FLIGHT SUMMARY REPORT

Flight #: 91-068

Date: 21 March 1991

Sensor Package: Airborne Visible and Infrared Imaging Spectrometer (AVIRIS)
Thematic Mapper Simulator (TMS)
Wild-Heerbrug RC-10

Area(s) Covered: Southern California

Investigator(s): Davis, JPL

Aircraft #: 706

Flight Request: 91L236

Julian Date: 080

SENSOR DATA

Accession #:	-----	-----	04201
Sensor ID #:	099	101	023
Sensor Type:	AVIRIS	TMS	RC-10
Focal Length:	-----	-----	6" 153.21 mm
Film Type:	-----	-----	High Definition Aerochrome Infrared SO-131
Filtration:	-----	-----	cc.10B
Spectral Band:	-----	-----	510-900 nm
f Stop:	-----	-----	4
Shutter Speed:	-----	-----	1/125
# of Frames:	-----	-----	53
% Overlap:	-----	-----	60
Quality:	-----	-----	Excellent

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.

Airborne Visible and Infrared Imaging Spectrometer

The Airborne Visible and Infrared Imaging Spectrometer (AVIRIS) is the second in the series of imaging spectrometer instruments developed at the Jet Propulsion Laboratory (JPL) for earth remote sensing. This instrument uses scanning optics and four spectrometers to image a 614 pixel swath simultaneously in 224 contiguous spectral bands (0.4-2.4 μm).

AVIRIS parameters are as follows:

IFOV:	1 mrad
Ground Resolution:	66 feet (20 meters) at 65,000 feet
Total Scan Angle:	30°
Swath Width:	5.7 nmi (10.6 km) at 65,000 feet
Spectral Coverage:	0.41-2.45 μm
Pixels/Scan Line:	614
Number of Spectral Bands:	224
Digitization:	10-bits
Data Rate:	17 MBPS

Spectrometer	Wavelength Range	Number of Bands	Sampling Interval
1	0.41 - 0.70 μm	31	9.4 nm
2	0.68 - 1.27 μm	63	9.4 nm
3	1.25 - 1.86 μm	63	9.7 nm
4	1.84 - 2.45 μm	63	9.7 nm

All AVIRIS data is decommutated and archived at JPL and not currently available for public distribution. For further information contact Rob Green at Jet Propulsion Laboratory, 4800 Oak Grove Drive, Mail Stop 183-501, Pasadena, California 91109-8099.

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:

Daedalus Channel	TM Band	Wavelength, μm
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. 91-068

Accession # 04201

Sensor # 023

Check Points	Frame Numbers	Time (GMT-hr, min, sec)		Altitude, MSL feet/meters	Cloud Cover/Remarks
		START	END		
A - B	7146-7149	20:42:05	20:44:56	65000/19800	10-40% cumulus (frames 7146-7149)
B	7150	20:45:53	_____	"	30% cumulus; oblique frame
B - C	7151-7159	20:46:50	20:54:27	"	10% cumulus (frame 7151)
C - D	7160-7162	20:55:24	20:57:18	"	10-30% cumulus; oblique frames in turn
D - E	7163-7168	20:58:15	21:03:00	"	20-50% cumulus (frames 7163-7166)
E - F	7169-7171	21:03:57	21:05:51	"	10-20% cumulus; oblique frames in turn
F - G	7172-7174	21:06:48	21:08:42	"	10% cumulus (frame 7172)
G	7175	21:09:39	_____	"	Clear; oblique frame in turn
G - H	7176-7179	21:10:36	21:13:27	"	Clear
H - I	7180-7182	21:14:25	21:16:18	"	10-30% cumulus; oblique frames in turn
I - J	7183-7188	21:17:15	21:22:00	"	10-30% cumulus (frames 7183-7186)

