

FLIGHT SUMMARY REPORT

Flight #: 91-074
Date: 3 April 1991
Sensor Package: Wild-Heerbrug RC-10
 Dual Hycon HR-732
 Thematic Mapper Simulator (TMS)
Area(s) Covered: Coastal Florida

Investigator(s): Patterson, University of Virginia
Flight Request: 89R247

Aircraft #: 706
Julian Date: 093

SENSOR DATA

Accession #:	04209	04210	04211	----
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:	1/250	1/75	1/75	----
# of Frames:	51	96	96	----
% Overlap:	60	60	60	----
Quality:	Excellent	Good	Excellent	Good
Remarks:		Emulsion scars 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:

I FOV:	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. 91-074**

Accession # 04209

Sensor # 026

Check Points	Frame Numbers	Time (GMT-hr, min, sec)		Altitude, MSL feet/meters	Cloud Cover/Remarks
		START	END		
A - B	7647-7652	16:22:19	16:24:43	65000/19800	Minor to heavy strato-cumulus (frames 7649-7652)
C - D	7653-7658	16:37:04	16:39:31	"	Heavy to scattered cumulus (frames 7653-7658)
E - F	7659-7674	16:51:55	16:58:53	"	Scattered to minor strato-cumulus and cumulus (frames 7659-7660); minor cumulus (frames 7666-7667)
G - H	7675-7683	17:08:39	17:12:21	"	Minor to moderate cumulus (frames 7680-7683)
I - J	7684-7697	17:17:57	17:24:01	"	Minor to moderate cumulus (frames 7684-7697)

**CAMERA FLIGHT LINE DATA
FLIGHT NO. 91-074**

Accession # 04210

Sensor # 018

Check Points	Frame Numbers	Time (GMT-hr, min, sec)		Altitude, MSL feet/meters	Cloud Cover/Remarks
		START	END		
A - B	0001-0011	16:22:00	16:24:28	65000/19800	10-80% strato-cumulus and cumulus (frames 0003-0011)
C - D	0012-0023	16:36:35	16:39:21	"	20-80% cumulus (frames 0012-0023); smeared (frame 0022)
E - F	0024-0053	16:51:31	16:58:35	"	10-20% cumulus (frames 0024-0025, 0038-0040, 0050-0051)
G - H	0054-0070	17:08:15	17:12:05	"	10% cumulus (frames 0059-0061); 10-30% cumulus (frames 0064-0070)
I - J	0071-0096	17:17:33	17:23:38	"	10-40% cumulus (frames 0071-0075, 0078-0096)

