	160°		/			
185003	185310	1	3	250°		/			In rain at 185104. 185115 - 1000 ft min <sup>-1</sup> downdraft. 185138 - out of rain. Lost 400 ft altitude in downdraft. Returned to 4000 ft altitude at 185236.
185540	185511	1	4	160°		/			
185540	185850	1	5	70°		/			Frame #7 of shower, frame #8 to NW at 185808.
185923	190038	1	6	340°		/			Readjusted JW at 190004 so its clear air value was 0 g m <sup>-3</sup> .
190110	190446	1	7	240°		/			Bumpy on east side of shower. In rain at 190252. In center of shower at 920/36 n. mi. 400 ft min <sup>-1</sup> downdraft at 190225. 700 ft min <sup>-1</sup> downdraft in rain. 800 ft min <sup>-1</sup> updraft just west of rain.
190523	190607	1	8	330°		/			Shower rapidly dissipating.
190635	190935	1	9	60°		/			Frame #9 of lake near Colorado City at 190727.
190840						/			MRI Navajo reports it is in rain shaft.
191008	191155	1	10	150°					MRI Navajo reports it is in rainshaft at 191138 at 97°/35.5 n. mi. Found 1 m s <sup>-1</sup> updraft. Peak dBZ of 20, ave. dBZ of 15.

Date: 7 July 1979

Aircraft: p - Navajo

1979 TEXAS HIPEX - AIRCRAFT OBSERVER LOG

Time In	Time Out	Cld or Turret No.	Pass No.	Hdg	Speed	VOR/DME	Alt in (ft)	Alt Out	Comments (Cld Temp, U/Down, Turb, LWC, Ice, No. Flares, etc.)
191234	191500	1	11	240°		/			191308 - in a little precipitation or virga.
						/			Ascending to 6000 ft to link up with MRI Navajo for a clear-air intercomparison.
192359						/			Time on MRI Navajo = Time on p - Navajo + 1 second.
						/			In the intercomparison the p - Navajo was 5-10 ft below the MRI Navajo.
~192055						/	6000		T <sub>Reverse flow</sub> = 22.7C, dewpoint = 1.9C
						/			T <sub>MRI</sub> = 22.4C, dewpoint <sub>MRI</sub> = 12.9C
~192202						/	6000		T <sub>Reverse flow</sub> = 22.5C, dewpoint = 10.5C
						/			T <sub>MRI</sub> = 22.4C, dewpoint <sub>MRI</sub> = 11.7C
~192248				315°		/	6000		T <sub>Reverse flow</sub> = 23.2C, dewpoint = 11.3C
						/			T <sub>MRI</sub> = 22.9C, dewpoint <sub>MRI</sub> = 12.6C
~192411						/	6000		T <sub>Reverse flow</sub> = 23.8C, dewpoint = 10.6C
						/			T <sub>MRI</sub> = 23.3C, dewpoint <sub>MRI</sub> = 12.2C
~192541						/	6000		T <sub>Reverse flow</sub> = 23.1C, dewpoint = 10.7C
						/			T <sub>MRI</sub> = 23.1C, dewpoint <sub>MRI</sub> = 11.7C
						/			Left turn toward Big Spring at 192605 Frames #10 and #11 of MRI Navajo.
192719						/	6000		T <sub>Reverse flow</sub> = 23.1C, dewpoint 11.3C
						/			T <sub>MRI</sub> = 22.9C, dewpoint <sub>MRI</sub> = 12.4C
~192757				225°		/	6000		T <sub>Reverse flow</sub> = 23.2C, dewpoint = 11.4C

T<sub>MRI</sub> = 23.1C, dewpoint<sub>MRI</sub> = 12.6C  
 Descending to 5000 ft at 192825.

~192843

T<sub>Reverse flow</sub> = 23.3C, dewpoint = 11.2C

T<sub>MRI</sub> = 23.4C, dewpoint<sub>MRI</sub> = 12.6C

~193120

Reached 5000'

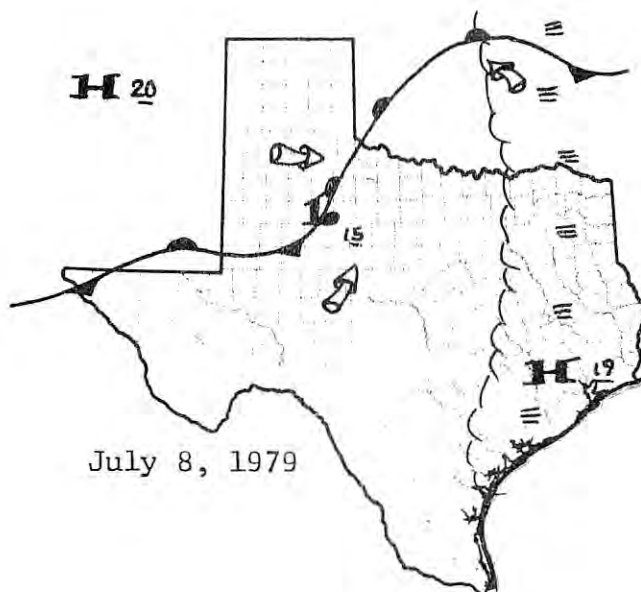
~193138

T<sub>Reverse flow</sub> = 26.3C, dewpoint = 12.5C

T<sub>MRI</sub> = 26.0C, dewpoint<sub>MRI</sub> = 13.8C







### Weather Summary

A weakening front remains over west Texas, lying north of the operational area from near Childress to south of Lubbock to Hobbs and El Paso. Skies are clearing over the operational area, after a line of convective activity pushed through the operational area during early morning. Air mass is moist, warm, and highly convectively unstable.

First cumulus was observed prior to noon, with a temperature of 91°F. Scattered cumulus with cumulus congestus beginning to develop by early afternoon. During mid-afternoon thunderstorms began to develop, some becoming very heavy during late afternoon.

Subsident warming at 500 mb raised the temperature from -8.5°C at 12Z to -3°C at 00Z, but the sounding remained convectively unstable through the layer.

July 8, 1979 (continued)  
Weather Observations

TIME  
(CDT)

---

0750 CLR LN CU SE-S MVG S; FEW AC-AS ALQDS; T = 75<sup>0</sup>F; WIND  
170/10

---

0850 CLR AC SE-OVHD; LN CU SE-S; T = 79<sup>0</sup>F; WIND 190/13

---

0955 CLR T = 84<sup>0</sup>F; WIND 190/11

---

1050 CLR SML AC W-NW; T = 87<sup>0</sup>F; WIND 210/08

---

1155 THN SCT CUMULUS; T = 91<sup>0</sup>F; WIND 200/11

---

1555 SCT CUMULUS; CU CONG/TCU ALQDS; BLDG CB SE; T = 97<sup>0</sup>F;  
WIND 210/08

---

CHANGE, TEXP49/CT=PU  
READY.  
OLD, TEXP49  
READY.  
LIST

79/07/09. 08.32.12.  
PROGRAM TEXP49

\*\*\*\*\*TEXAS HIPLEX STATUS REPORT\*\*\*\*\*  
VALID FOR JULY 8, 1979

\*\*\*WEATHER SUMMARY\*\*\*

FIRST CUMULUS WAS OBSERVED PRIOR TO NOON, WITH A TEMPERATURE OF 91 F.  
SCATTERED CUMULUS WITH CUMULUS CONGESTUS BEGAN TO DEVELOP BY EARLY AFTER-  
NOON. DURING MID-AFTERNOON TRWS DEVELOPED IN THE OPERATIONAL AREA, WITH  
SOME BECOMING VERY HEAVY DURING LATE AFTERNOON.

\*\*\*OPERATIONS\*\*\*

THE DAY WAS BRIEFED NON-OPERATIONAL FOR THE MESOSCALE PROGRAM. A CLOUD  
BASE SEEDING HIPLEX MISSION AND A Z-R MISSION WERE FLOWN. ONLY THE MRI  
NAVAJO WAS ABLE TO MAKE CLOUD PHYSIC MEASUREMENTS. THE P-NAVAJO WAS USED  
TO MAP OUT THE NEAR AMBIENT AIR BELOW CLOUD BASE.

\*\*\*EQUIPMENT STATUS\*\*\*

SWR-75: OPERATIONAL  
P-NAVAJO: OPERATIONAL EXCEPT FOR TRANSPONDER  
MRI-NAVAJO: OPERATIONAL  
RAWINSONDES: LAMESA AND STERLING CITY STATIONS ARE NON-OPERATIONAL,  
AND SNYDER AND SEA GRAVES ARE QUESTIONABLE.

RIGGID  
READY.

MRI

HIPLEX NAVAJO LOG-1979

Date: July 8, 1979

Page No. 1 of 3

Site: Big Spring, Texas  
Mission #1

Observer Humbert

Tape No. 915

Take Off Time 1546 Land Time 1723

BMS Time \_\_\_\_\_ = Aircraft Time \_\_\_\_\_

Aircraft Time \_\_\_\_\_ = Radar Time \_\_\_\_\_

Altitude (29.92) = Initial 2419  
Final 2500

IP #1 100/20  
IP #2 180/25

Time	Peak DBZ Event #	Altitude (kft)	Temp (°C)	Cloud #	Pass #	DP Type of Pass	COMMENTS (VOR, DME, HDG, Cl. Base Ht., Foil)												
							VOR	DME	HDG	LWS	+W	ASP	IPC	-W	WX				
1547		3.0	30.8																
1554		5.0	25.1			13.6	164	17.4	186										
1557		7.0	19.2			12.7	172	24.4	172										
1601		9.0	13.0			10.5	181	32.0	242				Cloud base 9600 T=129	DP=8.0					
1605		11.0	8.9			4.6	190	28.4	331										
1609		12.4		1	1		195	22.7	349	1.4	+6	1300			-				-2
1612		14.0	1.4			-1.6	202	21.2	196										
1616		15.0	-.6			-5.9	192	29.9					Center advises we work north.						
1624	56	16.1	-3.3	2	1	-5.5	191	26.7	071	2.0	+7	1500	15		-9				R+
1630		15.8	-2.6	2	2		167	23.6	237	1.8	+9	870							R+
1634		15.5	-1.6	2	2		193	23.3	237				Clear of cloud (diameter 10.4 mi)						
1637		15.5	-1.0	2a	3		191	21.8	071	1.9	+6	1400							-7 R+
1642		15.6	-2.0	2	3		163	28.8	071	.8	+6	800	29						-7 R+

12 Flares  
Cell Seeded  
at Base

Passes are  
Solid IFR









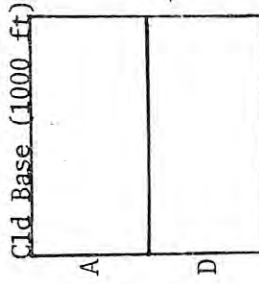


1979 TEXAS HIPLEX - AIRCRAFT OBSERVER LOG

Date 8 July 1979 Pilot(s) Roberts Time at -5C (CDT) \_\_\_\_\_  
 Flight 1 Observer Long Time at -10C (CDT) \_\_\_\_\_  
 Aircraft p-Navajo Instrument Operator Long Time at Initial Point (CDT) \_\_\_\_\_  
 Takeoff Time (CDT) 160307 Data Tape No. P191891, P191892  
 Landing Time (CDT) 175107

Temp (°C) and Dewpoint Profile (1000 ft.)

	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	
ASDG T																									
T <sub>d</sub>																									
DSDG T																									
T <sub>d</sub>																									



Initial point is 130°/20 n. mi.

Jerry Jurica is on board to obtain supplemental observations.

Paul Lawson of CIC is on board to observe the operation of the data system.

Date: 8 July 1979

Aircraft: p - Navajo

## 1979 TEXAS HI-PLEX - AIRCRAFT OBSERVER LOG

Time In	Time Out	Cld or Turret No.	Pass No.	Hdg	Speed	VOR/DME	Alt in (ft)	Alt Out	Comments (Cld Temp, U/Down, Turb, LWC, Ice, No. Flares, etc.)
1614						/			Visual contact with Aztec.
1624						183° / 23			Visual contact with Aztec.
1625						190° / 26	6500		1200 ft min <sup>-1</sup> updraft. We shall map mesoscale environment beneath cloud base at this altitude
1626						/			Aztec opened envelope with instructions on how to treat the selected cloud.
~1628						/			There apparently is some uncertainty as to whether the Aztec seeded the updraft of the selected cloud.
1633						180° / 23.5			700 ft min <sup>-1</sup> updraft.
~163450						177° / 27			In rain.
1636						175° / 28			In rainshaft.
~1638						/			Time on p - Navajo = Time at Skywater Radar - 14 sec.
163830	164036	1	1	195°		176° / 25 begin 177° / 30 end	~6600		Aircraft is making passes along various "legs" in and around the rainshaft believed to be associated with the treated cloud.
						/			Times "in" and "out" refer to the beginning and ending points of a leg. Beginning and ending VOR/DME co-ordinates are also given.
~164054	164135	1	2	105°		178° / 30 begin 176° / 31 end			
164201	164503	1	3	15°		174° / 30	~6700		In rain at 164307. 500 ft min <sup>-1</sup> updraft at 179/28.6 n. mi. near 164230.
164529	164608	1	4	105°		161° / 24 end			Rain is dissipating.
						/			