CAMERA FLIGHT LINE DATA
FLIGHT NO. 91-068

Accession # 04201

Sensor # 023

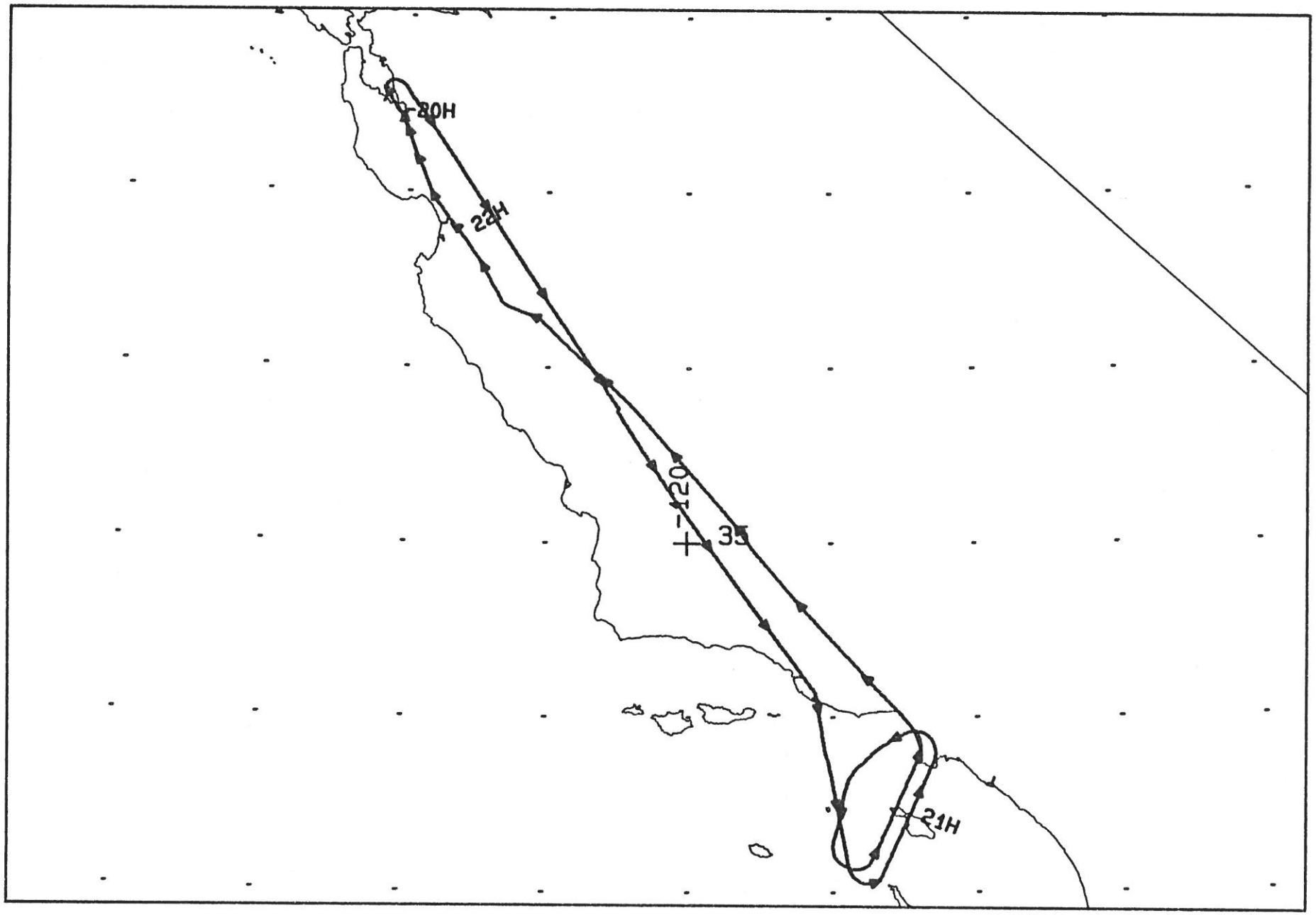
Check Points	Frame Numbers	Time (GMT-hr, min, sec) START	Time (GMT-hr, min, sec) END	Altitude, MSL feet/meters	Cloud Cover/Remarks
J	7189	21:22:57	_____	65000/19800	Clear; oblique frame in turn
J - K	7190-7198	21:23:54	21:31:30	"	30-80% cumulus

SCANNER FLIGHT LINE DATA

FLIGHT NO. 91-068

DAEDALUS FLIGHT DATA
FLIGHT NUMBER: 91-Ø68

Check Points	Actual time (GMT) begin	end	Actual scanline begin	end	Altitude feet/meter	Scan Speed (rps)	total Good scanlines	total Interpolated scanlines	total Repeated scanlines
A-B	2Ø:41:27.Ø	2Ø:44:55.Ø	38289	4Ø892	65ØØØ/19812	12.5Ø	2595	2	7
C-D	2Ø:45:47.Ø	2Ø:54:13.Ø	41543	47874	65ØØØ/19812	12.5Ø	63Ø8	1Ø	14
E-F	2Ø:56:5Ø.Ø	21:Ø2:52.Ø	49839	54368	65ØØØ/19812	12.5Ø	4499	12	19
G-H	21:1Ø:41.Ø	21:12:5Ø.Ø	58969	6Ø583	65ØØØ/19812	12.5Ø	1599	9	7
I-J	21:16:17.Ø	21:21:24.Ø	63173	67Ø15	65ØØØ/19812	12.5Ø	3695	49	99
K-L	21:23: 1.Ø	21:3Ø:53.Ø	68228	74133	65ØØØ/19812	12.5Ø	59Ø4	Ø	2