CAMERA FLIGHT LINE DATA
FLIGHT NO. 91-074

Accession # 04211

Sensor # 019

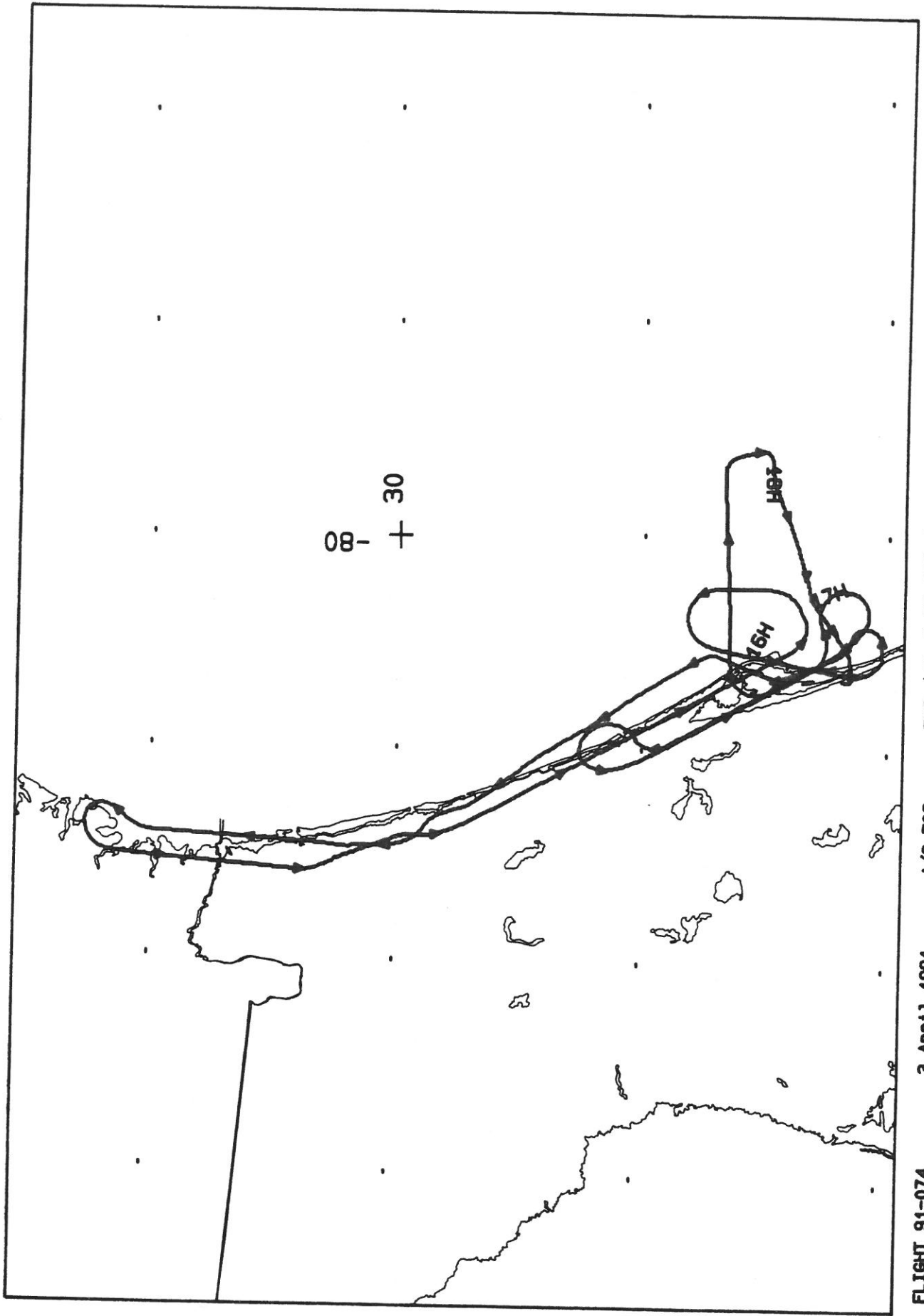
Check Points	Frame Numbers	Time (GMT-hr, min, sec)		Altitude, MSL feet/meters	Cloud Cover/Remarks
		START	END		
A - B	0001-0011	16:20:55	16:23:26	65000/19800	Minor to heavy strato-cumulus and cumulus (frames 0003-0011)
C - D	0012-0023	16:35:38	16:38:19	"	Heavy to minor cumulus (frames 0012-0023); smeared (frame 0022)
E - F	0024-0053	16:50:29	16:57:34	"	Minor cumulus (frames 0024-0025, 0038-0040, 0050-0051)
G - H	0054-0070	17:07:13	17:11:07	"	Minor cumulus (frames 0059-0061); minor to moderate cumulus (frames 0064-0070)
I - J	0071-0096	17:16:31	17:22:35	"	Moderate to minor cumulus (frames 0071-0076, 0078-0096)

