

FLIGHT SUMMARY REPORT

Flight #: 90-028
Date: 5 December 1989
Sensor Package: Wild-Heerbrug RC-10
Thematic Mapper Simulator (TMS)
Area(s) Covered: S.E. Texas

Investigator(s): Handley, U.S. Fish and Wildlife
Flight Request: 90R254

Aircraft #: 709
Julian Date: 339

SENSOR DATA

Accession #:	03979	-----
Sensor ID #:	076	074
Sensor Type:	RC-10	TMS
Focal Length:	12" 304.89 mm	-----
Film Type:	High Definition Aerochrome IR SO-131	-----
Filtration:	cc .10B	-----
Spectral Band:	510-900 nm	
f Stop:	4	-----
Shutter Speed:	1/150	-----
# of Frames:	186	-----
% Overlap:	60	-----
Quality:	Excellent	-----
Remarks:	-----	See write up

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 high altitude 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:	1.3 mr
Ground Resolution:	91 feet (28 meters at 70,000 feet)
Total Scan Angle:	43 ^o
Swath Width:	9.0 nmi (16.6 km at 70,000 feet)
Pixels/Scan Line	716 (750 following rectification)
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. 90-028**

Accession No. 03979

Sensor # 076

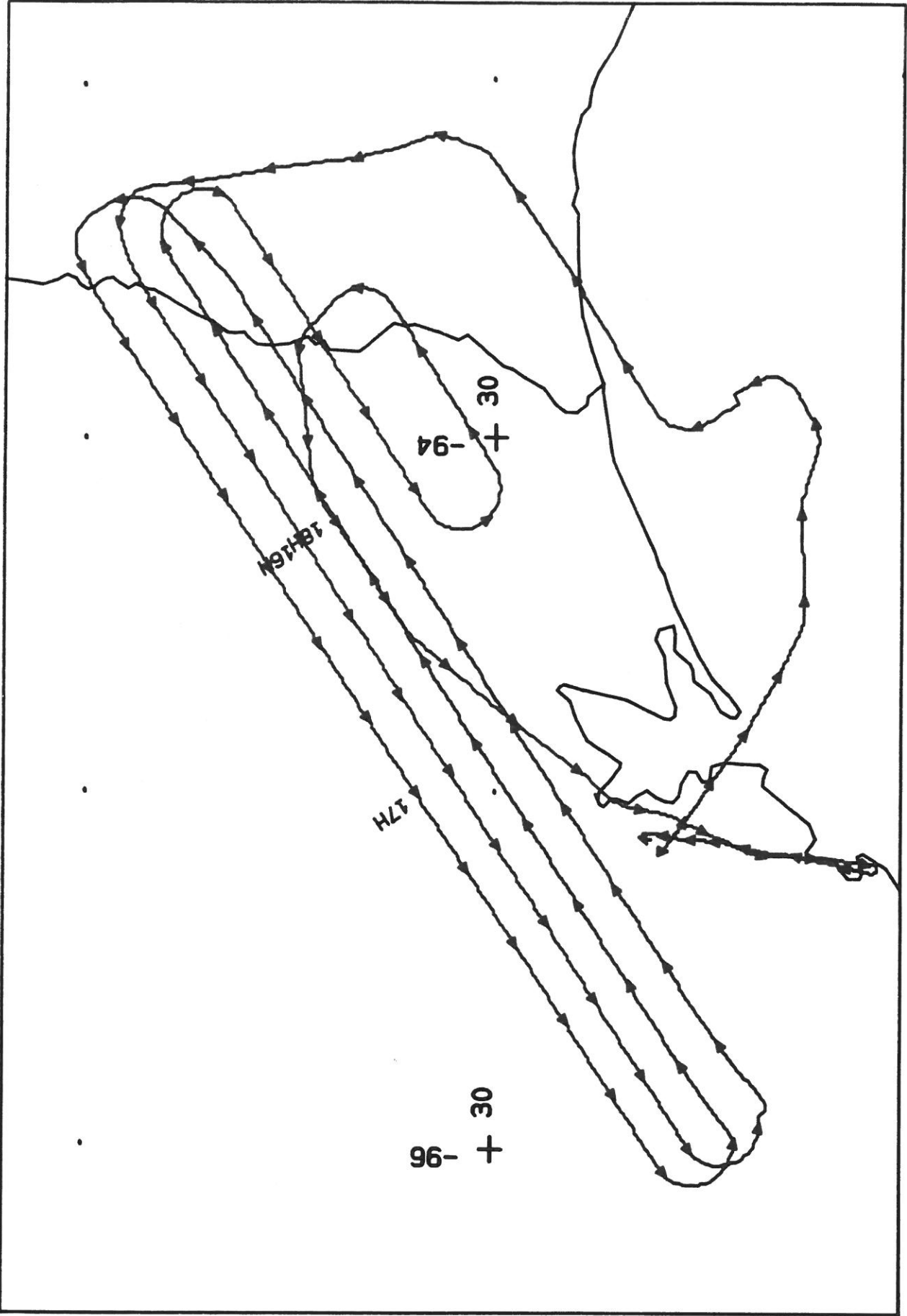
Check Points	Frame Numbers	Time (GMT-hr, min, sec)		Altitude, MSL feet/meters	Cloud Cover/Remarks
		START	END		
A - B	3337-3388	15:52:40	16:16:34	65000/19800	10-60% strato cumulus (frames 3377-3388); no image, transported without shutter function (frame 3350)
C - D	3389-3418	16:26:19	16:40:13	"	20% strato cumulus (frame 3389); minor smoke obscuration (frames 3413-3415)
E - F	3419-3470	16:45:41	17:10:10	"	Minor smoke obscuration (frames 3448-3451); 10-20% strato cumulus shadow (frames 3451-3455); 10-60% strato cumulus (frames 3456-3461)
G - H	3471-3498	17:22:21	17:35:15	"	10-60% strato cumulus (frames 3471-3474)
I - J	3499-3510	17:41:16	17:46:16	"	Minor smoke obscuration (frames 3502-3506)
J - K	3511-3516	17:46:31	17:48:54	"	Oblique frames in turn; 30-80% strato cumulus (frames 3513-3516)
K - L	3517-3523	17:49:23	17:52:15	"	Clear