Date 8 July 1979

Aircraft: P - Navajo

WINDY HILLS - AGRICULTURAL OBSERVER LOG

Time In	Time Out	Cld or Turret No.	Leg No.	Hdg	Speed	VOR/DME	Alt in (ft)	Alt Out	Comments (Cld Temp, U/Down, Turb, LWC, Ice, No. Flares, etc.)
164637	165005	1	5	195°		~158°/25	begin 6700		Tape recorder went down on this leg.
164830						165°/29			700 ft min <sup>-1</sup> updraft.
1649						/			Rain
~165030	~165430	1	6	285°		~165°/35 192°/31			In rain at 165158 and at 165311. 500 ft min <sup>-1</sup> updraft at 1652 at 180/32, 800 ft min <sup>-1</sup> updraft at 165245 at 180/32.
1654						/			Computer had to be restarted.
~165450	~165545	1	7	15°		192°/27	end		
~165645		1	8	285°		183°/27	7300		
~165706	170002	1	9	185°		~194°/28 192°/35	begin end		Frame 13 of cloud to east at 165810.
~170045	170230	1	10	105°		183°/37	end		
~170310	170458	1	11	10°		~181°/35 179°/30	begin end	6600	
170545		1	12	100°		196°/29	begin		
170748	171006	1	13	190°		~167°/32 ~171°/38	begin end		
1709						168°/36			Rainshaft to right.
171054						/			In Rain
						/			
						/			
						/			



7-8-79 Date  
 13816 P/C Number  
 2433.4 (1555) Engine Off  
 1.5 Flight Time  
 12 Flares This Month

S. Gabrick Pilot  
 Hiplex Type Flight  
 2434.9 (1722) Engine Off  
 Flight Number  
 Flares To Date

SOUNDING Temp. °C K Asc. Des.	EVENT & TIME	POSITION Radial-DME	CLOUD BASE (Ft.)	BASE TEMP (°C)	UPDRAFT VEL. (FPM)	UPDRAFT AXIS (S.MI)	FLARE NO.	Hdg. (DEG)	A/C SPEED (MPH)	NOTES
G										Found updraft RW (CG)
3 29	1612	190/12	10,000	+7	+500					
4 27	1619	195/25	10,000	+7	1000					
5 24	1626	192/26	10,000	+7	800-100					
6 21										
7 18										
8 13	1628	190/24	10,200		500		2			
9 11	1629	190/26	10,200		500		2			2 more flares possibly fired during this period
10 8										RW -
11										
12										
13										
14	1630	180/27	10,400				2			
15	1631				700		2			Large drop size
16	1632	190/26			700		2			Large drop size
17	1636	190/30			300-400 (ragged)					
18		Nothing organized								Ragged bases
19	1653	182/31	System dissipating rapidly							

REMARKS:

7-8-79  
Date

13816  
P/C Number

2433.4 (1555)  
Engine Off

1.5  
Flight Time

12  
Flares This Month

S. Gabrick  
Pilot

Hiplex  
Type Flight

2434.9 (1722)  
Engine Off

Flight Number

Flares To Date

SOUNDING Temp. °C K Asc. Des.	EVENT & TIME	POSITION Radial-DNE	CLOUD BASE (Ft.)	BASE TEMP (°C)	UPDRAFT VEL. (FPM)	UPDRAFT AXIS (S.MI)	FLARE NO.	Hdg. (DEG)	A/C SPEED (MPH)	NOTES
G										
3	1655		Rain in downdrafts							
4	1700	180/36	RW in downdrafts							LTG CG
5										
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										

REMARKS:

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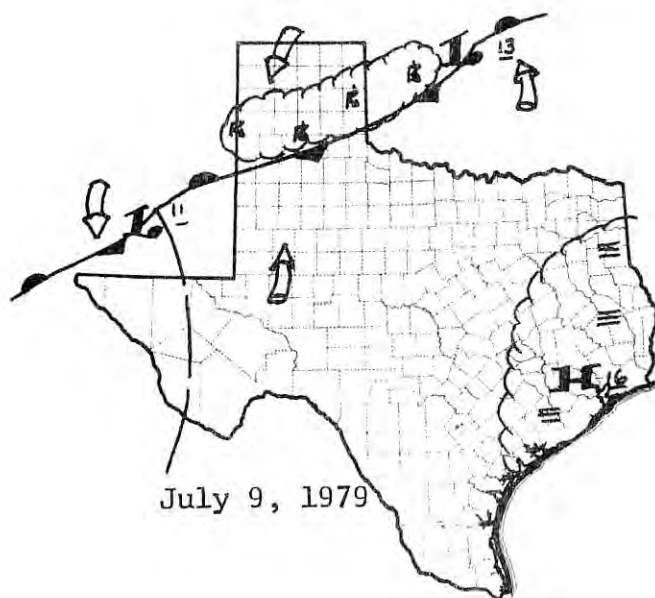
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### Weather Summary

A surface front retrograded slightly during the afternoon yesterday, and now lies from southeast Kansas to southwest Oklahoma and the Texas Panhandle to Roswell and El Paso. An area of thunderstorms are occurring behind the front in the Panhandle and Northwestern Oklahoma this morning, while skies are nearly clear, with a few altocumulus and altocumulus castillanus, over the operational area. The air mass is moist, warm, and somewhat unstable.

Skies remained clear throughout the morning hours, allowing temperatures to attain the lower 90's before noon. A line of altocumulus and altocumulus castillanus developed to the north during the late morning hours, and a few rainshowers and small cumulonimbus moved into the area prior to the forecast period. These cells dissipated by early afternoon. By 1500, however, a secondary line developed in the northwestern operational area and built rapidly, moving southeast. Activity became severe by 1800, with mt near 70,000 ft.

July 9, 1979 (continued)  
Weather Observations

TIME  
(CDT)

---

0750 SCT AC - ACCAS; CS BNK N; T = 75<sup>0</sup>F; WIND 170/10

---

0855 CLR FEW AC-ACCAS NW-N; CS N; T = 79<sup>0</sup>F; WIND 200/14

---

0950 CLR T = 83<sup>0</sup>F; ACCAS LN BLDG NW-N; CI N-E; WIND 190/12

---

1150 CLR T = 91<sup>0</sup>F; LN AC WNW -N; TCU CB NW -NNE MVG SSE;  
WIND 180/10; CI-N-E

---

1355 SCT CU; CS N-E; FEW TCU DSNT NNE; T = 97<sup>0</sup>F; WIND 160/14

---

1500 SCT CU; LN TCU/CB BLDG W-N MVG SSE; CS N-E; T = 97<sup>0</sup>F;  
WIND 160/09

---

1755 FEW CU; LARGE CB E-S & SW-W-NW; CBMAM OVHD AND ALQDS;  
LTC/CCCCG E-S & S-W-NW; T = 90<sup>0</sup>F; WIND 090/16

---



BEGIN TEXT EDITING.  
? RS:/MESOSCALE/,/HIPLEX/;1  
? END  
END TEXT EDITING.  
READY.  
LIST

79/07/10. 11.31.40.  
PROGRAM TEXP40

\*\*\*\*\*TEXAS HIPLEX SUMMARY\*\*\*\*\*  
VALID FOR JULY 9, 1979

\*\*\*WEATHER SUMMARY\*\*\*

SKIES REMAINED CLEAR THROUGHOUT THE MORNING ALLOWING TEMPERATURES TO ATTAIN THE LOWER 90'S RANGE BEFORE NOON. A LINE OF AC AND ACCAS DEVELOPED TO THE NORTH DURING THE LATE MORNING HOURS, AND A FEW RW AND SMALL CBS MOVED INTO THE OPERATIONAL AREA BY EARLY AFTERNOON. BY 1500 LCL A SECONDARY LINE DEVELOPED IN THE NORTHWESTERN OPERATIONAL AREA AND BUILT RAPIDLY, MOVING SOUTHEAST. THIS ACTIVITY BECAME SEVERE BY 1800 LCL, WITH TOPS NEAR 70K FT.

\*\*\*OPERATIONS\*\*\*

THE DAY WAS BRIEFED NON-OPERATIONAL FOR THE MESOSCALE PROGRAM DUE TO EQUIPMENT OUTAGE. A HIPLEX MISSION WAS ATTEMPTED BUT WAS LATER ABORTED DUE TO SEVERE WEATHER. HAIL WAS REPORTED BY ALL AIRCRAFT.

\*\*\*EQUIPMENT STATUS\*\*\*

SWR-75: OPERATIONAL  
P-NAVAJO: OPERATIONAL EXCEPT FOR THE TRANSPONDER WHICH IS DOWN. AIRCRAFT CAN ONLY FLY VFR, WAITING ON PARTS.  
MFI NAVAJO: OPERATIONAL  
RAWINSONDES: LAMESA AND SEA GRAVES NON-OPERATIONAL WHILE SNYDER AND STERLING CITY ARE QUESTIONABLE. TECHNICIAN FROM A&M ARRIVED TODAY AND BEGIN WORKING ON ALL STATIONS.

\*\*\*REMARKS\*\*\*

LLOYD ARRIVED TODAY  
RIGGIO  
READY.  
REPLACE  
READY.



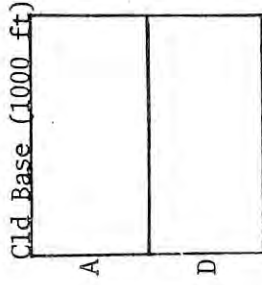
1979 TEXAS HIPLIX - AIRCRAFT OBSERVER LOG

Date 9 July 1979 Pilot(s) Roberts Time at -5C (CDT) \_\_\_\_\_  
 Flight 1 Observer Long Time at -10C (CDT) \_\_\_\_\_  
 Aircraft P-Navajo Instrument Operator Long Time at Initial Point (CDT) \_\_\_\_\_  
 Takeoff Time (CDT) 161826 Data Tape No. P19190

Landing Time (CDT) 172244

Temp (°C) and Dewpoint Profile (1000 ft.)

	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
ASDG	T																							
	T <sub>d</sub>																							
DSDG	T																							
	T <sub>d</sub>																							



Jerry Jurica is on-board to obtain supplemental observations.

Initial point is 340°/40 n. mi.

We shall operate at 6500 ft.

Skywater radar time = p-Navajo time plus 3 seconds.

Date 9 July 1979

Aircraft: P - Navajo

W-3A OBSERVER - AIRCRAFT OBSERVER TAG

Time In	Time Out	Cld or Turret No.	Pass No.	Hdg	Speed	VOR/DME	Alt in (ft)	Alt Out	Comments (Cld Temp, U/Down, Turb, LWC, Ice, No. Flares, etc.)
161930						/			FPS - 77 radar observes a hail spike at 50-60000 ft in Cb north of Big Spring. There is rapid development of the SW side of the echo.
162430						216°/5			Frame #14 to WNW showing overhang and mammatus from the mainstorm farther to the right or north.
1626						/			Aztec reports intermittent 500 ft min <sup>-1</sup> updrafts but mainly very turbulent air.
162840						340°/8			Mammatus to left
163500						320°/17.5			First rain
163330						/			Aztec reporting graupel
1634	163433					/	6700		Updraft. Light rain from 1634 to about 1635.
163450						327°/28.5			1200 ft/min updraft.
163550						325°/32			Lightning ahead
163645						325°/35			Lightning ahead
163711						325°/36			500 ft min <sup>-1</sup> updraft just after some turbulence.
163817						/			
164015						321°/39			500 ft min <sup>-1</sup> updraft
1642						323°/45			
						/			Near N side of the mainstorm. MRI Navajo reports an iced-up turret is all that is present. Not suitable for



7-9-79 Date  
 13816 P/C Number  
 2436.1 (15:49) Engine Off  
 Flight Time  
 Flares This Month

S. Gabrick Pilot  
 Hiplex Type Flight  
 2437.4 (17:10) Engine Off  
 Flight Number 89  
 Flares to Date

SOUNDING Temp. °C K Asc. Des.	EVENT & TIME	POSITION Radial-DME	CLOUD BASE (Ft.)	BASE TEMP (°C)	UPDRAFT VEL. (FPM)	UPDRAFT AXIS (S.MI)	FLARE NO.	Hdg. (DEG)	A/C SPEED (MPH)	NOTES
G 37										CB noted to NW
3 34	1 15:55	243/5						320	130	Large precip area noted Hvy Haze to W-N-E CG Lightning
4 20										
5 27										
6 24	2 16:04	305/14						330	120	Precip area ~ 12 mi Most Intense ~ 5 mi CG Lightning
7 20										
8 13										
9 11	3 16:08	319/23	11.8K	8				320	130	Light Precip noted Precip Area Steady CG Lightning; Inflow
10 10	4 16:13	330/30	11.8K	7				330	130	Shelf visible; heaviest Possible Inflow Shelf; Peasize Hail
11 8	5 16:15	321/33	11.0K	7						Roll Cloud vis on NE end of cell
12	6 16:18	326/40	11.0K	7				240	130	Second RW Shaft noted to N of Large Cell Rainshaft on large cell spreading NE
13	7 16:22	315/40	11.0K	7				060	135	Shelf appears growing on Second Cell to N
14	8 16:26	322/35	11.0K	7				120	130	Most Intense RW appears on NW end of largest cell
15	9 16:29	331/30	11.5K	7		500-1000		200	130	
16	10 16:33	335/30	11.5K	7				240	120	
17	11 16:38	321/32	11.5K	7				360	140	Precip light on second cell to N of Intense cell

REMARKS:

