

FLIGHT SUMMARY REPORT

Flight #: 90-023
Date: 8 November 1989
Sensor Package: Wild Heerbrug RC-10
Thematic Mapper Simulator (TMS)
Area(s) Covered: Southern California

Investigator(s): Brass, NASA-Ames Research Center **Aircraft #:** 709
Flight Request: 90B201C **Julian Date:** 312

SENSOR DATA

Accession #:	03973	-----
Sensor ID #:	034	074
Sensor Type:	RC-10	TMS
Focal Length:	12" 304.66 mm	-----
Film Type:	High Definition Aerochrome IR SO-131	-----
Filtration:	cc .10B	-----
Spectral Band:	510-900 nm	
f Stop:	4	-----
Shutter Speed:	1/175	-----
# of Frames:	85	-----
% 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°
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) 694-6252 or FTS 464-6252.

CAMERA FLIGHT LINE DATA
 FLIGHT NO. 90-023

Accession No. 03973

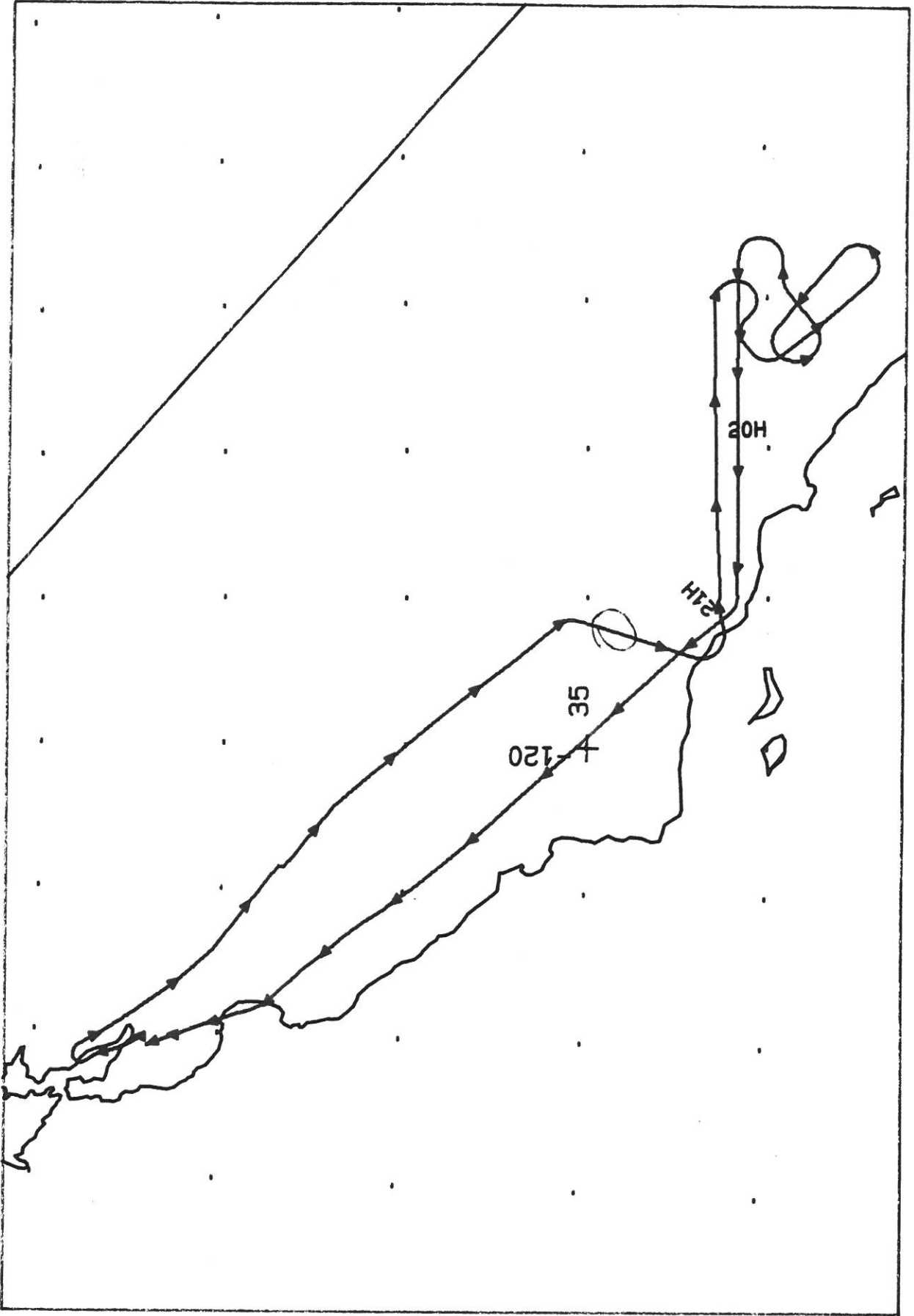
Sensor #
 034

Check Points	Frame Numbers	Time (GMT-hr, min, sec)		Altitude, MSL feet/meters	Cloud Cover/Remarks
		START	END		
A - B	5673-5681	19:38:03	19:41:52	65000/19800	Clear
C - D	5682-5712	19:52:45	20:07:05	"	Clear
E - F	5713-5724	20:15:38	20:20:54	"	Clear
G - H	5725-5757	20:44:00	20:59:18	"	Clear

**SCANNER FLIGHT LINE DATA
FLIGHT NO. 90-023**

DAEDALUS FLIGHT DATA
FLIGHT NUMBER: 90-023

Check Points	A c t u a l t i m e b e g i n	(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 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	19:37:23.0	19:41:19.0	34500	37439	65000/19812	12.50	2671	2	267
C-D	19:52:5.0	20:06:28.0	45530	56300	65000/19812	12.50	10404	0	367
E-F	20:14:54.0	20:20:17.0	62628	66659	65000/19812	12.50	4001	0	31
G-H	20:42:29.0	20:58:48.0	83289	95527	65000/19812	12.50	12109	8	122



TMS / RC-10

A/C 709

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