

FLIGHT SUMMARY REPORT

Flight #: 91-019
Date: 19 October 1990
Sensor Package: Wild-Heerbrug RC-10
Thematic Mapper Simulator (TMS)
Area(s) Covered: Selected Sites in Oregon

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

Aircraft #: 708
Julian Date: 292

SENSOR DATA

Accession #:	04153	-----
Sensor ID #:	034	101
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:	1/100	-----
# of Frames:	62	-----
% Overlap:	60	-----
Quality:	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. 91-019**

Accession # 04153

Sensor # 034

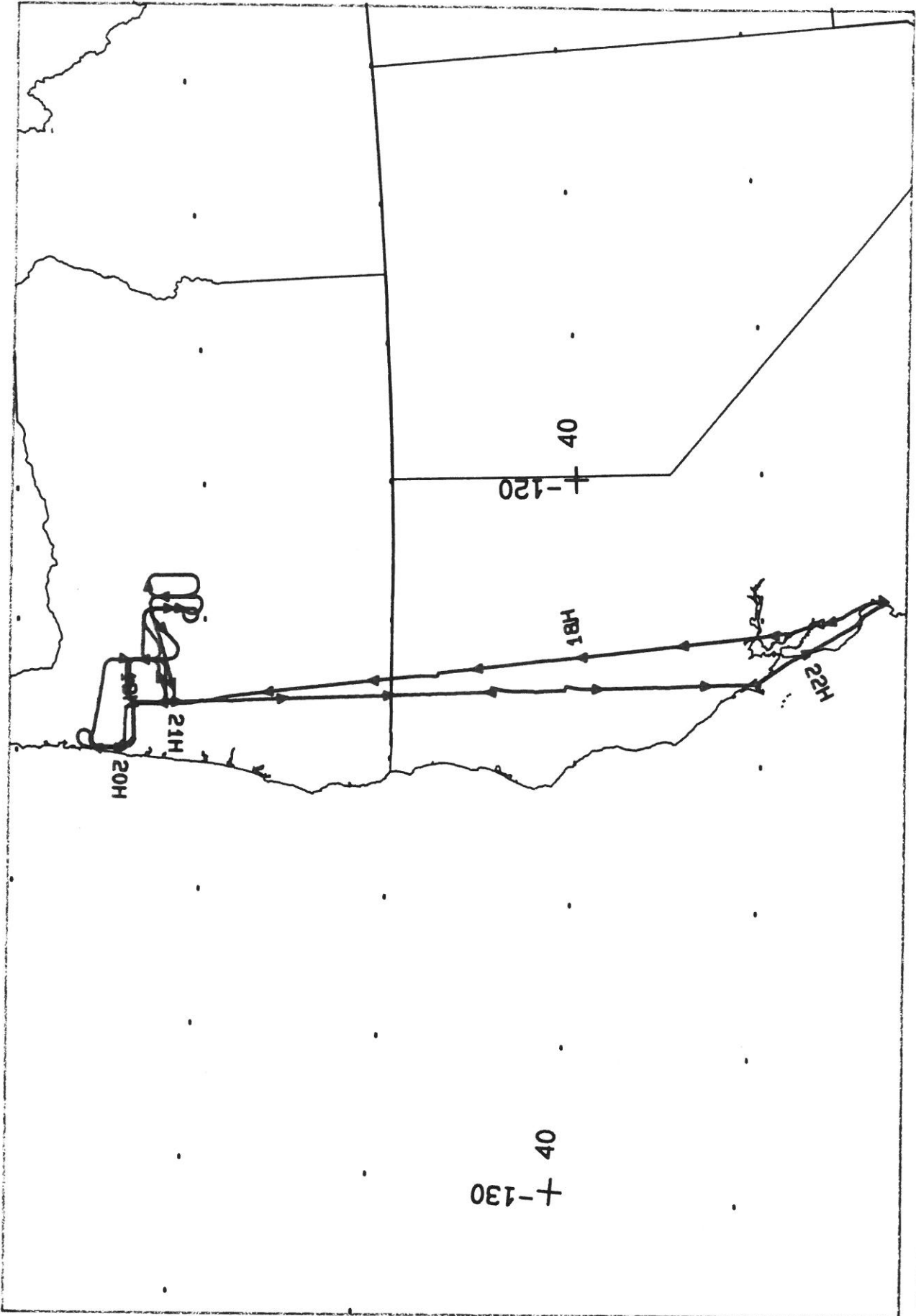
Check Points	Frame Numbers	Time (GMT-hr, min, sec)		Altitude, MSL feet/meters	Cloud Cover/Remarks
		START	END		
A - B	7810-7813	18:41:23	18:42:24	65000/19800	70-80% strato cumulus
C - D	7814-7818	18:48:42	18:50:12	"	60-80% strato cumulus
E - F	7819-7823	19:09:39	19:11:07	"	50-70% strato cumulus
G - H	7824-7828	19:17:13	19:18:42	"	10-20% cumulus
I - J	7829-7833	19:23:29	19:24:57	"	10% cumulus (frames 7829-7832)
G - H	7834-7838	19:29:20	19:30:49	"	10-20% cumulus
A - B	7839-7843	19:43:28	19:44:56	"	60-100% strato cumulus
C - D	7844-7848	19:51:08	19:52:36	"	10-30% cumulus and cirrus
D - C	7849-7853	19:58:49	20:00:16	"	10-20% cumulus
B - A	7854-7857	20:06:04	20:07:05	"	80-90% strato cumulus and cirrus
F - E	7858-7862	20:26:09	20:27:37	"	70-80% cumulus
K - L	7863-7866	20:36:22	20:37:22	"	70-80% cumulus
K - L	7867-7871	20:50:12	20:51:39	"	70-90% cumulus