7-9-79  
Date

13816  
P/C Number

2436.1 (15:49)  
Engine Off

1.3  
Flight Time

Flares This Month

S. Gabrick  
Pilot

Hiplex  
Type Flight

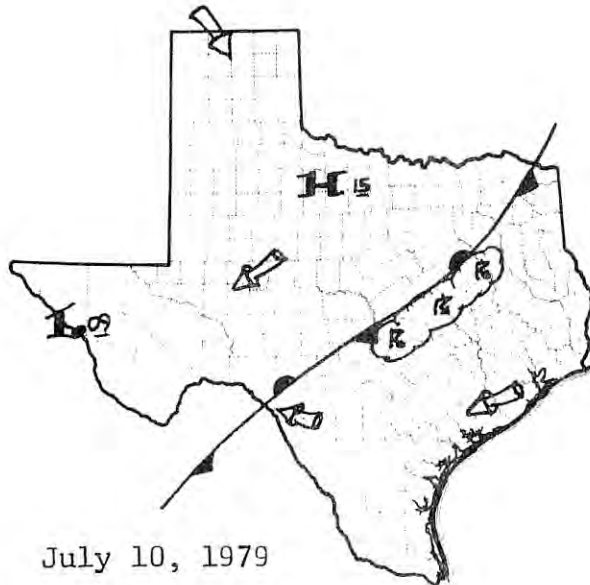
2437.4 (17:10)  
Engine Off

89  
Flight Number

Flares To Date

SOUNDING Temp. °C K Asc. Des.	EVENT & TIME	POSITION Radial-DNE	CLOUD BASE (FT.)	BASE TEMP (°C)	UPDRAFT VEL. (FPM)	UPDRAFT AXIS (S.MI)	FLARE NO.	Hdg. (DEG)	A/C SPEED (MPH)	NOTES
0	12 16:42	334/41	11.5K	7				330	140	Rainshafts from 2 cells joining, light RW on Nside
3										
4										
5	13 16:45	335/46	11.5K	7				120	130	Curamma NE side Rainshaft weakly define on NE side of two now joined cells
6										
7										
8	14 16:51	337/32	12.4K	6				150	140	Hvy RW noted to NW system to N intensi- fying
9										
10										
11										
12										
13	15 16:57	340/11	10.0K	14				175	160	Two Distinct Rainshafts are again visible.
14										
15	16 17:02	340/04						180	160	Rainshaft on Largest Cell growing rapidly in Horizontal extent
16										
17										
18										
19										

REMARKS:



### Weather Summary

Weak front lying from southeast Oklahoma to Waco to Del Rio moving very slowly east, triggering thunderstorms in Central Texas from Junction to Waco and clearing out West Texas. Northeasterly low level flow over the operational area is bringing cooler, drier and more stable air to region. Air mass is warm, dry, and only slightly unstable. A 500 mb cool pocket and associated moisture lie over the operational area, but are moving rapidly southeast.

Skies were clear over the operational area during the a.m., with a cirrostratus deck to the southeast-south horizon. The cirrostratus moved off and skies remained clear throughout the forecast period and by late afternoon a thin scattered cumulus humulus deck was over the operational area. Cumulus dissipated by 1800 CDT.



July 10, 1979 (continued)  
Weather Observations

TIME  
(CDT)

---

0750 CLEAR; CS BNK HRZN SE-S; T = 68<sup>0</sup>F; WIND 040/11

---

0950 CLEAR; T = 79<sup>0</sup>F; WIND 050/13

---

1155 CLEAR; T = 87<sup>0</sup>F; WIND 070/08

---

1255 CLEAR; T = 91<sup>0</sup>F; WIND 060/08

---



Weather Summary

Light south-southwest low level flow over the operational area is providing essentially no positive moisture advection to the operational area this a.m., and clear skies dominate the region. A weak dry line lies from southeast Colorado to Roswell and Guadalupe Pass. Hurricane "Bob" is moving onshore west of Botheville and will not provide moisture to the operational area. Local air mass is warm, dry, and moderately stable.

Very high convective temperature (102<sup>0</sup>F) indicative of the lack of low level moisture. Skies were clear throughout the morning hours, as well as the forecast period. Only a few small cumulus humilis were over the operational area occasionally.

July 11, 1979 (continued)  
Weather Observations

TIME  
(CDT)

---

0700 CLR T = 74<sup>0</sup>F; WIND 160/08

---

0755 CLR T = 75<sup>0</sup>F; WIND 160/10

---

0900 CLR T = 79<sup>0</sup>F; WIND 190/11

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0955 CLR T = 83<sup>0</sup>F; WIND 201/12

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1050 CLR T = 86<sup>0</sup>F; WIND 180/13

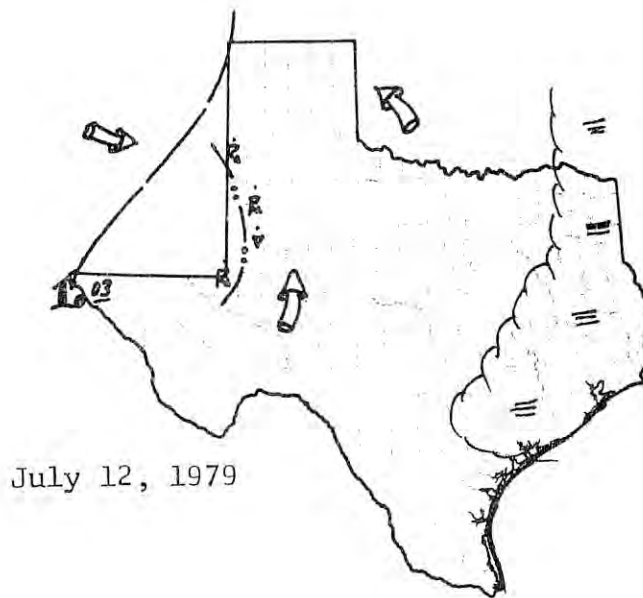
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1255 CLR SML CU HU SE; T = 95<sup>0</sup>F; WIND 190/14

---

1655 CLR SML CU HU SE; T = 99<sup>0</sup>F; WIND 160/12

---



### Weather Summary

A dry line lies from northeast New Mexico to near El Paso. A line of rain showers and thunderstorms lie along the Texas-New Mexico border from Tucumcari to Hobbs and is decreasing in intensity, being leftover from yesterday's dry line activity. Broken cirrus are over the operational area, and a line of altocumulus castellanus and high-based cumulonimbus lie west-northwest of Big Spring. Air mass is warm, dry and slightly unstable.

Broken cirroform clouds continued over the operational area during the morning hours, while the morning line of altocumulus castellanus and cumulonimbus dissipated by late morning. By early afternoon, cumulus had appeared with a temperature of 94°F. Scattered cumulus and scattered cirrus continued throughout the balance of the forecast period, as the dry line never advanced past Roswell, Wink and Sanderson.

July 12, 1979 (continued)  
Weather Observations

TIME  
(CDT)

---

0755	BKN CI-CS; LN TCU-CB W-NW; T = 75 <sup>0</sup> F; WIND 160/14
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0855	BKN CI; LN ACCAS -CB W-NW; T = 78 <sup>0</sup> F; WIND 170/16
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---

0955	BKN CI-CS; LN altocumulus castillanus-CB W-NW; T = 83 <sup>0</sup> F; WIND 170/20G26
------	---

---

1055	BKN CI-CS; LN ACCAS W-NW; T = 87 <sup>0</sup> F; WIND 170/18
------	--

---

1155	SCT V BKN CI; ACCAS SW-W; T = 90 <sup>0</sup> F; WIND 170/15G21
------	---

---

1255	SCT CIRRUS; FEW SML CU HU ALQDS; FEW AC W-OVHD; TCU SW; T = 94 <sup>0</sup> F; WIND 140/14
------	---

---

1600	SCT CU; SCT CI-CS; T = 97 <sup>0</sup> F; WIND 100/10
------	---

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END TEXT EDITING.  
READY.  
RED\_PLACE  
READY.  
LIST

79/07/13. 10.40.59.  
PROGRAM TEXP53

\*\*\*\*\*TEXAS HIPLEX STATUS REPORT\*\*\*\*\*

VALID FOR JULY 12, 1979

◆◆WEATHER SUMMARY◆◆

BROKEN CIRROFORM CLOUDS CONTINUED OVER THE OPERATIONAL AREA DURING THE MORNING HOURS., WHILE A MORNING LINE OF ACCAS AND CB ACTIVITY DISTENT WEST DISSIPATED BY LATE MORNING. BY EARLY AFTERNOON, CUMULUS HAD APPEARED WITH A TEMPERATURE OF 94 F, SCATTERED CUMULUS AND CIRRUS CONTINUED THROUGHOUT THE BALANCE OF THE FORECAST PERIOD. THE DRYLINE NEVER ADVANCED PAST ROSWELL, WINK AND SANDERSON.

◆◆OPERATIONS◆◆

THE DAY WAS BRIEFED NON-OPERATIONAL FOR BOTH THE HIPLEX AND THE MESOSCALE PROGRAMS.

◆◆EQUIPMENT STATUS◆◆

SWR-75: OPERATIONAL  
P-NAVAJO: OPERATIONAL EXCEPT FOR THE TRANSPONDER WHICH SHOULD BE REPAIRED TOMORROW.  
MRI-NAVAJO: OPERATIONAL  
RAWINSONDES: OPERATIONAL

◆◆REMARKS◆◆

ATTENTION FRAN POLITTE OR MR. HARRISON

THE FOLLOWING HAIL DAMAGE OCCURED TO THE MAF SURFACE STATION DURING THE EVENING OF JULY 9, 1979.

1. THE ANTENNA RADIAL WAS BROKEN AND REPLACED, WHILE A SECOND WAS BENT
2. THE SOLAR PANELS WERE BENT BUT ARE OPERATIONAL
3. THE RAIN GAUGE WAS DENTED. THE FUNNEL WAS KNOCKED OFF INTO THE BUCKET, BUT WAS REPLACED. THE RAINFALL DATA FROM 21Z ON JULY 9 TO 21Z ON JULY 12 IS ERRONEOUS.
4. ANEMOMETER CUPS WERE BLOWN OFF. WIND DATA IS ERRONEOUS FROM 21Z JULY 9 TO PRESENT. THE ANEMOMETER WILL BE REPLACED ASAP.

ATTN. PRESSURE RESET AS PER THE FOLLOWING

TZ	7/7	17Z	988.1 MB
BG	7/7	01Z	929.1 MB
KY	9/7	14Z	981.8 MB
SP	12/7	18Z	981.1 MB
MI	4/7	?	913.6 MB
SS	28/6	?	925.1 MB
CC	7/7	?	947.2 MB
SN	7/7	19Z	933.9 MB
KL	7/7	?	919.2 MB

RIGGID  
READY.  
BYE

MRI

HIPLEX NAVAJO LOG-1979

Date: July 12, 1979

Page No. 1 of 2

Site: Big Spring, Texas

Observer Humbert

Tower Fly-By

Tape No. 918

Take Off Time 0736 Land Time 0837

BMS Time \_\_\_\_\_ = Aircraft Time \_\_\_\_\_

Aircraft Time \_\_\_\_\_ = Radar Time \_\_\_\_\_

Altitude (29.92) = Initial 2562

Final 2540

6 Point Forward  
Running Mean

Time	Event #	Altitude (kft)	Temp (°C)	Cloud #	Pass #	Type of Pass	COMMENTS	
							(VOR, DME, HDG, Cl. Base Ht., Foil)	Airspeed/Dew Pt/+ <sup>-</sup> From Tower (Feet)
0742		23.3	23.3		1	1	150/17.7/+5	
0745		23.3	23.1		2	2	150/17.7/0	
0748		23.3	23.4		3	3	150/17.7/0	
0751		23.3	23.3		4	4	150/17.9/0	
0753		23.3	23.1		5	5	150/17.9/+5	
0755		23.3	23.4		6	6	150/17.9/-10	Mean Temp for all passes is 23.5 with a
0758		23.3	23.4		7	7	150/17.7/+5	
0801		23.4	23.3		1	8	130/17.7/0	high of 24.2, a low of 23.1, and a 5th Dev of .3
0804		23.3	23.4		2	9	130/18.1/0	
0806		23.4	23.5		3	10	130/17.9/0	
0809		23.5	23.5		4	11	130/17.9/0	
0812		23.6	23.8		5	12	130/17.9/+5	
0815		23.6	23.6		6	13	130/18.1/0	
0818		23.7	23.1		1	14	110/18.2/0	





1979 TEXAS HIPLEX - AIRCRAFT OBSERVER LOG

Date 12 July 1979 Pilot(s) Roberts, Gabrick Time at -5C (CDT) \_\_\_\_\_  
 Flight 1 Observer Long Time at -10C (CDT) \_\_\_\_\_  
 Aircraft P-Navajo Instrument Operator Long Time at Initial Point (CDT) \_\_\_\_\_  
 Takeoff Time (CDT) -073410 Data Tape No. P19193  
 Landing Time (CDT) 084704

Temp (°C) and Dewpoint Profile (1000 ft.)

	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
ASDG	T																							
	T <sub>d</sub>																							
DSDG	T																							
	T <sub>d</sub>																							

A	
D	

Cld Base (1000 ft)

Tower Fly-by

Date 12 July 1979

Aircraft: p - Navajo

-343-

Time In	Time Out	Cld or Turret No.	Pass No.	Hdg	Speed (kt)	VOR/DME	Alt in (ft)	Alt Out	Comments (Cld Temp, U/Down, Turb, LWC, Ice, No. Flares, etc.)
073705			Test			/			To locate new electrical poles in the area just east of the tower. All passes are from WSW/to ENE.
073954			1		160	/			Speed is that attempted. Where achieved speed is known to be different it is noted. Event number denotes that appearing on CRT.
074241			2		160	/			Event 3. p - Navajo at tower elevation.
074516			3		160	/			Event 4. p - Navajo at tower elevation. Achieved speed is 155 kt.
074755			4		160	/			Event 5. p - Navajo at tower elevation. Rosemount temperature has been noisy. It is now stable.
075037			5		160	/			Event 6. p - Navajo at tower elevation.
075326			6		160	/			Event 7. p - Navajo at tower elevation.
075615			7		160	/			Event 8. p - Navajo at tower elevation.
075914			8		160	/			Event 9.
080215			1		140	/			Event 10. p - Navajo at tower elevation.
080506			2		140	/			Event 11
080753			3		140	/			Event 12. p - Navajo at tower elevation
081038			4		140	/			Event 13
081331			5		140	/			Event 3. p - Navajo 5 ft below tower
						/			Event 4. p - Navajo 5 ft below tower.
						/			Achieved speed was 142 kt.