SCANNER FLIGHT LINE DATA

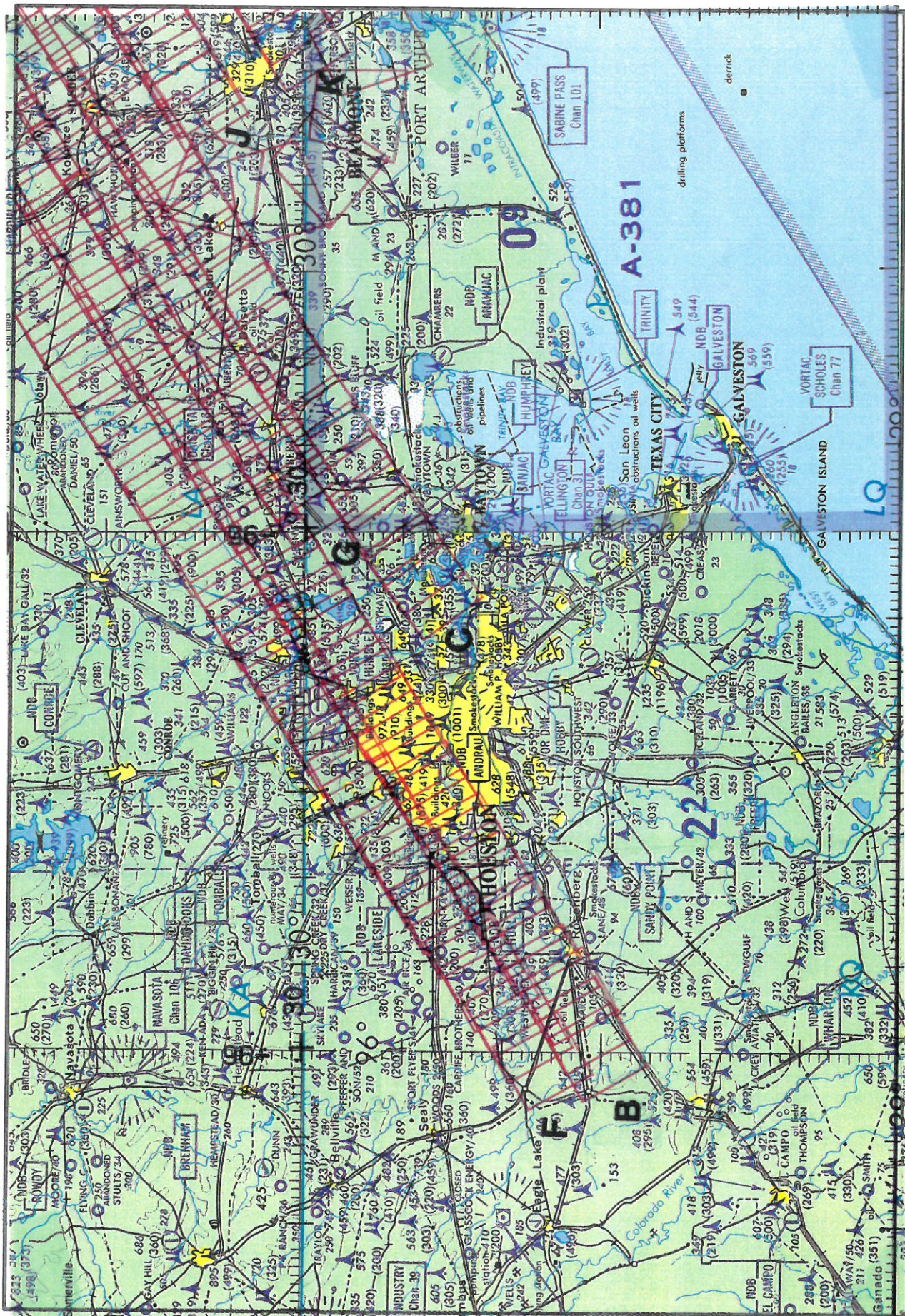
FLIGHT NO. 90-028

DAEDALUS FLIGHT DATA FLIGHT NUMBER: 90-028

Check Points	A c t u a l t i m e (GMT) b e g i n e n d	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	S c a n S p e e d (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
A-B	15:52:35.0 16:16:25.0	31957 49829	65000/19812	12.50	17806	0	67
C-D	16:26:11.0 16:40:11.0	57155 67662	65000/19812	12.50	10491	0	17
E-F	16:45:33.0 17:10:13.0	3978 22475	65000/19812	12.50	18472	0	26
G-H	17:22:13.0 17:34:59.0	31476 41056	65000/19812	12.50	9579	0	2
I-J	17:41: 9.0 17:46:17.0	45676 49532	65000/19812	12.50	3853	0	4



FLIGHT 90-028 5 December 1989 A/C 709 RC-10 / TMS



FLIGHT 90-028 5 December 1989 A/C 709 RC-10 / TMS Accession # 03979 ONC H-24