

FLIGHT SUMMARY REPORT

Flight #: 91-075
Date: 11 April 1991
Sensor Package: Wild-Heerbrug RC-10
 Dual Hycon HR-732
 Thematic Mapper Simulator (TMS)
Area(s) Covered: East Coastal Florida

Investigator(s): Patterson, University of Virginia **Aircraft #:** 706
Flight Request: 89R247 **Julian Date:** 101

SENSOR DATA

Accession #:	04212	04213	04214	----
Sensor ID #:	026	018	019	101
Sensor Type:	RC-10	HR-732	HR-732	TMS
Focal Length:	12" 304.97 mm	24" 609.6 mm	24" 609.6 mm	----
Film Type:	High Definition Aerochrome IR SO131	High Definition Aerochrome IR SO131	Panatomic-X Aerographic II 3412	----
Filtration:	cc.10B	cc.20B	Wratten 12	----
Spectral Band:	510-900 nm	510-900 nm	510-700 nm	----
f Stop:	4	8	11	----
Shutter Speed:	1/200	1/75	1/75	----
# of Frames:	41	75	75	----
% Overlap:	60	60	60	----
Quality:	Excellent	Fair	Excellent	Fair
Remarks:	Minor emulsion picks throughout roll	Minor to Moderate emulsion picks throughout roll		

Airborne Science and Applications Program

The Airborne Science and Applications Program (ASAP) is supported by three ER-2 high altitude Earth Resources Survey aircraft. These aircraft are operated by the High Altitude Missions Branch at NASA-Ames Research Center, Moffett Field, California. The ER-2s are used as readily deployable high altitude sensor platforms to collect remote sensing and *in situ* data on earth resources, celestial phenomena, atmospheric dynamics, and oceanic processes. Additionally, these aircraft are used for electronic sensor research and development and satellite investigative support.

The ER-2s are flown from various deployment sites in support of scientific research sponsored by NASA and other federal, state, university, and industry investigators. Data are collected from deployment sites in Kansas, Texas, Virginia, Florida, and Alaska. Cooperative international scientific projects have deployed the aircraft to sites in Great Britain, Australia, Chile, and Norway.

Photographic and digital imaging sensors are flown aboard the ER-2s in support of research objectives defined by the sponsoring investigators. High resolution mapping cameras and digital multispectral imaging sensors are utilized in a variety of configurations in the ER-2s' four pressurized experiment compartments. The following provides a description of the digital multispectral sensor used for data collection during this flight.

Thematic Mapper Simulator

The Daedalus Thematic Mapper Simulator (TMS) is a multispectral scanner flown aboard the ER-2 aircraft which simulates spatial and spectral characteristics of the seven Landsat-D Thematic Mapper bands. The specific bands are as follows:

<u>Daedalus Channel</u>	<u>TM Band</u>	<u>Wavelength, μm</u>
1	A	0.42 - 0.45
2	1	0.45 - 0.52
3	2	0.52 - 0.60
4	B	0.60 - 0.62
5	3	0.63 - 0.69
6	C	0.69 - 0.75
7	4	0.76 - 0.90
8	D	0.91 - 1.05
9	5	1.55 - 1.75
10	7	2.08 - 2.35
11	6	8.5 - 14.0 low gain
12	6	8.5 - 14.0 high gain

Sensor/aircraft parameters are as follows:

IFOV:	1.25 mrad
Ground Resolution:	81 feet (25 meters) at 65,000 feet
Total Scan Angle:	43°
Swath Width:	8.4 nmi (15.6 km) at 65,000 feet
Pixels/Scan Line:	716
Scan Rate:	12.5 scans/second
Ground Speed:	400 kts (206 m/second)

NOTE: Information on data tape format, logical record format, and scanner calibration data may be obtained from the NASA-Ames Aircraft Data Facility at (415) 604-6252 or FTS 464-6252.

**CAMERA FLIGHT LINE DATA
FLIGHT NO. 91-075**

Accession # 04212

Sensor # 026

Check Points	Frame Numbers	Time (GMT-hr, min, sec)		Altitude, MSL feet/meters	Cloud Cover/Remarks
		START	END		
A - B	7713-7726	14:14:08	14:20:26	65000/19800	Very minor cumulus (frames 7718-7722); minor emulsion flaws (frames 7713-7726)
C - D	7727-7739	14:35:34	14:41:12	"	Clear; minor emulsion flaws (frames 7727-7739)
E - F	7740-7751	14:46:06	14:51:24	"	Clear
G - H	7752-7753	17:50:25	17:50:33	"	Clear