Date 12 July 1979

Aircraft: p - Navajo

U.S. NAVY HEADQUARTERS, PEARL AND HERMES BAY

Time In	Time Out	Cld or Turret No.	Pass No.	Hdg	Speed (kt)	VOR/IME	Alt in (ft)	Alt Out	Comments (Cld Temp, U/Down, Turb, LWC, Ice, No. Flares, etc.)
081632			6		140	/			Event 5. p - Navajo at tower elevation. Thermal and mechanical turbulence developing.
081938			1		120	/			Event 6. p - Navajo at tower elevation. Speed was too high before and after passing tower by about 5 kts.
082256			2		120	/			Event 7. p - Navajo at tower elevation. Achieved speed about 123 kt. Tower personnel say wind is increasing, at 082145.
082612			3		120	/			Event 8. p - Navajo at tower elevation. Achieved speed about 130 kt.
082934			4		120	/			Event 9
083254			5		120	/			Event 10
083616			6		120	/			Event 11. Tower personnel say wind is increasing, at 083445.
083922			9		160	/			Event 12. p - Navajo 10 ft above tower.
084214			10		160	/			Event 13. p - Navajo 5 ft below tower.
084500			11		160	/			Event 13. p - Navajo at tower elevation. At 0844 report of winds gusting to 22 miles per hour.
						/			
						/			
						/			
						/			
						/			
						/			
						/			

July 12, 1979

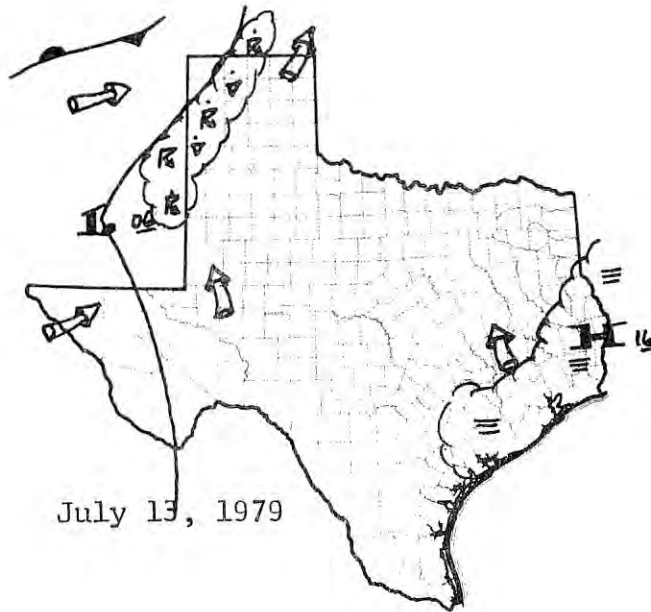
MRI NAVAJO

Speed	Time	Alt (ft)	T(°C)	Td(°C)	RH(%)	Press (mb)	Pass
150	07:38:30	+5	23.2	16.5	65.9	919.9	1
150	07:44:00	±0	23.2	16.3	65.1	920.0	2
150	07:47:00	±0	23.4	16.6	65.3	920.1	3
150	07:49:45	±0	23.2	16.5	65.9	920.2	4
150	07:52:09	+5	22.9	16.8	68.4	920.3	5
150	07:55:03	-10	23.1	16.4	66.2	920.4	6
150	07:57:40	+5	23.4	16.5	65.3	920.4	7
130	08:00:35	±0	23.4	16.6	65.3	920.4	8
130	08:03:10	±0	23.3	16.5	65.6	920.5	9
130	08:06:25	±0	23.4	16.6	65.3	920.5	10
130	08:09:09	±0	23.4	16.6	65.3	920.5	11
130	08:11:50	+5	23.4	16.6	65.3	920.5	12
130	08:14:51	±0	23.5	16.9	66.5	920.4	13
110	08:17:55	+5	23.7	16.7	65.1	920.7	14
110	08:20:52	+10	23.8	16.8	64.8	920.5	15
110	08:24:19	±0	23.8	16.8	64.8	920.8	16
110	08:27:42	±0	23.9	16.8	64.6	920.8	17
110	08:31:00	±0	23.9	16.9	64.9	920.8	18
110	08:34:00	±0	24.2	16.7	63.3	920.9	19

July 12, 1979

P-NAVAJO

Speed	Time	Alt (ft)	T(°C)	Td(°C)	RH(%)	Press (mb)	Pass
160	07:39:55	±0	23.1	16.3	65.8	919.8	1
160	07:42:45	±0	23.4	16.5	64.9	919.9	2
160	07:45:17	±0	23.1	16.5	66.6	920.0	3
160	07:47:57	±0	23.2	16.4	65.9	920.0	4
160	07:50:39	±0	23.3	16.3	66.0	920.2	5
160	07:53:28	±0	23.2	16.5	66.4	920.3	6
160	07:56:15	±0	23.3	16.5	65.6	920.4	7
160	07:59:15	±0	23.4	16.5	65.3	920.4	8
140	08:02:15	+5	23.3	16.5	65.6	920.5	9
140	08:05:05	±0	23.5	16.6	65.3	920.4	10
140	08:07:53	±0	23.6	16.8	65.8	920.4	11
140	08:10:40	-5	23.3	16.5	65.6	920.6	12
140	08:13:31	-5	23.4	16.7	66.1	920.6	13
140	08:16:33	±0	23.5	16.7	65.7	920.5	14
120	08:19:38	±0	23.7	17.2	67.0	920.6	15
120	08:22:55	±0	23.8	16.8	65.2	920.7	16
120	08:26:12	±0	23.7	16.9	65.5	920.8	17
120	08:29:35	±0	23.9	16.8	64.5	920.8	18
120	08:32:54	±0	24.2	16.7	63.3	920.8	19
120	08:36:16	±0	24.3	16.9	63.3	920.9	20
160	08:39:19	+10	24.6	16.9	62.5	920.8	21
160	08:42:14	-5	24.4	16.9	62.7	920.8	22
160	08:45:00	±0	24.6	17.0	62.8	920.9	23



### Weather Summary

Dry line lies from southwest Kansas to Dalhart to a low north of Holloman AFB and southeast to Marfa. A line of thunderstorms and rainshowers is occurring from Dalhart to Clovis moving south-southeast. A Pacific cool front moving eastward in eastern Colorado and northwest New Mexico. Skies are clear over the operational area with cirrostratus visible south-west-northwest. A weak 500 mb cool pocket lies over the operational area and is moving south-southeast. Air mass is warm, dry, and slightly unstable.

Skies were clear during the morning hours, with cirrostratus on the south-northwest horizons. A few altocumulus castillanus were observed to the distant northwest. Scattered cirrus were over the operational area for the balance of the forecast period.

July 13, 1979 (continued)  
Weather Observations

TIME  
(CDT)

---

0750 CLR FEW CI S-SW-W-NW; T = 75<sup>0</sup>F; WIND 170/14

---

0850 CLR ST S HRZN; CI-CS S-W-N; LN ACCAS HRZN NW; T = 78<sup>0</sup>F;  
WIND 170/20

---

1000 CLR FEW ACCAS DSNT NW; CI SE-S-NW; T = 81<sup>0</sup>F; WIND 170/16

---

1150 SCT CI; FEW ACCAS NW; SML CU NE S; T = 89<sup>0</sup>F; WIND 170/12

---

1355 SCT CI; T = 96<sup>0</sup>F; WIND 180/13

---

1650 SCT CI; T = 99<sup>0</sup>F; WIND 190/10

---

79/07/14. 15.31.16.  
PROGRAM TEXP54

\*\*\*\*\*TEXAS HIPLEX STATUS REPORT\*\*\*\*\*  
VALID FOR JULY 13, 1979

\*\*\*WEATHER SUMMARY\*\*\*

SKIES WERE CLEAR DURING THE MORNING HOURS, WITH CIRROSTRATUS ON THE S-NW HORIZONS. A FEW ACCAS WERE OBSERVED TO THE DISTANT NORTHWEST. SCATTERED CIRRUS WERE OVER THE OPERATIONAL AREA FOR THE REMAINDER OF THE FORECAST PERIOD.

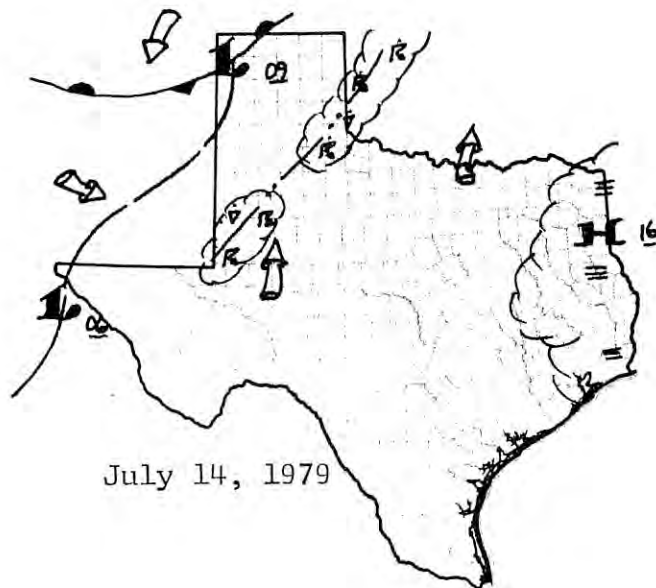
\*\*\*OPERATIONS\*\*\*

THE DAY WAS BRIEFED NON-OPERATIONAL FOR BOTH THE HIPLEX AND THE MESOSCALE PROGRAMS.

\*\*\*EQUIPMENT STATUS\*\*\*

SWR-75: OPERATIONAL  
P-NAVAJO: OPERATIONAL; THE TRANSPONDER WAS REPAIRED.  
MRI-NAVAJO: OPERATIONAL  
RAWINSONDES: OPERATIONAL  
PIG610





### Weather Summary

Pacific front is moving slowly east, lying from western Kansas to a low west of Dalhart to south of Albuquerque into east central Arizona. Dry line is weak and lies from Dalhart low to a low west of El Paso. Zone of weakening convergence is triggering thunderstorms from south central Kansas to northwest Oklahoma to west of Lubbock and north of Midland Air Terminal. Activity is moving south-southeast. The air mass is moist, warm and highly unstable.

A few towering cumulus/cumulonimbus were moving south-southeast from the Hobbs-Lubbock vicinity during the morning hours, with scattered cirrus over the operational area. Activity dissipated late morning without entering the operational area. Scattered cumulus humilis developed over the operational area during early afternoon. By late afternoon, ridging in upper air forced the Pacific front north into northern New Mexico, with the dry line weakening and receding west. A few terrain-induced thunderstorms over Davis Mountains, but no deep convection over the operational area.

July 14, 1979 (continued)  
Weather Observations

TIME  
(CDT)

---

0700 SCT CI AC N-NE; TCU -CB DSNT WNW; T = 75<sup>0</sup>F; WIND 160/15

---

0755 SCT CI; LN TCU/CB DSPTG W-NW; FEW ST S-SW; FEW SML AC N-NE;  
T = 77<sup>0</sup>F; WIND 170/14

---

0855 THN SCT CI; LN DSPTG ACCAS/CB WSW - NW; T = 81<sup>0</sup>F; WIND 170/19G25

---

1150 SCT CI; LN ACCAS NW; LN TCU/CB DSNT W-NW; T = 90<sup>0</sup>F; WIND 180/15

---

1450 THN SCT CUMULUS HUMILIS; SCT CI-CS; T = 97<sup>0</sup>F; WIND 120/13

---

1550 SCT CU HU; SCT CI-CS; T = 99<sup>0</sup>F; WIND 060/06

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79/07/15. 07.20.06.  
PROGRAM TEXP55

\*\*\*\*\*TEXAS HIPLEX STATUS REPORT\*\*\*\*\*  
VALID FOR JULY 14, 1979

\*\*\*WEATHER SUMMARY\*\*\*

A FEW TCU/TRNS WERE MOVING SSE FROM THE HOBBS-LUBBOCK AREA DURING THE MORNING HOURS, WITH SCATTERED CIRRUS OVER THE OPERATIONAL AREA. THE TRW ACTIVITY DISSIPATED BY LATE MORNING WITHOUT ENTERING THE OPERATIONAL AREA. SCATTERED CUMULUS HUMILIS DEVELOPED OVER THE OPERATIONAL AREA DURING THE EARLY MORNING. BY LATE AFTERNOON RIDGING IN THE UPPER AIR FORCED THE WEAK PACIFIC FRONT NORTH INTO NORTHERN NEW MEXICO, WITH THE DRYLINE WEAKENING RECEDING WEST. NO DEEP CONVECTION WAS OBSERVED IN THE TARGET AREA.

