

# FLIGHT SUMMARY REPORT

**Flight #:** 90-096  
**Date:** 26 June 1990  
**Sensor Package:** Wild-Heerbrug RC-10  
Thematic Mapper Simulator (TMS)  
**Area(s) Covered:** Oregon

**Investigator(s):** Spanner, TGS Technology, Inc.  
**Flight Request:** 90L223D

**Aircraft #:** 706  
**Julian Date:** 177

## SENSOR DATA

<b>Accession #:</b>	04044	-----
<b>Sensor ID #:</b>	026	076
<b>Sensor Type:</b>	RC-10	TMS
<b>Focal Length:</b>	12" 304.97 mm	-----
<b>Film Type:</b>	High Definition Aerochrome IR SO-131	-----
<b>Filtration:</b>	cc.30B	-----
<b>Spectral Band:</b>	510-900 nm	-----
<b>f Stop:</b>	4	-----
<b>Shutter Speed:</b>	1/200	-----
<b># of Frames:</b>	52	-----
<b>% Overlap:</b>	60	-----
<b>Quality:</b>	Excellent	Good
<b>Remarks:</b>		

## 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, <math>\mu\text{m}</math></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 mrad
Ground Resolution:	91 feet (28 meters at 70,000 feet)
Total Scan Angle:	43 <sup>o</sup>
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. 90-096**

Accession # 04044

Sensor # 026

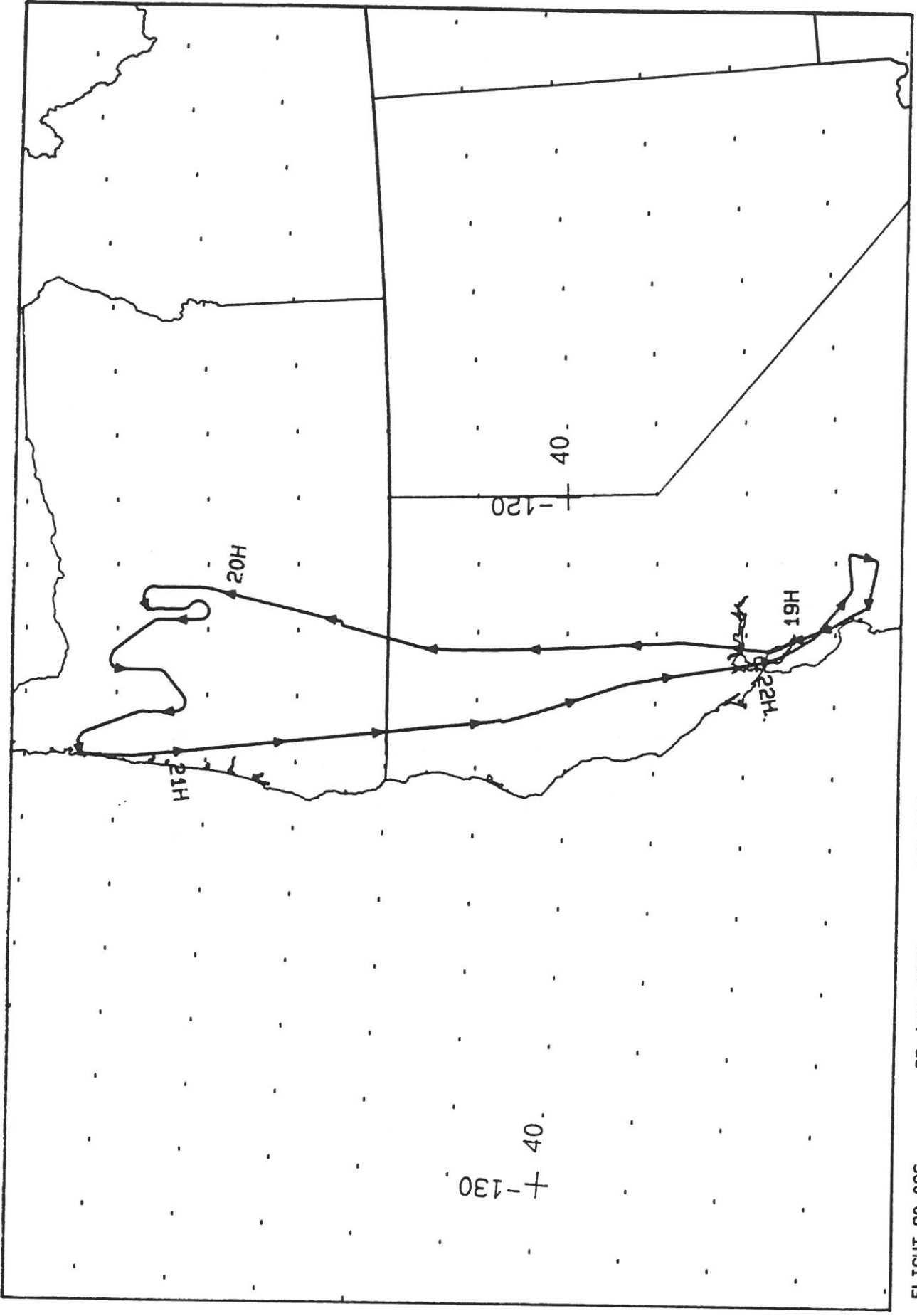
Check Points	Frame Numbers	Time (GMT-hr, min, sec)		Altitude, MSL feet/meters	Cloud Cover/Remarks
		START	END		
A - B	6070-6075	19:40:57	19:42:52	65000/19800	10% minor cumulus (frames 6074-6075)
C - D	6076-6080	20:07:13	20:09:07	"	Clear
E - F	6081-6085	20:15:10	20:17:03	"	40-50% cirro cumulus (frames 6081-6085)
G - H	6086-6090	20:23:48	20:25:41	"	10% cirro cumulus (frames 6086-6088) 10-20% cirro cumulus and cumulus (frames 6089-6090)
I - J	6091-6096	20:34:46	20:37:08	"	10-20% cumulus (frames 6091-6096)
-----	6097-6098	20:37:36	20:38:04	"	Oblique frames in turn; 10-20% cumulus and cirro cumulus (frames 6097-6098)
J - K	6099-6103	20:38:32	20:40:53	"	10% cumulus (frames 6099-6103)
K - L	6104-6108	20:40:53	20:42:46	"	Oblique frames in turn; 10% minor cumulus (frames 6104-6105)
L - M	6109-6115	20:43:14	20:45:55	"	10-20% cumulus (frames 6113-6115)
N - O	6116-6121	20:55:47	20:58:07	"	Clear

# SCANNER FLIGHT LINE DATA

## FLIGHT NO. 90-096

DAEDALUS FLIGHT DATA  
FLIGHT NUMBER: 90-096

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	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	19:37:45.0 19:40:50.0	28219 30108	65000/19812	12.50	1878	0	12
C-D	20:03:50.0 20:08:00.0	44207 46762	65000/19812	12.50	2546	0	10
E-F	20:12:20.0 20:14:10.0	49421 50545	65000/19812	12.50	1121	0	4
G-H	20:19:40.0 20:23:00.0	53920 55965	65000/19812	12.50	2042	0	4
I-J	20:31:00.0 20:34:30.0	60874 63022	65000/19812	12.50	2143	0	6
K-L	20:35:35.0 20:38:00.0	63687 65170	65000/19812	12.50	1478	0	6
M-N	20:40:40.0 20:43:15.0	66807 68393	65000/19812	12.50	1579	0	8
O-P	20:52:00.0 20:55:50.0	73763 76117	65000/19812	12.50	2349	0	6



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TMS / RC-10

Oregon