SCANNER FLIGHT LINE DATA

FLIGHT NO. 91-074

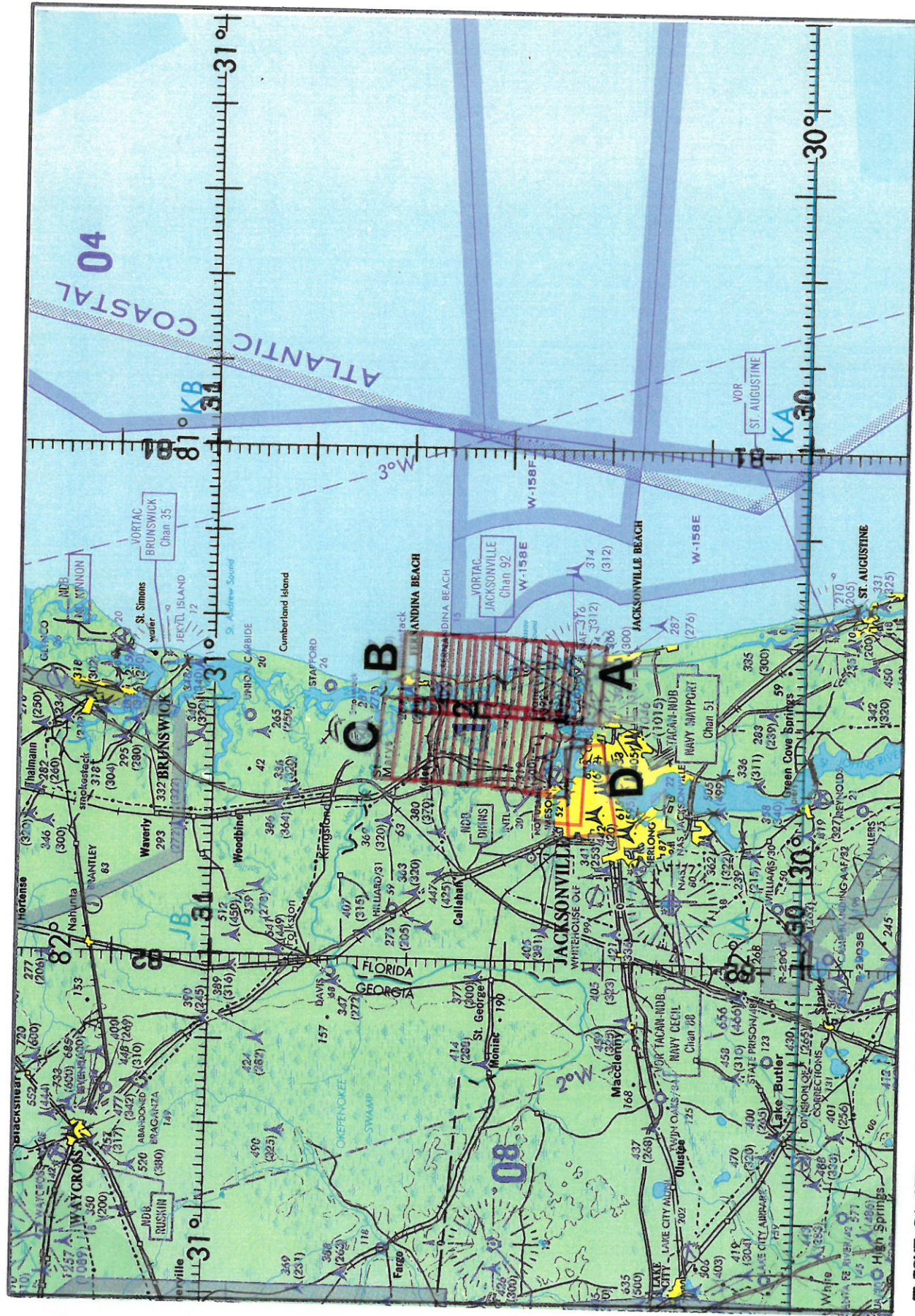
DAEDALUS FLIGHT DATA
FLIGHT NUMBER: 91-074

Check Points	Actual Time (GMT)		Actual Scanline		Altitude feet/meter	Scan Speed (rps)	Total Good Scanlines	Total Interpolated Scanlines	Total Repeated Scanlines
	Begin	End	Begin	End					
A-B	16:21:17	16:23:42	27300	29110	65000/19812	12.50	1810	---	---
C-D	16:36:00	16:38:39	33340	40340	65000/19812	12.50	2000	---	---
E-F	16:50:25	16:58:25	49170	55176	65000/19812	12.50	6006	---	---
G-H	17:06:47	17:11:34	61460	65040	65000/19812	12.50	3580	---	---
I-J	17:16:50	17:23:13	69000	73800	65000/19812	12.50	4800	---	---