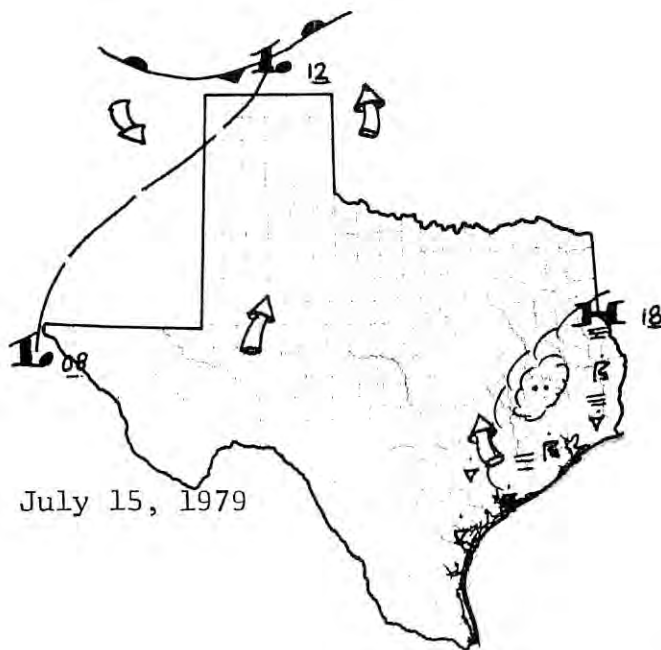
\*\*\*OPERATIONS\*\*\*

THE DAY WAS BRIEFED OPERATIONAL FOR THE MESOSCALE PROGRAM AND STAND-BY FOR THE HIPLEX PROGRAM. RAWINSONDES WERE LAUNCHED THROUGH THE 1600 LCL LAUNCH AFTER WHICH THE LAUNCHINGS WERE CANCELLED. THE HIPLEX STAND-BY WAS CALLED OFF AT 1600 LCL. NO MISSIONS WERE FLOWN.

\*\*\*EQUIPMENT STATUS\*\*\*

SWR-75: OPERATIONAL  
P-NAVAJO: OPERATIONAL  
MRI NAVAJO: OPERATIONAL  
RAWINSONDES: OPERATIONAL  
RIGGID  
READY.  
BYE

ER1200R LOG OFF 07.20.56.  
ER1200R SRU 1.000 UNTS.



### Weather Summary

Moist southerly flow in low levels continues over the operational area through 850 mb. 500 mb ridge to west is providing very warm upper air. Surface front has receded to Central Plains, and dry line lies very weak from northeast New Mexico to El Paso. Moisture in low levels is producing scattered cumulus over the operational area. Air mass is warm, moist and unstable. 500 mb trough lies in south central Texas and is slowly moving north-northwest.

A scattered cumulus deck prevailed most of the morning. By early afternoon, cumulus congestus had developed. The upper air trough in south central Texas had moved toward area by late afternoon, as convective activity was supported in upper air. Towering cumulus and cumulonimbus developed in and adjacent to the operational area by 1600. Activity continued into the evening.

July 15, 1979 (continued)  
Weather Observations

TIME  
(CDT)

---

0800      SCT CI; T = 76<sup>0</sup>F; WIND 180/15

---

1150      SCT CU; T = 87<sup>0</sup>F; WIND 190/07

---

1255      SCT CUMULUS; CU CONG ALQDS; T = 91<sup>0</sup>F; WIND 150/10

---

1550      BKN CUMULUS; CU CONG/FEW TCU ALQDS; T = 95<sup>0</sup>F; WIND 120/13

---

1655      BKN CUMULUS; TCU ALQDS; FEW RW- SE; T = 96<sup>0</sup>F; WIND 120/10

---

1800      BKN CU; TCU; RWU ALQDS; SML CB/TRWU SE-SE; T = 95<sup>0</sup>F;  
WIND 100/12

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79/07/16. 08.04.24.  
PROGRAM TEXP56

\*\*\*\*\*TEXAS HIPLEX STATUS REPORT\*\*\*\*\*  
VALID FOR JULY 15, 1979

◆◆WEATHER SUMMARY◆◆

A SCATTERED CUMULUS DECK PREVAILED OVER THE OPERATIONAL AREA DURING MOST OF THE MORNING. BY EARLY AFTERNOON, CUMULUS CONGESTUS HAD DEVELOPED. THE UPPER AIR TROUGH IN SOUTH CENTRAL TEXAS HAD MOVED TOWARD THE OPERATIONAL AREA BY LATE AFTERNOON, AS CONVECTIVE ACTIVITY WAS SUPPORTED IN UPPER AIR. TCU AND CB DEVELOPED IN AND ADJACENT TO THE OPERATIONAL AREA BY 1600 LCL. ACTIVITY CONTINUED INTO THE EVENING.

◆◆◆OPERATIONS◆◆◆

THE DAY WAS BRIEFED NON-OPERATIONAL FOR THE MESOSCALE PROGRAM. ONE HIPLEX MISSION WAS FLOWN DURING THE DAY.

◆◆◆EQUIPMENT STATUS◆◆◆

SWR-75: OPERATIONAL  
P-NAVAJO: OPERATIONAL  
MRI-NAVAJO: OPERATIONAL  
RAWINSONDES: OPERATIONAL

◆◆◆REMARKS◆◆◆

ATTN. FRAN POLITTE OR MR. HARRISON: THE FOLLOWING DAMAGE WAS SUSTAINED BY THE SURFACE STATION LOCATED AT SNYDER ON 07/09/79 BY 80 MPH WINDS:  
THE TOWER WAS BLOWN OVER-ANTENNA WAS BROKEN-RADIATION SHIELD WAS BROKEN AT THE PVC TUBE-W/S ANEMOMETER CUPS WERE BENT-W/S VANE BENT-MAST BENT-ONE TOWER CROSS MEMBER WAS SHEARED OFF. SAME TYPE OF SITUATION AS TAHOKA BUT LESS PHYSICAL DAMAGE.  
GAIL PRESSURE SET AT 924.1 MB (27.29"). GAIL DATA VALID AFTER THE 2225Z SCAN ON 07/15/79.  
R16610  
READY.  
REPLACE  
READY.

MRI

HIPLEX NAVAJO LOG-1979

Date: July 15, 1979

Page No. 1 of 2

Site: Big Spring, TX  
Mission #1

Observer Humbert

Tape No. 919

Take Off Time 1546 Land Time 1710

BMS Time \_\_\_\_\_ = Aircraft Time \_\_\_\_\_

Aircraft Time \_\_\_\_\_ = Radar Time \_\_\_\_\_

Altitude (29.92) = Initial 2435  
Final 2490

Time	Event #	Altitude (kft)	Temp (°C)	Cloud #	Pass #	DP Type of Pass	COMMENTS
							(VOR/DME/HDG/LWC/+VV/ASP/IPC/-VV/WX)
1548	5	3.0	31.6			14.5	
1554	5	5.0	25.0			13.8	
1601	5	7.0	19.1			11.5	
1604	5	9.0	13.4			6.6	Cloud Base
1608	5	11.0	8.5			3.5	151/25
1614	IN	12.2	5.1	1	1		166/26/253/.6/+3/50/-/-/-
1615	IN	12.8	4.1	2	1	2.8	173/26/255/1.2/+6/800/-/0/R- G
1618	IN	13.3	3.8	3	1	-2.8	189/27/250/Engine Power Fluctuation
1624	5	15.0	1.2			-10.4	195/34
1629	IN	15.3	-.7	4	1	-6.2	198/24/311/1.9/0/900/-/-9/-
1630	OUT			4	1		201/22
1634	IN	14.8	1.5	4	2		199/23/065/2.1/0/800/0/-5
1639	IN	15.4	.2	4	3		193/22/218 Cloud dissipating rapidly
1641	IN	15.5	-.1	5	1	-11.5	200/25/223/1.5/0/800





1979 TEXAS HIPLIX - AIRCRAFT OBSERVER LOG

Date July 15, 1979 Pilot(s) Roberts Time at -5C (CDT) \_\_\_\_\_  
 Flight 1 Observer Long Time at -10C (CDT) \_\_\_\_\_  
 Aircraft p-Navajo Instrument Operator Long Time at Initial Point (CDT) \_\_\_\_\_  
 Takeoff Time (CDT) 154012 Data Tape No. PI9196  
 Landing Time (CDT) 171658

Temp (°C) and Dewpoint Profile (1000 ft.)

	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
ASDG				22.9	19.5	16.5		11.6			5.1		1.9				-6.9							
				10.6	10.8	9.6		5.8			-5.0		-11.6				-18.0							
T																								
T <sub>D</sub>																								
DSDG																								

Cld Base (1000 ft)  
 A 8,600 ft.  
 press ~ 729 mb  
 D

Jerry Jurica is on board to obtain supplemental observations.  
 Initial point is 45°/30 n. mi.  
 Skywater radar time = p-Navajo -61 seconds.  
 Skywater radar time = MRI Navajo time -60 seconds.

Date: July 15, 1979

Aircraft: p-Navajo

1979 TEXAS HIPLEX - AIRCRAFT OBSERVER LOG

Time In	Time Out	Cld or Turret No.	Pass No.	Hdg	Speed	VOR/DME	Alt in (ft)	Alt Out	Comments (Cld Temp, U/Down, Turb, LWC, Ice, No. Flares, etc.)
154044						/			Frame #19 to NE of typical cloud on this flight
1550						/			Light rain from an evaporating cloud on the windshield
155146						/			Penetrated small cloud for a few seconds
1552						/			Skywater radar advises us of echoes at 1500/30 n. mi.
1553						~590/19			Penetrating small clouds. This causes dew point to fluctuate.
1555						/			Flying to 150°/30 n. mi.
~1557						/			Entering dry layer. Dew point was -5C, now is -10C.
1600						/			Will enter a towering cumulus soon with tops at about 19,500 ft.
160101	160136	1	1	175°		1090/17	16500		900 ft. min <sup>-1</sup> maximum updraft. 500 ft. min <sup>-1</sup> downdraft.
160242	160503	2	1	-180°		1190/19	16800		Small cumulus. 500 ft. min <sup>-1</sup> updraft
160830						1540/24			Large cumulus and some Cb's in the distance to NW. Probably 150 miles away.
160930						/			T ~ -7C. Dew point has decreased to -35C. There may be subsidence here.
161103						/			In cloud for a few seconds before we get to cluster of turrets
161208		3	1	250°		1750/28	20900		In evaporating cloud tops. Little downdraft
						/			
						/			
						/			
						/			

Date: July 15, 1979

Aircraft: p-Navajo

1979 TEXAS HIPLEX - AIRCRAFT OBSERVER LOG

Time In	Time Out	Cld or Turret No.	Pass No.	Hdg	Speed	VOR/DME	Alt in (ft)	Alt Out	Comments (Cld Temp, U/Down, Turb, LWC, Ice, No. Flares, etc.)
161401	161432	4	1	100°		180°/26	21200		JW LWC as high as $2 \text{ g m}^{-3}$ . There are dry regions within the cloud.
161536						/			JW air speed dial changed to 170 kt from 100 kt.
161620	161639	5	1	275°		181°/28	21000		JW LWC as high as $2 \text{ g m}^{-3}$ . Updraft. Total water content device output on CRT is 0.2
161820						/			Frame #20 on roll 3 of cloud tops showing dissipation. View is from the west.
161914	161921	5	2	90°		182°/28	21000		Small updraft. Will remain in area until MRI Navajo is at altitude.
1620						/			Removed $0.1 \text{ g m}^{-3}$ drift from JW.
162230	162237	5	3	290°		181°/27	21000		Two parts to this turret now. A little liquid water.
162442	162507	6	1	300°		198°/23	20900		JW LWC as high as $2.5 \text{ g m}^{-3}$ . 1000 ft. min <sup>-1</sup> updraft. Good downdraft.
162751	162822	6	2	120°		197°/24	20500		1800 ft. min <sup>-1</sup> updraft. Still has a good JW LWC, as high as $2 \text{ g m}^{-3}$ . This cloud has been selected for treatment. Treatment will be no-seed.
162900						/			Cloud top somewhat too high to qualify cloud for treatment.
162929						/			IPC channel on CRT shows numbers when flare firing mechanism is advanced.
163030						/			Cloud top estimated to be 25000 ft. MRI Navajo reported only downdrafts in cloud on its pass just completed.
163142	163227	6	3	50°		204°/24	20700		All downdrafts. JW LWC of $2 \text{ g m}^{-3}$ on NE side but less on rest of pass. No output on IPC or TLWC probe channels. This was the treatment pass.
						/			
						/			
						/			

Date: July 15, 1979

Aircraft: p-Navajo

1979 TEXAS HIPLIX - AIRCRAFT OBSERVER LOG

Time In	Time Out	Cld or Turret No.	Pass No.	Hdg	Speed	VOR/DME	Alt in (ft)	Alt Out	Comments (Cld Temp, U/Down, Turb, LWC, Ice, No. Flares, etc.)
						/			Frame #21 of treated cloud showing that it is dissipating
163600	163619	6	4	220°		195°/24	20300		A little updraft
163836		6	5	115°		195°/24	20700		Wispy remnants are all that remain of treated cloud.
1640						/			Frame #22 of last remnant of cloud.
164445						144°/21			Frame #23 of field of cumulus showing their typical form.
1646						/			Nine-track tape recorder has not been recording data for some time. New tape put on at 165200.
165300						/			Data system up again.
						/			Flying toward 140°/46 n.mi. where there are some strong turrets. Will test IPC.
165608	165648	7	1	50°		85°/48	21100		700 ft. min <sup>-1</sup> updraft. 1500 ft. min <sup>-1</sup> downdraft.
165714	165750	8	1	50°		84°/51	21100		Ice particle concentration is typically 10 <sup>x-1</sup> but was up to 80 <sup>x-1</sup> at times. 1300 ft. min <sup>-1</sup> downdraft.
165830	165847	9	1	270°		-81°/50	20900		JW LWC as high as 2g m <sup>-3</sup>
170006	170023	10	1	240°		-83°/44	20200		JW LWC as high as 2 g m <sup>-3</sup> . Turbulence.
1701						/			Returning to Big Spring. IPC probe appeared to work. Total liquid water content probe gave a reading of 0.2 (of indeterminate units) in one cloud (#5). It is not clear whether this device is operating.
						/			
						/			