**CAMERA FLIGHT LINE DATA
FLIGHT NO. 91-075**

Accession # 04213

Sensor # 018

Check Points	Frame Numbers	Time (GMT-hr, min, sec)		Altitude, MSL feet/meters	Cloud Cover/Remarks
		START	END		
A - B	0001-0026	14:13:48	14:19:57	65000/19800	Minor cumulus (frames 0001, 0006-0008); 10% scattered cumulus (frames 0010-0019)
C - D	0027-0050	14:35:10	14:40:47	"	Clear
E - F	0051-0073	14:45:42	14:51:04	"	Clear
G - H	0074-0075	17:49:40	17:49:55	"	Clear; light strike (frame 0074)

CAMERA FLIGHT LINE DATA
FLIGHT NO. 91-075

Accession # 04214

Sensor # 019

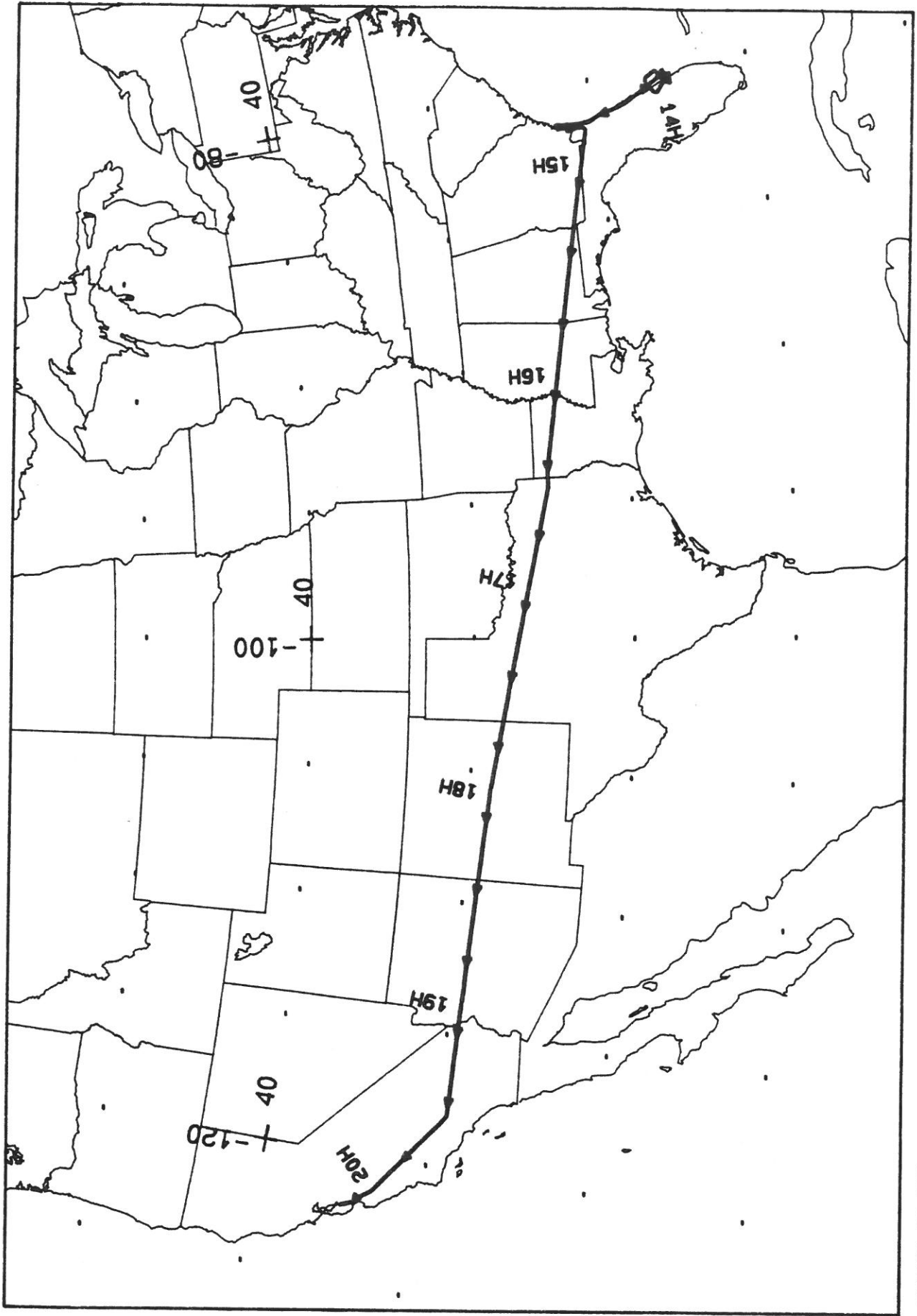
Check Points	Frame Numbers	Time (GMT-hr, min, sec)		Altitude, MSL feet/meters	Cloud Cover/Remarks
		START	END		
A - B	0001-0026	14:12:39	14:18:48	65000/19800	Minor cumulus (frames 0001, 0006-0008); 10% scattered cumulus (frames 0010-0019)
C - D	0027-0050	14:34:01	14:39:38	"	Clear
E - F	0051-0073	14:44:33	14:49:55	"	Clear
G - H	0074-0075	17:48:31	17:48:45	"	Clear