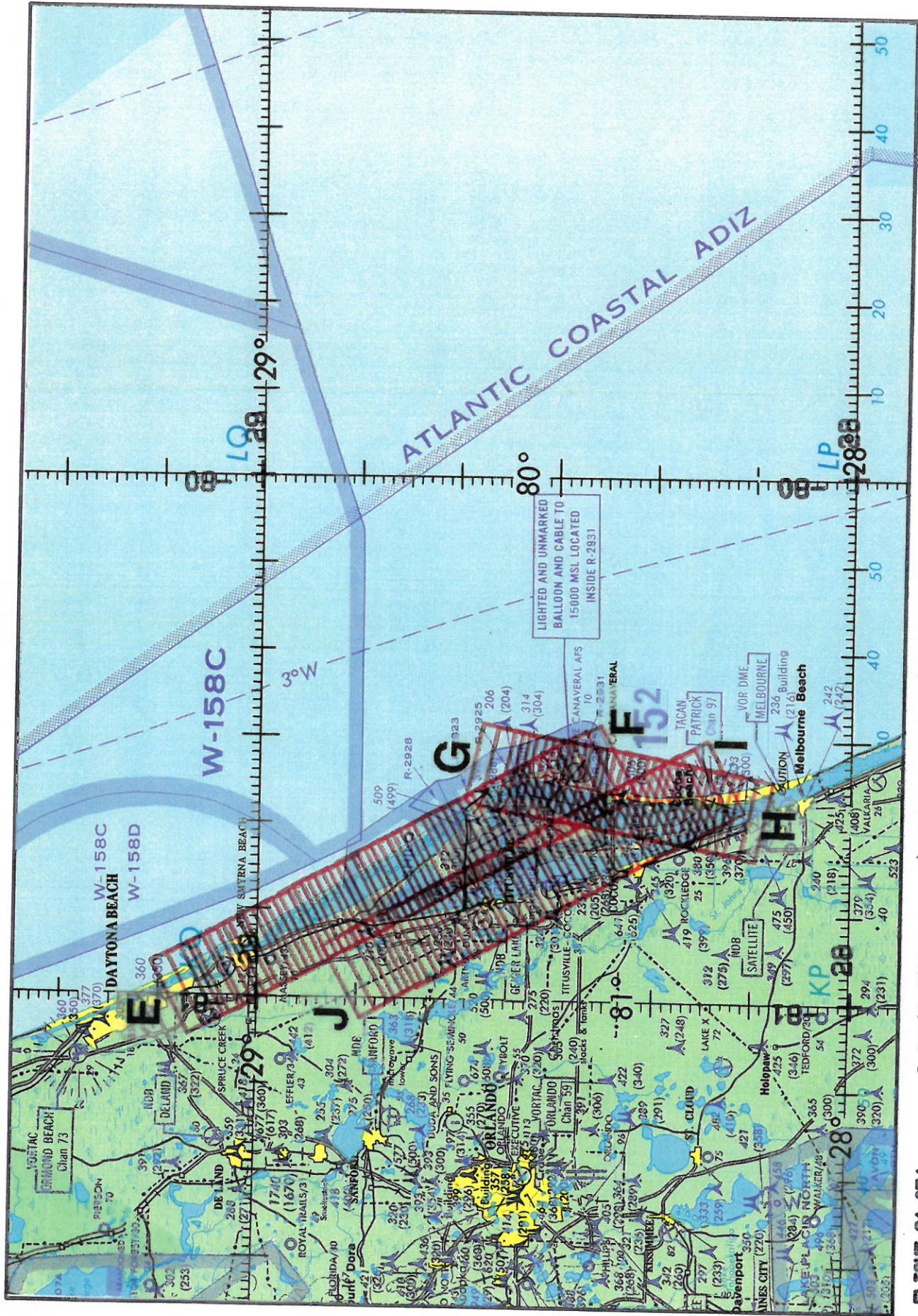


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