July 15, 1979  
Date

13816  
P/C Number

2442.2 (16:38)  
Engine Off

0.6  
Flight Time

None  
Flares This Month

S. Gabrick  
Pilot

HIPLX  
Type Flight

2442.8 (17:10)  
Engine Off

95  
Flight Number

Flares To Date

SOUNDING Temp. K	Asc. Des.	EVENT & TIME	POSITION Radial-DME	CLOUD BASE (FT.)	BASE TEMP (°C)	UPDRAFT VEL. (FPM)	UPDRAFT AXIS (S.MI)	FLARE NO.	Hdg. (DEG)	A/C SPEED (MPH)	NOTES
3	31	1 16:48	195/24						200	125	CU ALQDS; TCU to SW, NO DEV.
4	27	2 16:53	195/32	9.5	11				190	145	NO CHANGE
5	23	3 17:00	205/26						040	155	RTB
6	21										
7	17										
8	14										
9	12										
10											
11											
12											
13											
14											
15											
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17											
18											
19											

REMARKS:

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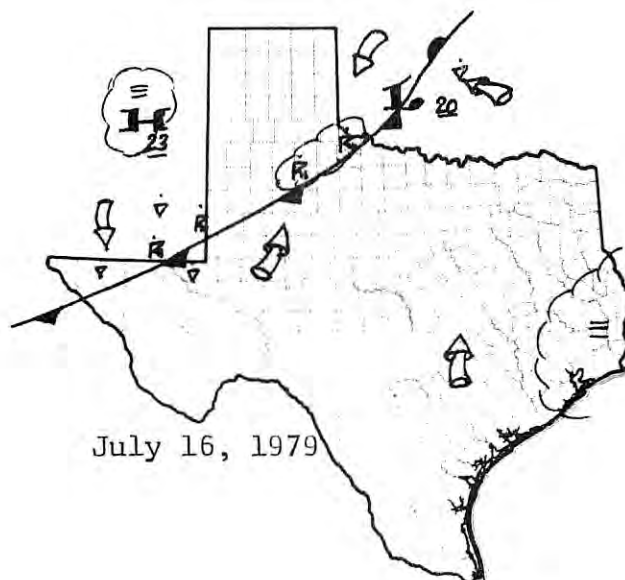
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### Weather Summary

A modified Pacific front is moving slowly south, lying from a low in southwestern Oklahoma to south of Lubbock and Hobbs to Trans-Pecos Texas. Numerous rainshowers and thunderstorms are occurring in New Mexico, the Southern Plains and southwest Oklahoma. A 500 mb trough lies west of the operational area. Air mass is warm, very moist, and unstable.

Widespread cirrus and cirrostratus were over the operational area during the morning hours, while a line of dissipating towering cumulus and cumulonimbus were northwest-north of the operational area. By late morning a scattered cumulus deck had developed under scattered cirrus. By early afternoon a few cumulus congestus and towering cumulus were occurring in the northwestern portion of the operational area, and rainshowers and small cumulonimbus had developed over the northwestern and northern portions of the operational area.

July 16, 1979 (continued)  
Weather Observations

TIME  
(CDT)

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0750 BKN CS; AC-AS Lyr NW-N; LN TCU -CB DSNT NW - N; T = 76<sup>0</sup>F;  
WIND 180/12; FEW ST FRMG N-E-SE

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0855 BKN CS; SC BLDG N-E; T = 78<sup>0</sup>F; WIND 180/14

---

1145 SCT CUMULUS; FEW CU CONG E - S; T = 85<sup>0</sup>F; WIND 185/07;  
SCT CI WIND DIR 150V220

---

1350 SCT CUMULUS; CU CONG NW-N; TCU DSNT NNW; T = 91<sup>0</sup>F;  
WIND 160/05

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1550 SCT CUMULUS; CU CONG NW-N; SCT CIRRUS; T = 94<sup>0</sup>F; WIND 170/09

---

1650 SCT CU; CU CONG/TCU NW-N; SML CB DSNT NW-N; T = 94<sup>0</sup>F;  
WIND 160/12

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79/07/17. 15.42.42.  
PROGRAM TEXP57

\*\*\*\*\*TEXAS HIPLEX STATUS REPORT\*\*\*\*\*

VALID FOR JULY 16, 1979

\*\*\*\*\*WEATHER SUMMARY\*\*\*\*\*

WIDESPREAD CIRRUS AND CIRROSTATUS WERE OVER THE OPERATIONAL AREA DURING THE MORNING HOURS, WHILE A LINE OF DISSIPATING TCU AND CB WERE OBSERVED TO THE NORTHWEST THROUGH NORTH OF THE OPERATIONAL AREA. BY LATE MORNING A SCATTERED CUMULUS DECK HAD DEVELOPED UNDER THE SCATTERED CIRRUS, BY EARLY AFTERNOON A FEW CUMULUS CONGESTUS AND TCU WERE OCCURRING IN THE NORTHWEST PORTION OF THE OPERATIONAL AREA, AND RW AND SMALL TRWS HAD DEVELOPED OVER THE NORTHWEST NORTH PORTIONS OF THE OPERATIONAL AREA.

\*\*\*\*\*OPERATIONS\*\*\*\*\*

THE DAY WAS BRIEFED OPERATIONAL FOR THE MESOSCALE AND THE HIPLEX OPERATIONS. RAWINSONDES WERE LAUNCHED FOR THE ENTIRE PERIOD. AIRCRAFT WERE LAUNCHED AT ABOUT 1500 LCL BUT WERE UNABLE TO FIND ANY SUITABLE CLOUDS TO WORK.

\*\*\*\*\*EQUIPMENT STATUS\*\*\*\*\*

SWR-75: OPERATIONAL  
P-NAVAJO: LOST ITS TRANSPONDER, THE AIRCRAFT CAN ONLY FLY VFR.  
MRI-NAVAJO: OPERATIONAL  
RAWINSONDES: OPERATIONAL  
RIGGID  
READY.



1979 TEXAS HIPLX - AIRCRAFT OBSERVER LOG

Date July 16, 1979 Pilot(s) Gabrick, Roberts Time at -5C (CDT) \_\_\_\_\_  
 Flight 1 Observer Long Time at -10C (CDT) \_\_\_\_\_  
 Aircraft p-Navajo Instrument Operator Long Time at Initial Point (CDT) \_\_\_\_\_  
 Takeoff Time (CDT) 183301 Data Tape No. P19197  
 Landing Time (CDT) 193205

Temp (°C) and Dewpoint Profile (1000 ft.)

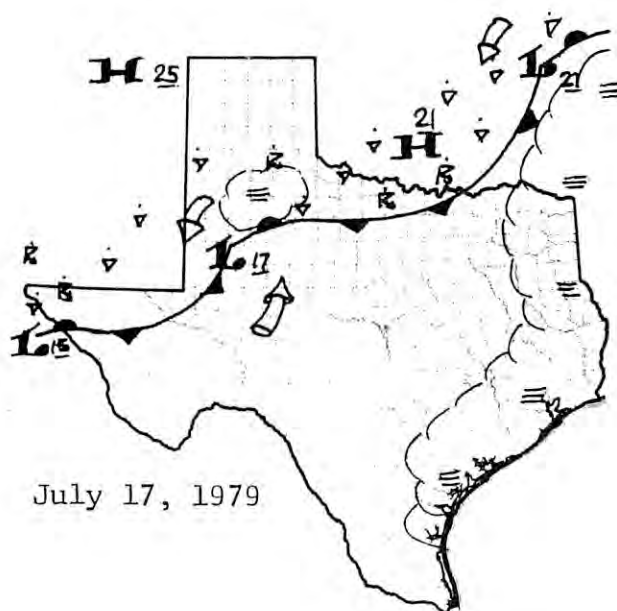
	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
Reverse FlowT						17.5	14.4	8.4	6.3	4.4					-4.5	-7.4								
ASDG						7.7	7.8	4.1	3.2	0.4					-13.8	-26.0								
T <sub>d</sub>																								
T																								
T <sub>d</sub>																								

Cld Base (1000 ft)  
 A 10800 ft. at  
 about 184554  
 CDT  
 D

Skywater radar time = p-Navajo time

Initial point is 340°/30 n.mi.





### Weather Summary

A slow-moving cool front lies across the Red River to south of Wichita Falls and Lubbock to Wink into the Trans-Pecos region of Texas. Widespread rainshower and thunderstorm activity is occurring north of the front. Southerly flow persists over the operational area, with skies generally clear. Considerable moisture is over the operational area deep into the air mass. A 500 mb cool pocket has moved over the operational area; and the air mass is warm, moist and unstable. Winds aloft are light.

Skies were mostly clear during early morning hours, but surface heating quickly produced cumulus out of very moist low level. By late morning scattered cumulus and cumulus congestus were over the operational area. Early in the afternoon, towering cumulus/cumulonimbus began developing over the operational area along and behind the surface front, now lying over the operational area. Activity became widespread late in the afternoon.

July 17, 1979 (continued)  
Weather Observations

TIME  
(CDT)

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0900 CLR FEW CI NW-N; T = 79<sup>0</sup>F; WIND

---

1155 SCT CU; FEW CU CONG SE-S; T = 90<sup>0</sup>F; WIND 160/04

---

1450 SCT CU; TCU/CB ALQDS; RWU/TRWU ALQDS; T = 95<sup>0</sup>F; WIND 050/05;  
AC ALQDS

---

79/07/18. 13.30.27.  
PROGRAM TEXP58

\*\*\*\*\*TEXAS HIPLEX STATUS REPORT\*\*\*\*\*  
VALID FOR JULY 17, 1979

\*\*\*WEATHER SUMMARY\*\*\*

SKIES WERE MOSTLY CLEAR DURING THE EARLY MORNING HOURS. FROM A VERY MOIST LOW LEVEL SURFACE HEATING QUICKLY PRODUCED CUMULUS. BY LATE MORNING SCATTERED CUMULUS AND CUMULUS CONGESTUS WERE OVER THE OPERATIONAL AREA. EARLY IN THE AFTERNOON, TCU AND TRW BEGAN DEVELOPING OVER THE OPERATIONAL AREA ALONG AND BEHIND THE SURFACE FRONT, LYING OVER THE OPERATIONAL AREA. THE TRW ACTIVITY BECAME WIDESPREAD BY LATE AFTERNOON.

\*\*\*OPERATIONAS\*\*\*

THE DAY WAS DECLAIRED A RAPID SCAN DAY AS WELL AS OPERATIONAL FOR BOTH THE MESO-SCALE AND THE HIPLEX PROGRAMS. A NUMBER OF Z-R MISSIONS WERE FLOWN DURING EARLY AFTERNOON AND A NEAR CLOUD MAPPING MISSION WAS ALSO FLOWN DURING LATE AFTERNOON. GOOD DATA WERE COLLECTED FOR ALL MISSIONS.

\*\*\*EQUIPMENT STATUS\*\*\*

SWR-75: OPERATIONAL  
P-NAVAJO: OPERATIONAL EXCEPT FOR TRANSPONDER  
MRI NAVAJO: OPERATIONAL  
RAWINSONDES: OPERATIONAL  
RIGGID  
READY.  
CHANGE, TEXP58/CT=PU  
READY.

1979 TEXAS HIPILEX - AIRCRAFT OBSERVER LOG

Date July 17, 1979 Pilot(s) Roberts Time at -5C (CDT) \_\_\_\_\_  
 Flight 1 1 Observer Long Time at -10C (CDT) \_\_\_\_\_  
 Aircraft p-Navajo Instrument Operator Long Time at Initial Point (CDT) \_\_\_\_\_  
 Takeoff Time (CDT) 152834 Data Tape No. P19198  
 Landing Time (CDT) 172046

Temp (°C) and Dewpoint Profile (1000 ft.)

	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	
ASDG	T																								
	T <sub>d</sub>																								
DSDG	T																								
	T <sub>d</sub>																								

A	Cld Base (1000 ft)
D	

Jerry Jurica is onboard to obtain supplemental observations.  
 We shall fly at 4,000 ft. collecting mesoscale temperature and humidity data.