SCANNER FLIGHT LINE DATA

FLIGHT NO. 91-075

DAEDALUS FLIGHT DATA
FLIGHT NUMBER: 91-075

Check Points	A c t u a l t i m e b e g i n e n d (GMT)	A c t u a l s c a n l i n e b e g i n e n d	A l t i t u d e f e e t / m e t e r	Scan Speed (rps)	t o t a l G o o d s c a n l i n e s	t o t a l I n t e r p o l a t e d s c a n l i n e s	t o t a l R e p e a t e d s c a n l i n e s
C-D	14:12:40.0 14:20:58.0	37723 43954	65000/19812	12.50	6194	1	37
E-F	14:34:20.0 14:40: 2.0	53984 58266	65000/19812	12.50	4228	0	55
G-H	14:45: 9.0 14:50:23.0	62107 66037	65000/19812	12.50	3659	1	271



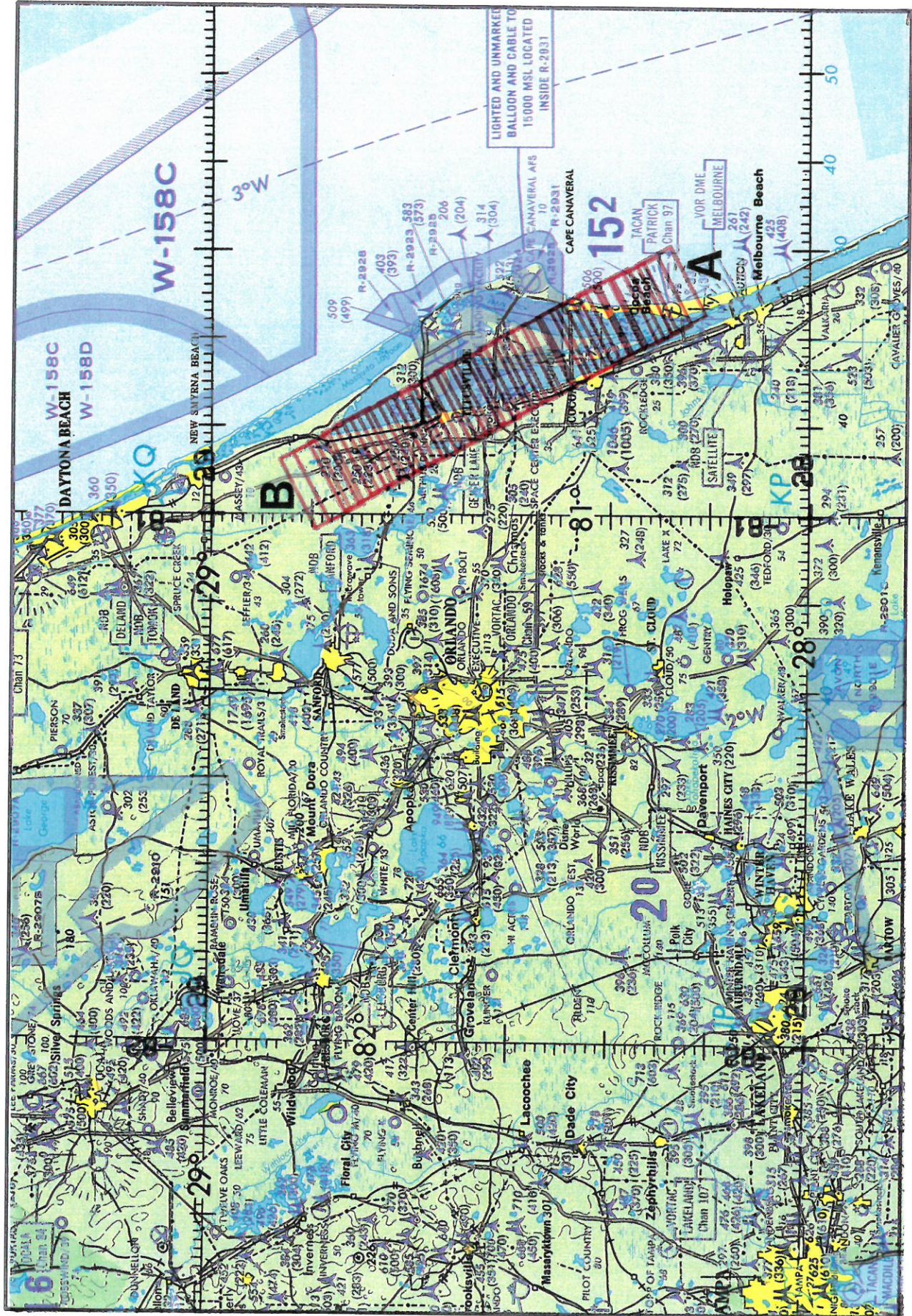
FLIGHT 91-075

11 Apr 11 1991

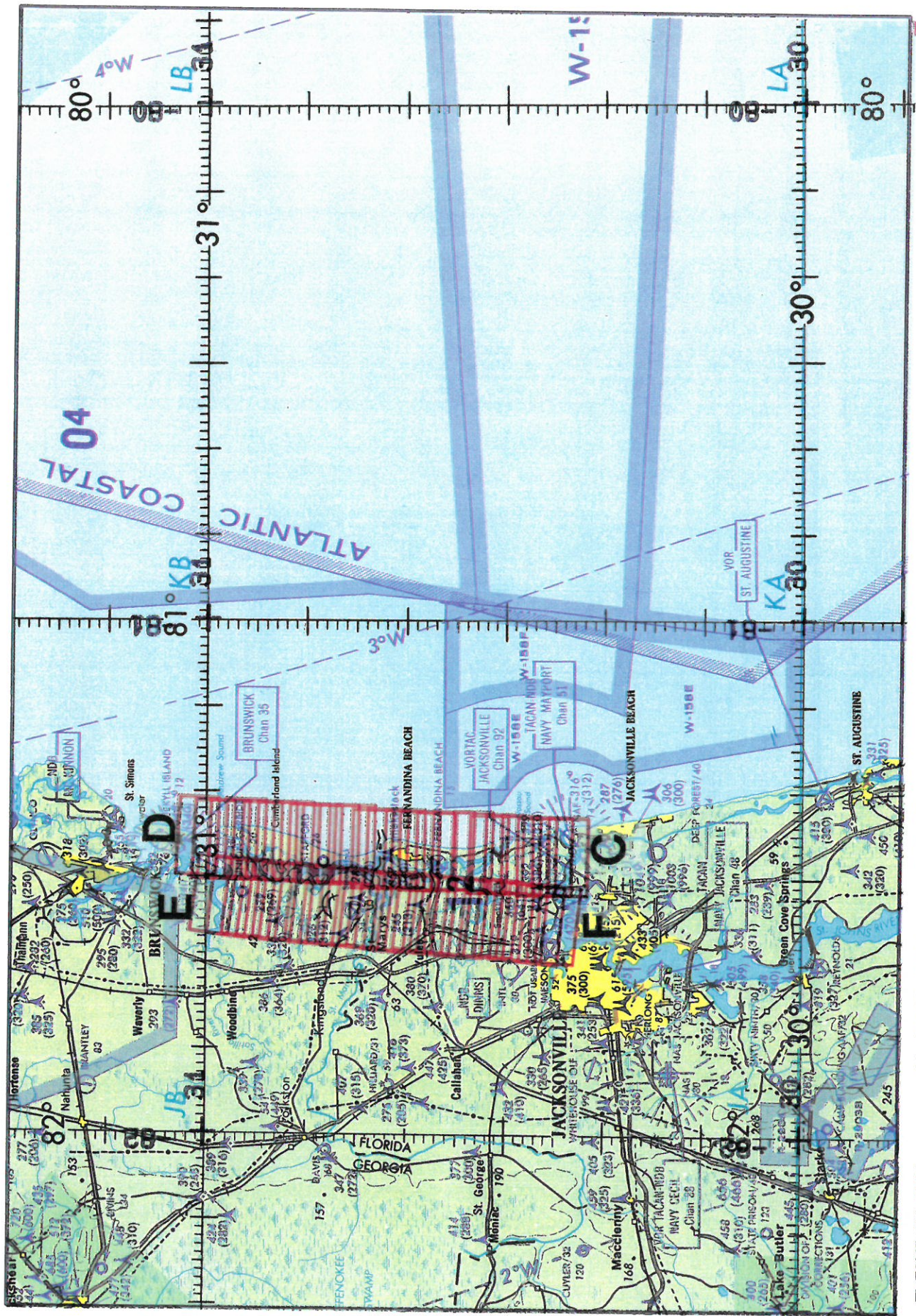
A/C 706

HR-732 / RC-10 / TMS