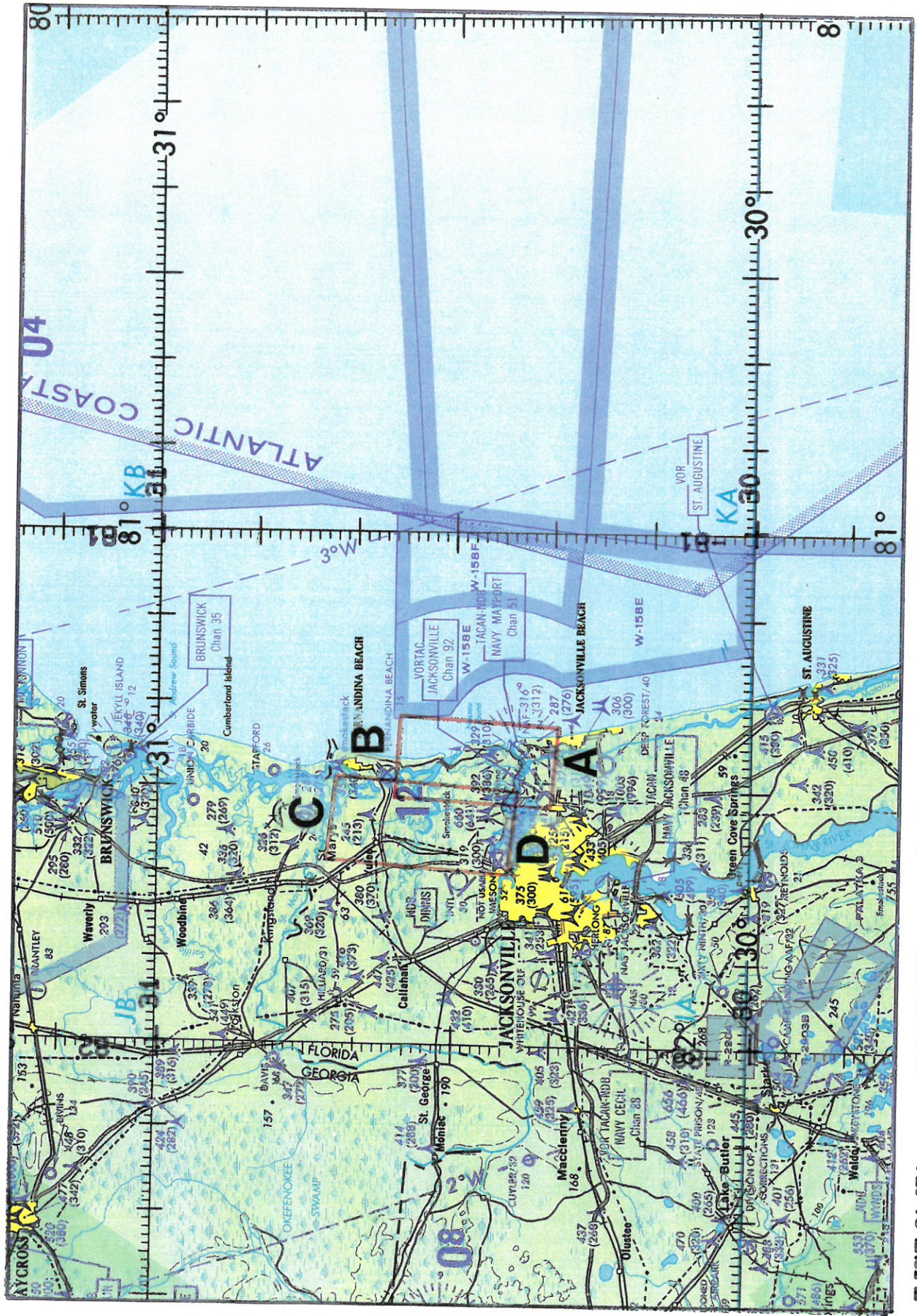
FLIGHT 91-074 3 Apr 11 1991 A/C 706 TMS / Dual HR-732 / RC-10