Date: July 17, 1979

Aircraft: p-Navajo

1979 TEXAS HIPLIX - AIRCRAFT OBSERVER LOG

Time In	Time Out	Cld or Turret No.	Pass No.	Hdg	Speed	VOR/DME	Alt in (ft)	Alt Out	Comments (Cld Temp, U/Down, Turb, LWC, Ice, No. Flares, etc.)
153300						/			We are flying first to the VORTAC, then along the 75° radial to , then N to 45°/35 n.mi. All temperatures listed below are from the reverse flow probe. T <sub>d</sub> is dew point.
153400						181°/6			T = 25.7C, T <sub>d</sub> = 14.6C
153412	153927					185°/5			T = 26.1C, T <sub>d</sub> = 14.4C. Rain, JW LWC ~0.5 gm <sup>-3</sup>
153500						/			No output on total water device.
153524						/			In rainshaft.
153600						201°/1			T = 25.5C, T <sub>d</sub> = 13.7C
153730				75°		/			Heavier rain
153800				75°		52°/2			T = 25.2C, T <sub>d</sub> = 14.1C. Light rain. Event 3 on CRT will mean entering rain. Event 4 will mean leaving.
153900				75°		77°/6			T = 24.3C. T <sub>d</sub> = 15.7C
153943						78°/7			T = 24.8C, T <sub>d</sub> = 15.0C. Moderate precipitation for about 5 sec. at 153826.
154000						78°/10			T = 25.3C, T <sub>d</sub> = 15.1C. Out of rain at 153928.
154100						/			Zeroed JW. It had been reading 0.4 g m <sup>-3</sup> in clear air.
154200						79°/13			T = 26.0C. T <sub>d</sub> = 14.5C
						79°/16			T = 26.3C. T <sub>d</sub> = 13.6C
						79°/19			T = 26.2C. T <sub>d</sub> = 14.3C
						/			
						/			

Date: July 17, 1979

Aircraft: p-Navajo

1979 TEXAS HI PLEX - AIRCRAFT OBSERVER LOG

Time In	Time Out	Cld or Turret No.	Pass No.	Hdg	Speed	VOR/DME	Alt in (ft)	Alt Out	Comments (Cld Temp, U/Down, Turb, LWC, Ice, No. Flares, etc.)
154217	154232					/			Passing through rain shaft.
154300				75°		780/22			T = 23.1C, T <sub>d</sub> = 15.0C. Turbulence 1000 ft min <sup>-1</sup> updraft at 154322.
154400						/			T = 25.7C, T <sub>d</sub> = 15.3C
154500				75°		760/27			T = 23.4C, T <sub>d</sub> = 13.1C
154502				0°		750/27.5			Heading changed to 0°
154600				0°		720/28			Large drops on windscreen at 154555. Rain at 154617.
154700				0°		650/29			T = 23.4C, T <sub>d</sub> = 15.1C
154742						/			500 ft min <sup>-1</sup> updraft
154800				0°		590/30			
154809						/			Some rain drops. Turn to left about this time. Heading toward 340°/17 n.mi. Present location is about 45°/30 n.mi.
154820						/			Turbulence
154900				270°		550/30			Updraft. Dust.
155000				270°		520/28			T = 24.0C, T <sub>d</sub> = 13.8C. 1000 ft min <sup>-1</sup> updraft at 155002.
155100				270°		470/25			Frame #29 to 8 o'clock of scud cloud. Altitude is 4300 ft. at 155057.
						/			
						/			
						/			



Date: July 17, 1979  
 Aircraft: p-Navajo

1979 TEXAS HIPLEX - AIRCRAFT OBSERVER LOG

Time In	Time Out	Cld or Turret No.	Pass No.	Hdg	Speed	VOR/DME	Alt in (ft)	Alt Out	Comments (Cld Temp, U/Down, Turb, LWC, Ice, No. Flares, etc.)
155200				270°		41 <sup>9</sup> 23			T = 26.5C, T <sub>d</sub> = 13.1C
155300				270°		34 <sup>9</sup> 21			T = ~26.6C, T <sub>d</sub> = ~14.1C
155400				270°		27 <sup>9</sup> 19			T = 26.2C, T <sub>d</sub> = 13.0C
155500				270°		17 <sup>9</sup> 8			p-Navajo time = Skywater radar time + 3 sec. p-Navajo time = MRI Navajo time
155600				270°		8 <sup>9</sup> 17			
155620						/			Light rain. Lightning to 3 o'clock at 155625
155700				270°		358 <sup>9</sup> 16			
155800				270°		346 <sup>9</sup> 16			T = 24.7C, T <sub>d</sub> = 15.0C. Large rain or hail shaft to right about 155827. Lightning in it.
155838						340 <sup>9</sup> 17			left turn
155900						335 <sup>9</sup> 16			T = 24.9C, T <sub>d</sub> = 13.6C
160000				150°		331 <sup>9</sup> 14			T = 25.2C, T <sub>d</sub> = 15.8C. A few raindrops at 160030.
160100				150°		331 <sup>9</sup> 11			T = 24.9C, T <sub>d</sub> = 15.9C
160200				150°		332 <sup>9</sup> 8			T = 26.0C, T <sub>d</sub> = 13.9C
160300				150°		332 <sup>9</sup> 5			T = 26.0C, T <sub>d</sub> = 12.7C
						/			At 160244 the heaviest rain was back to north
						/			
						/			
						/			

Date: July 17, 1979  
 Aircraft: p-Navajo

1979 TEXAS HIPILEX - AIRCRAFT OBSERVER LOG

Time In	Time Out	Cld or Turret No.	Pass No.	Hdg	Speed	VOR/DME	Alt in (ft)	Alt Out	Comments (Cld Temp, U/Down, Turb, LWC, Ice, No. Flares, etc.)
160400				150°	155 indicated	332°/ 3			T = 26.0C, T <sub>d</sub> = 13.6C
160447						09° 0			Left turn
160500						127° 1			T = 25.1C, T <sub>d</sub> = 13.8C
160600				45°		59° 3			T = 25.0C, T <sub>d</sub> = 14.7C
160642						/			Sky black at 10 o'clock
160700				45°		48° 5			T = 25.7C, T <sub>d</sub> = 12.8C
160800				45°		46° 8			T = 26.4C, T <sub>d</sub> = 13.1C
160842						/	4000		Feeder clouds ahead about 2000 ft. above us
160900				45°		46° 11			T = 25.7C, T <sub>d</sub> = 15.1C
161000				45°		45° 14			T = 25.4C, T <sub>d</sub> = 15.7C. Rain to nw about 10 mi.
161100				45°		46° / 17			T = 24.6C, T <sub>d</sub> = 15.0C
161200				45°		46°/20			
161300				45°		46°/22			T = 23.3C, T <sub>d</sub> = 15.9C. Skywater radar advises us that cloud at Snyder has a radar top of about 60,000 ft.
161334						/			Light rain
						/			
						/			
						/			
						/			

Date: July 17, 1979

Aircraft: p-Navajo

1979 TEXAS HIPLEX - AIRCRAFT OBSERVER LOG

Time In	Time Out	Cld or Turret No.	Pass No.	Hdg	Speed	VOR/DME	Alt in (ft)	Alt Out	Comments (Cld Temp, U/Down, Turb, LWC, Ice, No. Flares, etc.)
161430				45°		47° / 27			T = 22.0C, T <sub>d</sub> = 16.2C
161445						/			Heavier rain. Lightning at 161427
161454						45° / 35			Left turn
161530						44° / 29			
161600						43° / 28			T = 22.0C, T <sub>d</sub> = 15.5C. Good rain at 161612
161700				260°		38° / 26			T = 21.4C, T <sub>d</sub> = 15.8C. Rain to right a few miles distant at 161648
161800				260°		35° / 23			At 161812 turbulence. At 161747 & 34°/24 n.mi. observed heavy precip. at 1 o'clock
161847						/			Deviating to left to avoid heavy precipitation of storm to north
161900				260°		28° / 21			T = 22.3C, T <sub>d</sub> = 15.3C. Lightning at 2 o'clock at 161902. Advised to turn left to 75°/30 n.mi. Turn delayed.
161952						/			1,000 ft. min. -1 updraft
162000						20° / 19			T = 24.5C, T <sub>d</sub> = 13.5C. Rain
162100						12° / 18			T = 24.8C, T <sub>d</sub> = 14.5C. Perhaps in outflow of storm to north
162112						/			500 ft min. -1 downdraft
						/			
						/			
						/			
						/			
						/			

Date: July 17, 1979Aircraft: p-Navajo

## 1979 TEXAS HIPLEX - AIRCRAFT OBSERVER LOG

Time In	Time Out	Cld or Turret No.	Pass No.	Hdg	Speed	VOR/TIME	Alt in (ft)	Alt Out	Comments (Cld Temp, U/Down, Turb, LWC, Ice, No. Flares, etc.)
162152						/			Lightning at 4 o'clock
162200						1° / 17			T = 23.9C, Td = 14.2C
162232						/			Moderate rain
162300						350° / 16			T = 23.7C, Td = 14.9C. Left turn at 162344
162400						339° / 16			Heavy rain
162500				100°		345° / 14			T = 23.7C, Td = 14.5C. Heavy rain behind us and at 9 o'clock.
162545						/			Turbulence. Lightning at 8 o'clock.
162600				100°		353° / 13			T = 24.2C, Td = 14.2C
162700				100°		360° / 12			T = 25.2C, Td = 15.3C. 600 ft. min -1 updraft at 162712
162800				100°		179 / 12			T = 24.2C, Td = 14.2C. Aztec has been launched to seed clouds near Gail.
162900				100°		319 / 13			T = 23.6C, Td = 15.4C
163000				100°		427 / 15			T = 24.8C, Td = 15.3C
163100				100°		509 / 16			T = 23.5C, Td = 15.0C
163112						/			Some breaks in low cloud cover.
						/			
						/			
						/			
						/			
						/			

Date: July 17, 1979Aircraft: p-Navajo

## 1979 TEXAS HIPLEX - AIRCRAFT OBSERVER LOG

Time In	Time Out	Cld or Turret No.	Pass No.	Hdg	Speed	VOR/DME	Alt in (ft)	Alt Out	Comments (Cld Temp, U/Down, Turb, LWC, Ice, No. Flares, etc.)
163200				100°		56° / 18			Rain at 10-12 o'clock. Sunshine here.
163300				100°		62° / 21			T ~ 23.8C, Td = 13.4C
163400				100°		67° / 23			T = 23.9C, Td = 12.8C
163500				100°		71° / 25			T = 25.4C, Td = 11.6C. In rain. Heavy rain at 9-12 o'clock.
163600				100°		78° / 24			T = 24.8C, Td = 13.6C. Moderate rain at 163555.
163700				100°		77° / 30			T = 24.6C, Td = 12.7C
163719						/			Turn back toward VORTAC. There has been a lot of rain in Snyder.
163800				260°		84° / 31			T = 24.5C, Td ~ 13.8C
163802						/			Rain to right
163900				260°		~85° / 27			
164000				260°		93° / 24			T = 24.3C, Td = 13.8C
164100				260°		85° / 21			T = 23.9C, Td = 13.9C
164300				260°		84° / 15			T = 25.5C, Td = 12.9C
164400				260°		85° / 12			T = 25.1C, Td = 13.1C
						/			
						/			
						/			
						/			

Date: July 17, 1979Aircraft: p-Navajo

## 1979 TEXAS HIPLEX - AIRCRAFT OBSERVER LOG

Time In	Time Out	Cld or Turret No.	Pass No.	Hdg	Speed	VOR/DME	Alt in (ft)	Alt Out	Comments (Cld Temp, U/Down, Turb, LWC, Ice, No. Flares, etc.)
164500				260°		85° 9			T = 23.7C, Td = 14.7C
164512						/			Coming under low clouds
164600				260°		84° 6			T = 23.9C, Td = 14.8C
164700				260°		84° 3			T = 23.0C, Td = 16.8C
164742						09° 0			Right turn at 164750
164800						260° 1			T = 24.9C, TD = 13.6C. In rain again.
164900				50°		332° 3			Good rain at 164850
164925						/			Good updrafts
164947						/			Under shelf cloud. 500 ft min <sup>-1</sup> updraft
165000				50°		159° 5			T = 23.3C, Td = 15.2C
165012						/			300 ft min <sup>-1</sup> downdraft
165048						/			Light rain
165100				50°		289° 7			T = 24.2C, Td = 14.9C
165200				50°		339° 10			T = 23.9C, Td = 14.6C. Good rain to west.
						/			
						/			
						/			
						/			

Date: July 17, 1979

Aircraft: p-Navajo

1979 TEXAS HIPLEX - AIRCRAFT OBSERVER LOG

Time In	Time Out	Cld or Turret No.	Pass No.	Hdg	Speed	VOR/DME	Alt in (ft)	Alt Out	Comments (Cld Temp, U/Down, Turb, LWC, Ice, No. Flares, etc.)
165300				50°		36° / 13			T = 24.2C, Td = 15.1C. Shelf at 8-10 o'clock about 3 miles.
165400				50°		39° / 16			T = 23.4C, Td = 14.5C. Heavy precipitation at 9-11 o'clock about 5-8 mi.
165530						42° / 20			T = 23.9C, TD = 13.7C. Near Lake Thomas.
165600				50°		42° / 22			T = 23.6C, Td = 15.0C. Heavy rain ahead.
165700				50°		/			Light rain.
165740						/			Heavy rain.
165800						45° / 27			T = 21.2C, Td = 15.4C lightning. Right turn at 165752.
165900				140°		44° / 28			T = 22.1C, Td = 15.7C. Good rain.
170000				140°		49° / 27			T = 23.2C, Td = 15.5C. Nearby lightning 1-2 miles behind us.
170045						/			Still good precipitation
170100				140°		53° / 28			T = 23.6C, Td = 14.9C
170200				140°		62° / 29			T = 24.4C, Td = 13.5C
170300				140°		69° / 29			T = 25.1C, Td = 13.5C
						/			
						/			
						/			
						/			
						/			

Date: July 17, 1979Aircraft: p-Navajo

## 1979 TEXAS HIPLIX - AIRCRAFT OBSERVER LOG

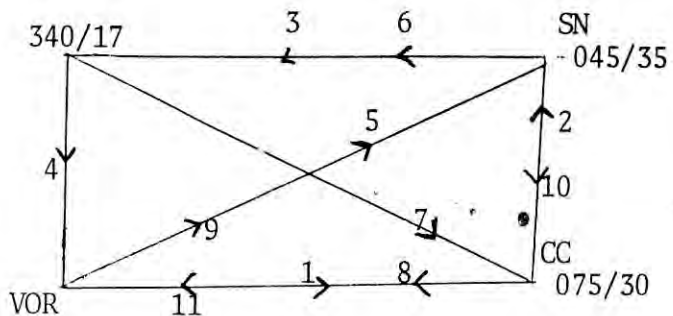
Time In	Time Out	Cid or Turret No.	Pass No.	Hdg	Speed	VOR/TME	Alt in (ft)	Alt Out	Comments (Cld Temp, U/Down, Turb, LWC, Ice, No. Flares, etc.)
170400						77° / 30			T = 25.4C, Td = 13.3C. Right twin at 170359 over Colorado City at 75°/30 n. mi.
170500						86° / 30			T = 25.0C, Td = 13.2C
170510				265°		/			Assumed this heading
170542						/			Very light rain
170600				265°		87° / 27			T = 25.1C, Td = 13.0C
170700				265°		88° / 24			Out of rain. T = 25.1C, Td = 13.4C
170800				265°		88° / 21			T = 25.6C, Td = 14.0C. Coming out from dark area at 170820. Only altostratus and cirrus now above.
170900				265°		86° / 17			T = 25.6C, Td = 13.4C
171000				265°		86° / 14			T = 25.7C, Td = 13.8C. Scud cloud about 10 miles ahead.
171100				265°		85° / 11			T = 25.3C, Td = 14.5C. Sky dark from 12 to 6 o'clock.
171200				265°		85° / 8			T = 24.2C, Td = 12.7C
171300				265°		84° / 5			At 171315 there is a rain area about 4 mi. north. T = 23.6C, Td = 13.3C. Dark. Rain from 11 to 3 o'clock.
171400				265°		83° / 2			T = 21.3C, Td = 16.6C. At 171355 there is an updraft.
171415						/			Turbulence. 500 ft min <sup>-1</sup> at 171402
						/			
						/			
						/			





