FLIGHT SUMMARY REPORT

Flight Number: 98-002-01

Calendar/Julian Date: 04 November 1997 • 308

Sensor Package: Wild Heerbrugg RC-30
DoE Multispectral Scanner (MSS)

Area(s) Covered: Camp Pendleton, CA

Investigator(s): Elliott, Geo Insight International

Aircraft #: 798
Department of Energy
Kingair B200

SENSOR DATA

Accession #:	05241	-----
Sensor ID #:	017	1268
Sensor Type:	RC-30	MSS
Focal Length:	6” 152.75 mm	-----
Film Type:	Aerochrome IR SO-060	-----
Filtration:	Wratten 12 + 2.2 AV	-----
Spectral Band:	510-900 nm	-----
f Stop:	Variable	-----
Shutter Speed:	Variable	-----
# of Frames:	169	-----
% Overlap:	60	-----
Quality:	Poor	Good
Remarks:	Film caught in 1811 processor	

Airborne Science and Applications Program

The Airborne Science Branch at NASA's Dryden Flight Research Center, Edwards, California, operates two ER-2 high altitude aircraft in support of NASA earth science research. 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(s) and camera(s) used for data collection during this flight.

Department of Energy Remote Sensing Laboratory

The NASA Airborne Science and Applications Program at Ames Research Center contracted with the Department of Energy Remote Sensing Laboratory (RSL) in Las Vegas, Nevada to fly the RSL Multispectral Scanner (MSS) and the NASA Thermal Infrared Multispectral Scanner (TIMS) over the desert southwest. The scanners were flown on the DOE Cessna Citation.

The Cessna Citation is a low and medium altitude, moderate speed aircraft. It can operate from 4,000 to 35,000 feet above sea level at speeds between 135 and 225 knots. There are two instrument ports in the aircraft. The RSL 1268 Multispectral Scanner was mounted over the aft port and the NASA Thermal Infrared Multispectral Scanner was mounted over the forward port.

RSL Daedalus 1268 MSS

The DOE Multispectral Scanner simulates the spectral characteristics the Thematic Mapper (TM) multispectral scanners orbiting on Landsat 4 and Landsat 5. The seven TM bands are replicated with the MSS and four additional bands of discrete wavelengths are acquired. THE MSS acquires TM band six (thermal data) as two bands in low and high gain settings. The scanner is configured as follows:

Daedalus Channel	TM Band	Wavelength, mm
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	0.75 - 0.90

8	D	0.91 - 1.05
9	5	1.55 - 1.75
10	7	2.08 - 2.35
11	6	8.5 - 12.5 low gain
12	6	8.5 - 12.5 high gain

Sensor/aircraft parameters are as follows:

IFOV:	2.5 mrad
Total Scan Angle:	86º
Pixels/Scan Line:	716
Scan Rate:	12.5/25/50/100 scans/second

Camera Systems

Various camera systems and films are used for photographic data collection. Film types include high definition color infrared, natural color, and black and white emulsions. Available photographic systems are as follows:

- Wild-Heerbrugg RC-10/RC-30 metric mapping camera
  - 9 x 9 inch film format
  - 6 inch focal length lens provides area coverage of 16 x 16 nautical miles from 65,000 feet
  - 12 inch focal length lens provides area coverage of 8 x 8 nautical miles from 65,000 feet

- Hycon HR-732 large scale mapping camera
  - 9 x 18 inch film format
  - 24 inch focal length lens provides area coverage of 4 x 8 nautical miles from 65,000 feet

- IRIS II Panoramic camera
  - 4.5 x 34.7 inch film format
  - 24 inch focal length lens
  - 90 degree field of view provides area coverage of 2 x 21.4 nautical miles from 65,000 feet

The U.S. Geological Survey's EROS Data Center at Sioux Falls, South Dakota serves as the archive and product distribution facility for NASA-Ames aircraft acquired photographic and digital imagery. For information regarding photography and digital data (including areas of coverage, products, and product costs) contact EROS Data Center, Customer Services, Sioux Falls, South Dakota 57198 (Telephone: 605-594-6151).

Information on data tape format, logical record format, and scanner calibration data may be obtained from the Aircraft Data Facility, NASA-Ames Research Center, Mail Stop 240-6, Moffett Field, California 94035-1000 (Telephone: 650-604-6252).