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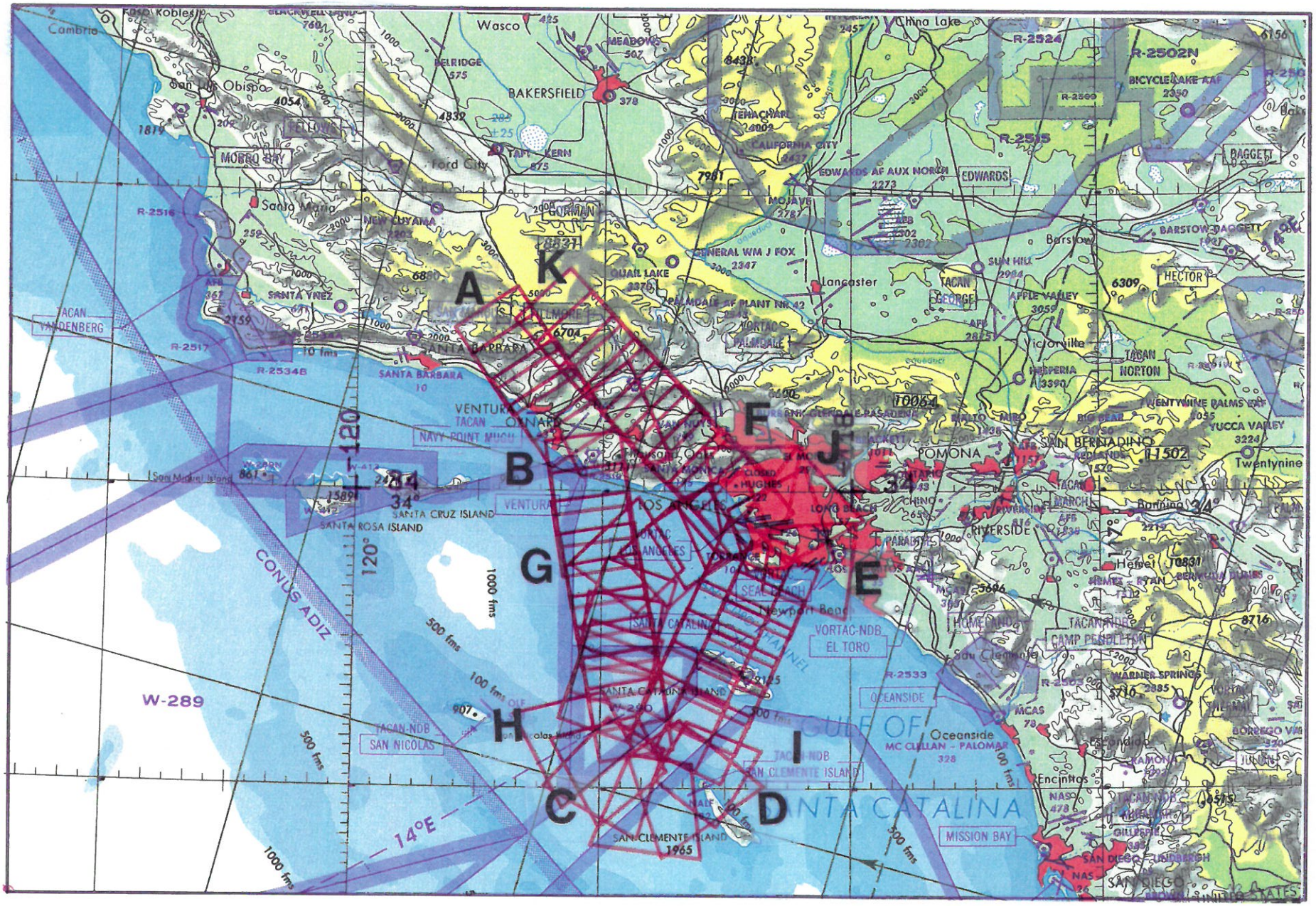

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