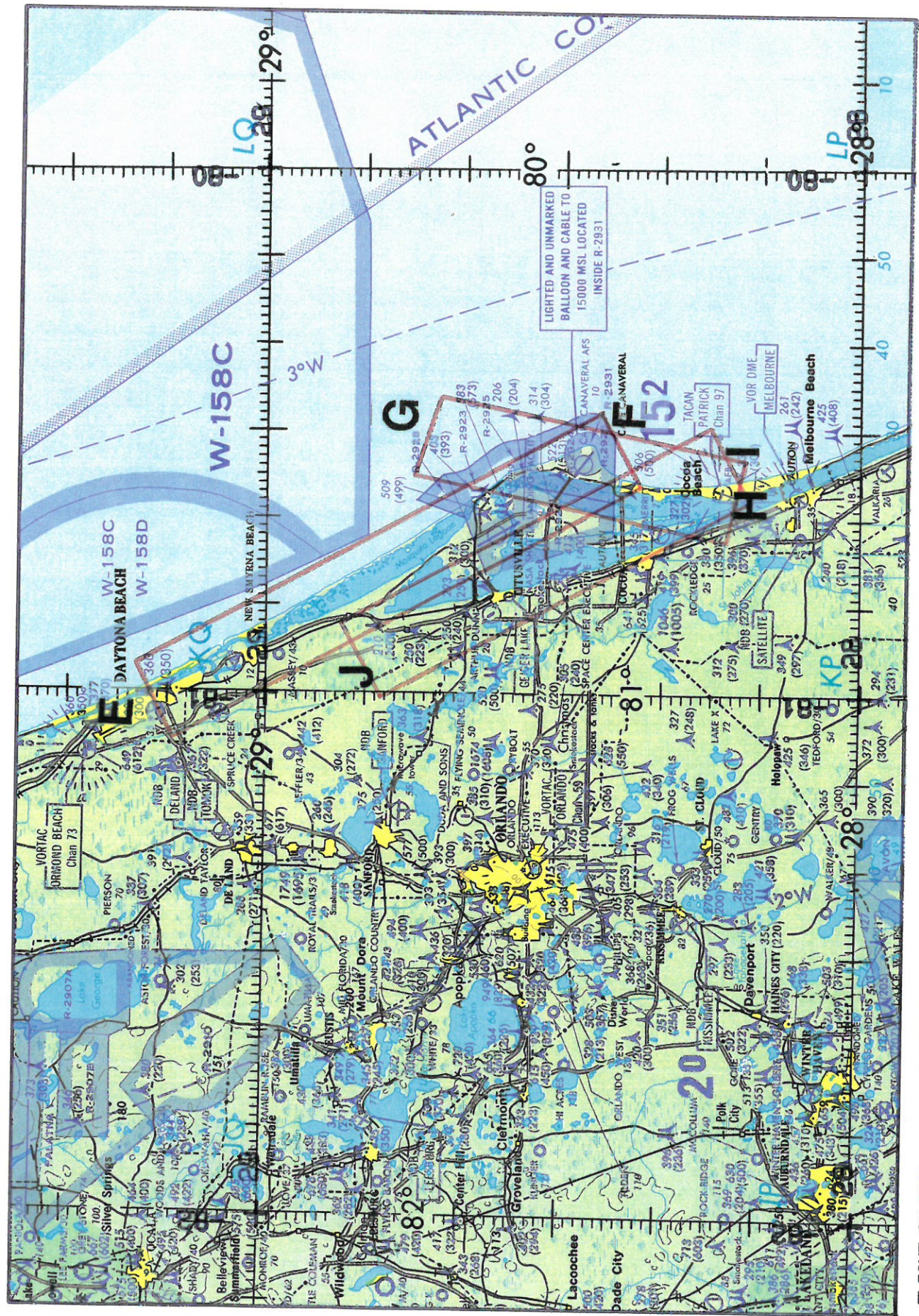


FLIGHT 91-074 3 APR 11 1991 A/C 706 Dual 14-792 / RC-10 / TMS Accession # 04211 ONC H-25



FLIGHT 91-074 **3 APR 11 1991** **A/C 706** **Dual HR-792 / RC-10 / TMS** **Accession # 04211** **ONC H-25**





FLIGHT 91-074

9 April 1991

A/C 706

Thematic Mapper Simulator

ANC H-25