CAMERA FLIGHT LINE DATA
FLIGHT NO. 98-002-01

Accession # 05241

Sensor # 017

Check Points	Frame Numbers	Time (GMT-hr, min, sec) START	Time (GMT-hr, min, sec) END	Altitude, MSL feet/meters	Cloud Cover/Remarks
A - B	0006-0016	19:35:53	19:38:05	9927/3026	Clear
C - D	0017-0028	19:41:43	19:44:09	9700/2957	Clear
E - F	0029-0042	19:48:06	19:50:47	9836/2998	Clear
G - H	0043-0049	19:54:25	19:55:39	9885/3013	Clear
I - J	0050-0055	19:56:31	19:57:36	9885/3013	Clear
K - L	0056-0073	20:01:44	20:05:17	9828/2996	Clear
N - O	0074-0078	20:12:36	20:13:31	9640/2938	Clear
P - Q	0079-0091	20:17:40	20:20:17	9962/3036	Clear; fogged during processing (frames 0078-0087)
R - S	0092-0099	20:21:28	20:22:42	9962/3036	Clear
T - U	0100-0124	20:26:21	20:31:21	9832/2997	10-20% scattered cumulus (frames 0121-0124)
V - W	0125-0131	20:34:44	20:35:59	9561/2914	Clear

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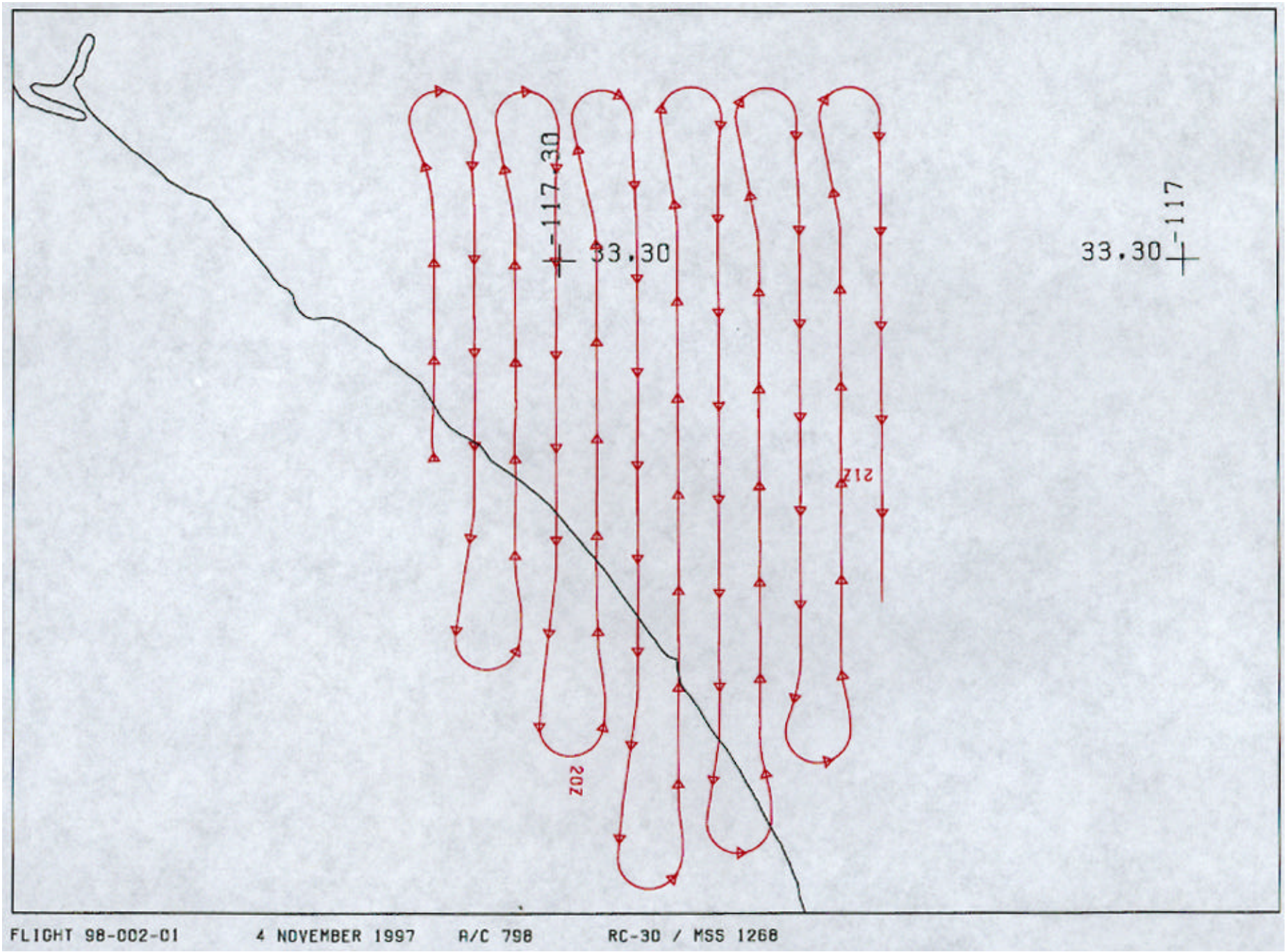
Check Points	Frame Numbers	Time (GMT-hr, min, sec) START	Time (GMT-hr, min, sec) END	Altitude, MSL feet/meters	Cloud Cover/Remarks
X - Y	0132-0142	20:37:04	20:39:10	9500/2896	Clear
Z - 1	0143-0163	20:42:56	20:47:08	9500/2896	Clear
2 - 3	0164-0168	20:50:22	20:51:13	9500/2896	Clear
5 - 6	0169-0174	20:57:49	20:58:52	9500/2896	Clear