SCANNER FLIGHT LINE DATA

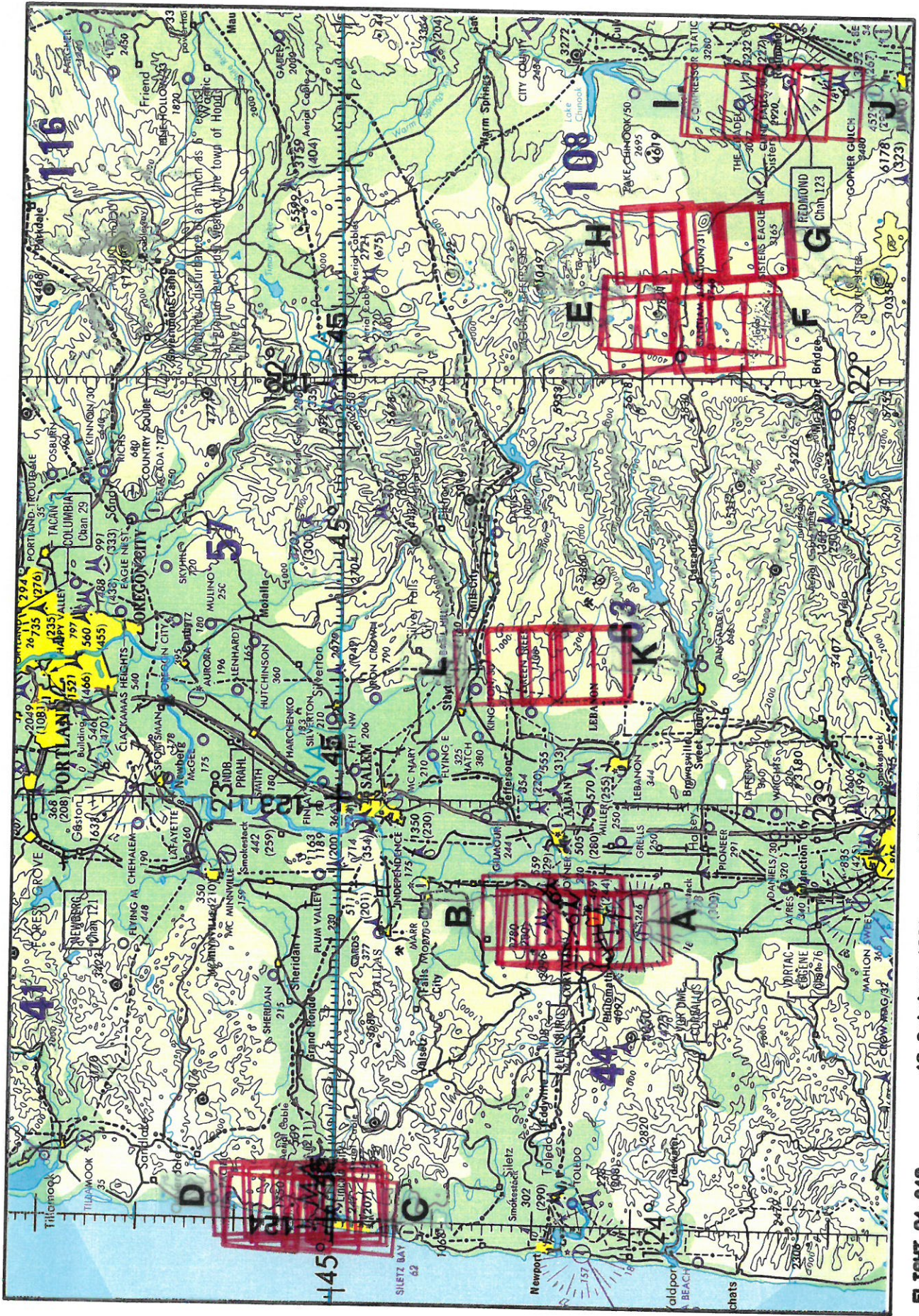
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DAEDALUS FLIGHT DATA
FLIGHT NUMBER: 91-019

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	18:40:47.0	18:42:14.0	48950	49850	65000/19812	12.50	901	0	0
C-D	18:48:37.0	18:50:06.0	53812	54723	65000/19812	12.50	912	0	0
L-K	19:01:31.0	19:02:55.0	61804	62673	65000/19812	12.50	868	0	2
E-F	19:09:29.0	19:11:13.0	66745	67823	65000/19812	12.50	1079	0	0
G-H	19:17:08.0	19:18:54.0	71486	72579	65000/19812	12.50	1094	0	0
I-J	19:23:24.0	19:24:48.0	75368	76237	65000/19812	12.50	868	0	2
G-H	19:29:13.0	19:30:54.0	78978	80020	65000/19812	12.50	1041	0	2
A-B	19:43:23.0	19:45:01.0	87768	88773	65000/19812	12.50	1006	0	0
C-D	19:51:02.0	19:52:33.0	92510	93446	65000/19812	12.50	937	0	0
D-C	19:58:44.0	20:00:09.0	97282	98160	65000/19812	12.50	879	0	0
B-A	20:05:59.0	20:07:24.0	101778	102659	65000/19812	12.50	882	0	0
F-E	20:25:53.0	20:27:35.0	114125	115178	65000/19812	12.50	1052	0	2
K-L	20:36:16.0	20:37:34.0	120567	121367	65000/19812	12.50	799	0	2
K-L	20:50:04.0	20:51:30.0	129127	130010	65000/19812	12.50	882	0	2



FLIGHT 91-019 19 October 1990 A/C 708 TMS / RC-10 Oregon Transect



FLIGHT 91-019 19 October 1990 A/C 706 TMS / RC-10 Accession # 04153 ONC F-16