

FLIGHT SUMMARY REPORT

Flight #: 91-073
Date: 2 April 1991
Sensor Package: Hycon HR-732
Wild-Heerbrug RC-10
Thematic Mapper Simulator (TMS)
Area(s) Covered: Kentucky

Investigator(s): Weber, USDA
Flight Request: 91R258

Aircraft #: 706
Julian Date: 092

SENSOR DATA

Accession #:	04207	04208	-----
Sensor ID #:	018	026	101
Sensor Type:	HR-732	RC-10	TMS
Focal Length:	24" 609.6 mm	12" 304.97 mm	-----
Film Type:	Aerial Color SO-242	High Definition Aerochrome Infrared SO-131	-----
Filtration:	None	cc.10B	-----
Spectral Band:	400-700 nm	510-900 nm	-----
f Stop:	8	4	-----
Shutter Speed:	1/75	1/250	-----
# of Frames:	136	71	-----
% Overlap:	60	60	-----
Quality:	Excellent	Excellent	Good
Remarks:			

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. 91-073

Accession # 04207

Sensor # 018

Check Points	Frame Numbers	Time (GMT-hr, min, sec)		Altitude, MSL feet/meters	Cloud Cover/Remarks
		START	END		
A - B	0001-0038	17:20:00	17:28:58	65000/19800	Clear
C - D	0039-0059	17:35:35	17:40:24	"	10-20% strato-cumulus (frames 0039-0040)
E - F	0060-0097	17:42:48	17:51:47	"	Thin haze (frames 0067-0069); 10-40% strato-cumulus (frames 0075-0083); 10% minor cumulus (frames 0093-0096)
G - H	0098-0136	17:54:47	18:04:00	"	10-40% strato-cumulus (frames 0098-0100)

CAMERA FLIGHT LINE DATA
FLIGHT NO. 91-073

Accession # 04208

Sensor # 026

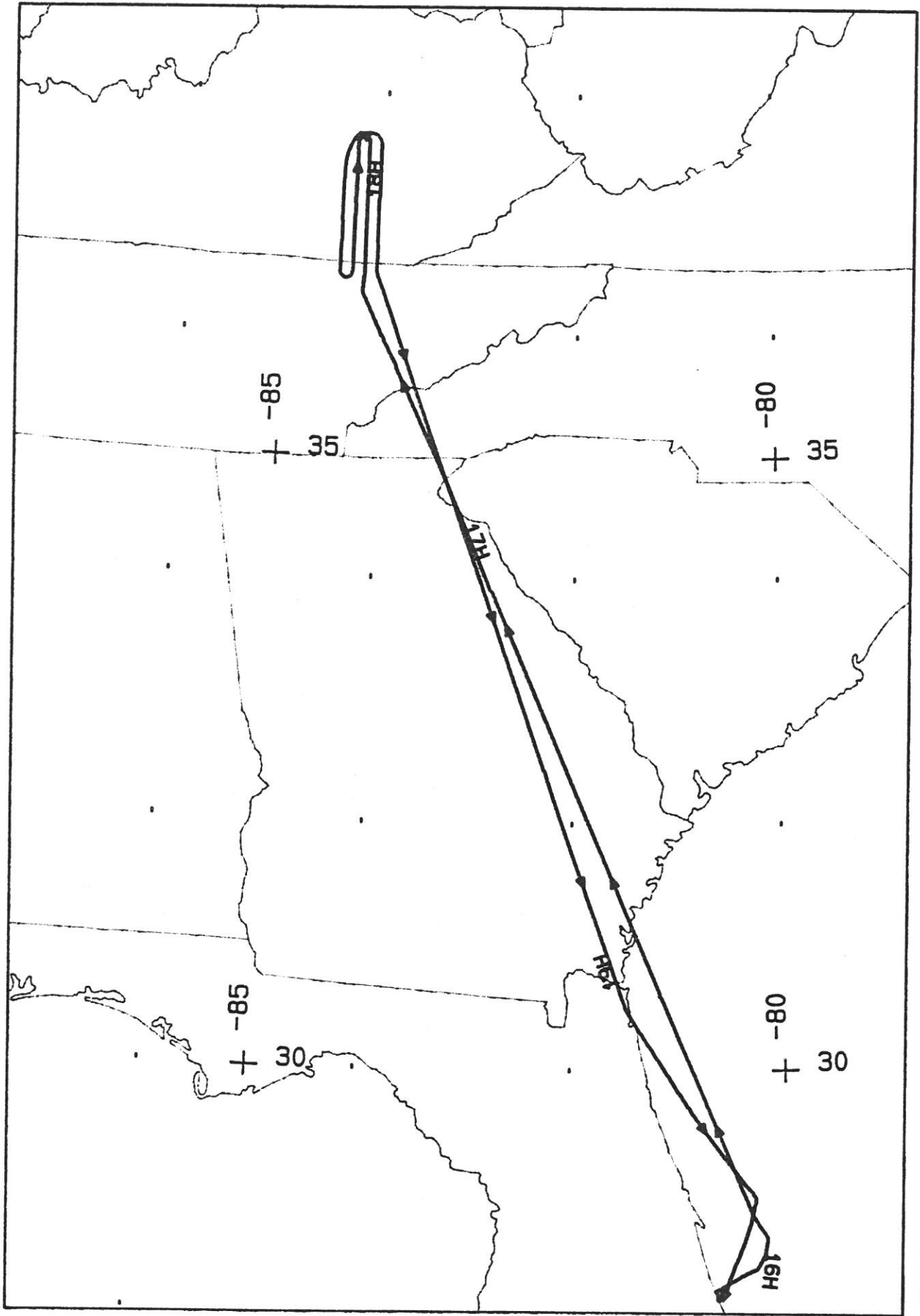
Check Points	Frame Numbers	Time (GMT-hr, min, sec)		Altitude, MSL feet/meters	Cloud Cover/Remarks
		START	END		
A - B	7567-7586	17:21:23	17:30:24	65000/19800	Clear
C - D	7587-7597	17:36:59	17:41:44	"	50% strato-cumululus (frame 7587)
E - F	7598-7617	17:44:12	17:53:13	"	10-30% strato-cumululus (frames 7606-7609)
G - H	7618-7637	17:56:10	18:05:12	"	20-40% strato-cumululus (frames 7618-7619)

SCANNER FLIGHT LINE DATA

FLIGHT NO. 91-073

DAEDALUS FLIGHT DATA
FLIGHT NUMBER: 91-073

Check Points	A c t u a l t i m e b e g i n	A c t u a l s c a n l i n e b e g i n	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 (r p s)	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	17:19: 4.0 17:29:35.0	72528 80427	65000/19812	12.50	7884	0	16
C-D	17:35: 4.0 17:41: 4.0	84536 89047	65000/19812	12.50	4501	1	10
E-F	17:44: 1.0 17:52:33.0	91255 97659	65000/19812	12.50	6401	0	4
G-H	17:55:53.0 18:04: 9.0	100163 106369	65000/19812	12.50	6201	0	6



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A/C 706

Dual HR-732 / RC-10 / TMS