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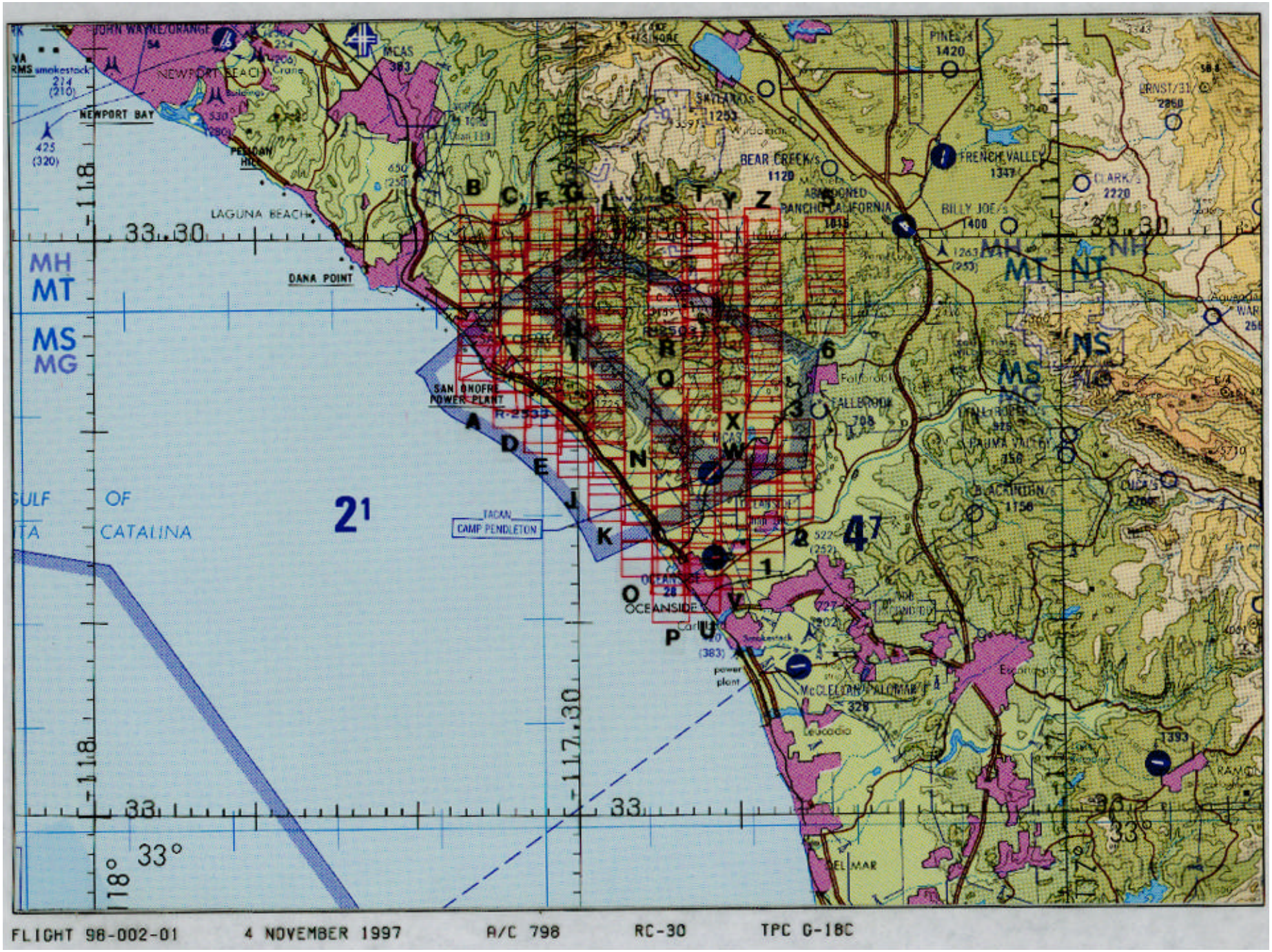

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