RRSD FLIGHTS ON 7-17-79

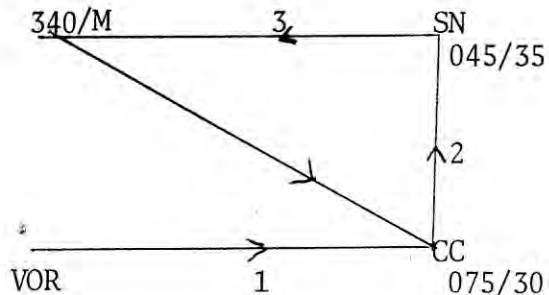
p-Navajo 4K MSL



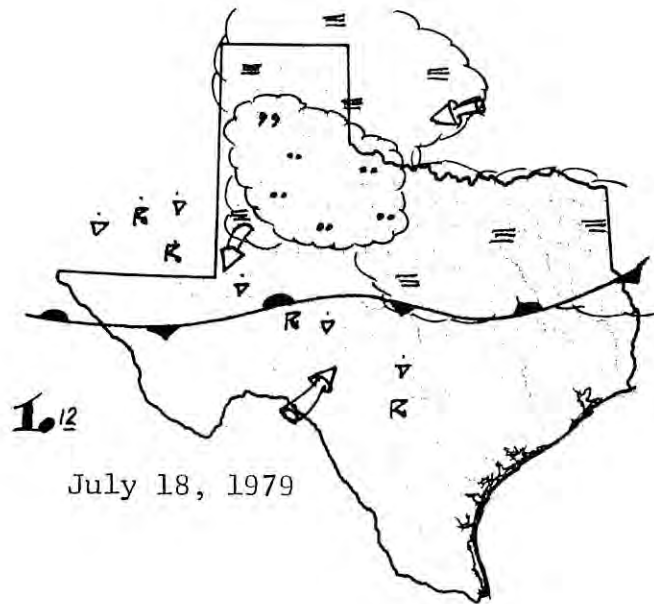
Times at end of each leg:

1	2045 GMT
2	2048 GMT
3	2058 GMT
4	2104 GMT
5	2115 GMT
6	2123 GMT
7	2137 GMT
8	2147 GMT
9	2158 GMT
10	2203 GMT
11	2214 GMT

MRI Navajo 11K MSL



At VOR	2104 GMT
1	2116 GMT
2	2123 GMT
3	2136 GMT
4	2151 GMT



### Weather Summary

A weak stationary front lies east-west from north of Lufkin to north San Angelo, south of Midland and into the Trans-Pecos. A few thunderstorms are occurring either side of the front, and widespread fog, rain, and drizzle is occurring north of the front. Air mass is warm, very moist, and slightly unstable.

Multiple layers of broken and overcast cloud cover were over the operational area during the morning hours, with some fog and haze in areas. By late morning, rainshowers were occurring widespread over area. Towering cumulus and cumulonimbus then were generally over the area for balance of the forecast period, mostly imbedded in light precipitation. A few of these cells produced heavy precipitation.

July 18, 1979 (continued)  
Weather Observations

TIME  
(CDT)

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0755 OVC AS: BINOVC; HIR CLDS VSBL; STRATUS INCRSG ALQDS; T = 71<sup>0</sup>F;  
WIND 030/07; HAZY

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0855 OVC STRATUS: VSBY G FOG; T = 72<sup>0</sup>F; WIND 040/06; DRK NE-SE

---

1055 BKN CUMULUS; BKN AC; HIR CLDS VSBY; DRK NE-SE; T = 77<sup>0</sup>F;  
WIND 360/05; CU CONG ALQDS

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1145 BKN CU; RWU/TCU ALQDS; T = 79<sup>0</sup>F; WIND 060/05

---

1355 OVC CU; TCU/CB ALQDS; R-; TRW++ NE-S; WIND 070/13; T = 72<sup>0</sup>F ;  
PCPN .41

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\*\*\*\*\*TEXAS HIPLEX STATUS REPORT\*\*\*\*\*  
VALID FOR JULY 18, 1979

\*\*\*WEATHER SUMMARY\*\*\*

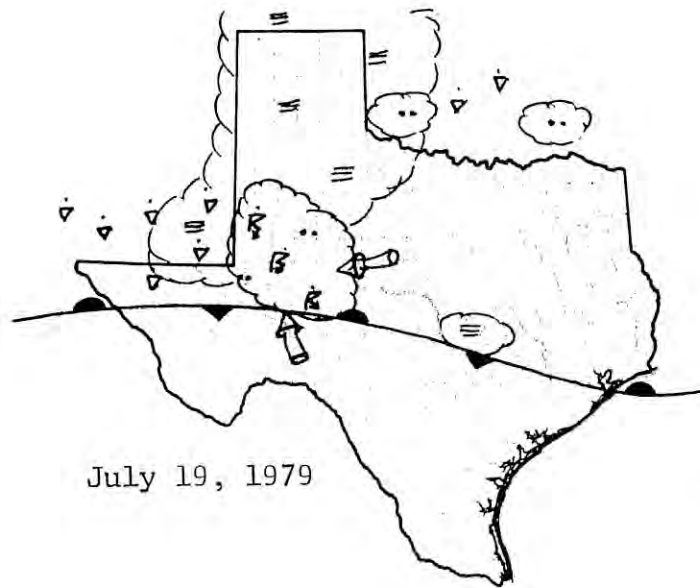
MULTIPLE LAYERS OF BROKEN AND OVERCAST CLOUDS~~COOBER~~WERE OVER THE OPERATIONAL AREA DURING THE MORNING HOURS, WITH SOME FOG AND HAZE IN AREAS. BY LATE MORNING, RAINSHOWERS WERE OCCURRING WIDESPREAD OVER THE OPERATIONAL AREA. TCU/TRW WERE OBSERVED DURING THE BALANCE OF THE FORECAST PERIOD, MOSTLY IMBEDDED IN LIGHT PRECIPITATION.

\*\*\*OPERATIONS\*\*\*

THE DAY DECLARED A RAPID SCAM DAY, AS WELLAS A MESOSCALE DAY. THE P-NAVAJO WAS FLOWN TO LUBBOCK DURING THE AM TO REPAIRA TRANSPONDER, CONSEQUENTLY ALL HIPLEX OPERATIONS WERE STAND-BY UNTIL THE P-NAVAJO RETURNED. THE P-NAVAJO RETURNED DURING MID-AFTERNOON AND REPORTED WIDESPREAD PRECIPITATION AND IMBEDDED TRWS. CONDITIONS WERE NOT CONDUSIVE FOR A HIPLEX MISSION. NO HIPLEX MISSIONS WERE FLOWN.

\*\*\*EQUIPMENT STATUS\*\*\*

ALL EQUIPMENT OPERATIONAL  
RIGGID



### Weather Summary

A weak stationary front continues from southeast Texas to Pecos and south of El Paso. Widespread precipitation is occurring north of front over entire operational area. Air mass is very moist, cool, and slightly unstable. 500 mb trough lies northwest of the operational area.

A large thunderstorm dominated the operational area weather throughout the morning hours. Rain continued to be stratified and widespread over the operational area throughout the forecast period, with a few isolated imbedded heavy thunderstorms. Slow movement resulted in local flash flooding. Several flash flood warnings, with a flash flood watch in effect during the forecast period.

July 19, 1979 (continued)  
Weather Observations

TIME  
(CDT)

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0800            OVC CB; TRW AT STN; T = 66<sup>0</sup>F; WIND 300/16; VSBY 1

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0955            OVC NS; R AT STN; T NW MVG SE; T = 65<sup>0</sup>F; WIND 070/18;  
                 VSBY 1 RF

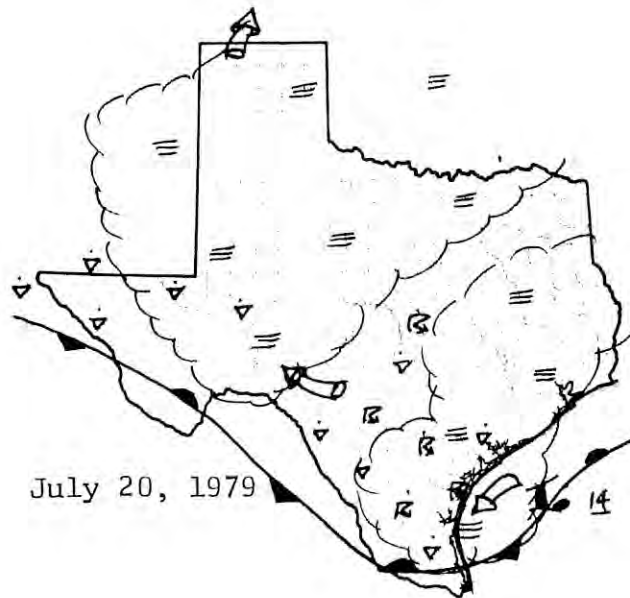
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1155            OVC NS; R AT STN; T ALQDS; T = 68<sup>0</sup>F; WIND 070/16; VSBY  
                 2 RF

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1600            OVC NS; R- AT STN; T = 66<sup>0</sup>F; WIND 070/15

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### Weather Summary

Widespread fog, haze and a few imbedded rainshowers and very light thunderstorms are occurring over the operational area, as upper air trough lies just northwest of the operational area and cool low level moist air is being overrun by very moist maritime tropical air. 500 mb short wave moved by 12Z to position over southeastern portion of the operational area. Air mass remains quite moist and cool, but is only slightly unstable and lapse rate is essentially moist adiabatic.

Heavy overcast remained over the operational area throughout the morning hours, with fog and haze sidespread. Ceiling lifted to broken cumulus by early afternoon, but skies remained very hazy. By late afternoon heating had produced towering cumulus and some light rainshowers over the south and southeastern portions of the operational area. This activity developed in association with heavier thunderstorms south of the operational area. Activity dissipated rapidly near dusk.



July 20, 1979 (continued)  
Weather Observations

TIME  
(CDT)

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0800	OVC ST; FEW LWR SCUD: VSBY 4 F; T = 68 <sup>0</sup> F; WIND 060/09
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0905	OVC ST; LWR SCUD/SC; VSBY 4 F; T = 69 <sup>0</sup> F; WIND 070/08
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0955	OVC ST; THN SPTS IOVC; SUN VSBL; VSBY 5F; T = 71 <sup>0</sup> F; WIND 060/08
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1055	OVC ST; T = 72 <sup>0</sup> F; WIND 060/09
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1355	BKN CU; BKN AC; HAZY; VSBY 5; FEW CU CONG ALQDS; T = 78 <sup>0</sup> F; WIND 080/06
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1655	BKN CU; AC, CI ABV; TCU/RWU SE-S; HAZY; T = 84 <sup>0</sup> F; WIND 090/06
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1850	BKN CU; CB SE-S; HAZY; T = 80 <sup>0</sup> F; WIND 120/03
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\*\*\*\*\*LAST TEXAS HIPLEX STATUS REPORT\*\*\*\*\*  
VALID FOR JULY 19-20, 1979

\*\*\*OPERATIONS\*\*\*

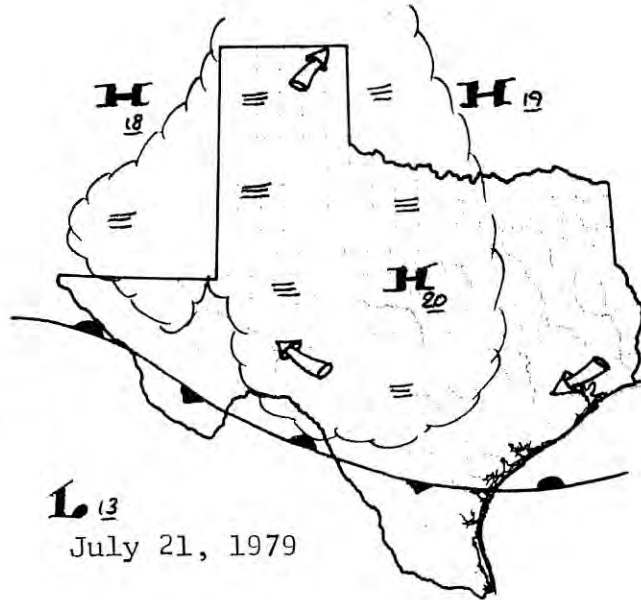
NO HIPLEX OR MESOSCALE MISSIONS DURING THE PERIOD. TEXAS HIPLEX TERMINATED  
ON JULY 20, 1979

RIGGIO

READY.

BYE

ER1200R LG6 OFF 10.59.44.  
ER1200R CRU 1.000 UNTS.



(Field operations terminated 20 July)