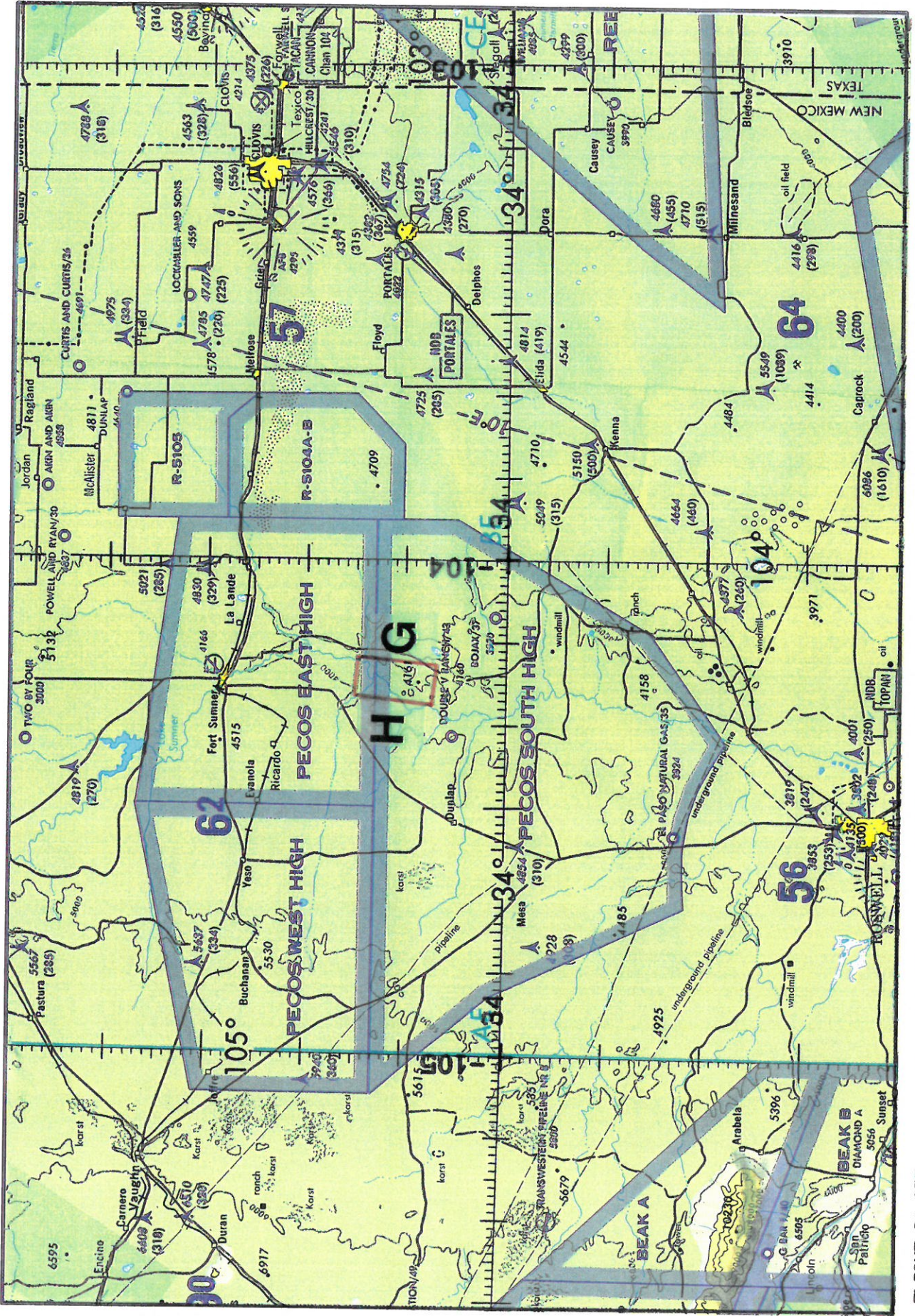
Ferry from Patrick AFB to Moffett Field



FLIGHT 91-075 11 APR 11 1991 A/C 706 Dual HR-752 / RC-10 / TMS Accession # 04219 ONC H-85



FLIGHT 91-078 11 APR 11 1991 A/C 706 Dual HR-752 / RC-10 / TMS Ascension # 04213 ONC H-25



FLIGHT 91-075 11 APR 11 1991 A/C 706 Due 1 HR-732 / RC-10 / TMS Accession # 04213 ONC 6-19

