

## FLIGHT SUMMARY REPORT

**Flight Number:** 98-005-02  
**Calendar/Julian Date:** 13 June 1998 • 164  
**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

<b>Accession #:</b>	05257	----
<b>Sensor ID #:</b>	017	268
<b>Sensor Type:</b>	RC-30	MSS
<b>Focal Length:</b>	6" 152.75 mm	----
<b>Film Type:</b>	Aerochrome IR SO-134	----
<b>Filtration:</b>	Wratten 12 + 2.2 AV	----
<b>Spectral Band:</b>	510-900 nm	----
<b>f Stop:</b>	4	----
<b>Film Speed:</b>	80	----
<b># of Frames:</b>	275	----
<b>% Overlap:</b>	60	----
<b>Quality:</b>	Excellent	Excellent
<b>Remarks:</b>		

## **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:

<u>Daedalus Channel</u>	<u>TM Band</u>	<u>Wavelength, mm</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	0.75 - 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:	86°
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. 98-005-02**

Accession # 05257

Sensor # 017

Page 1/2

Check Points	Frame Numbers	Time (GMT-hr, min, sec)		Altitude, MGL feet/meters	Cloud Cover/Remarks
		START	END		
A - B	0001-0010	20:49:53	20:52:00	9000/2743	Clear
C - D	0011-0023	20:56:19	20:59:00	"	Clear
E - F	0024-0037	21:02:13	21:04:59	"	Clear
G - H	0038-0053	21:09:23	21:12:52	"	Clear
I - J	0054-0057	21:16:04	21:16:50	"	10% cumulus (frames 0054-0056)
I - K	0058-0075	21:24:43	21:28:11	"	10% cumulus (frames 0059-0060)
L - M	0076-0098	21:32:48	21:37:21	"	Minor cumulus (frames 0094-0095); emulsion defect (frame 0076)
N - O	0099-0125	21:40:33	21:45:37	"	Clear
P - Q	0126-0152	21:49:25	21:55:10	"	10% cumulus (frame 0151)
R - S	0153-0167	21:58:35	22:01:07	"	Clear
R - T	0168-0192	22:08:03	22:12:46	"	Minor-10% cumulus (frames 0173-0175)

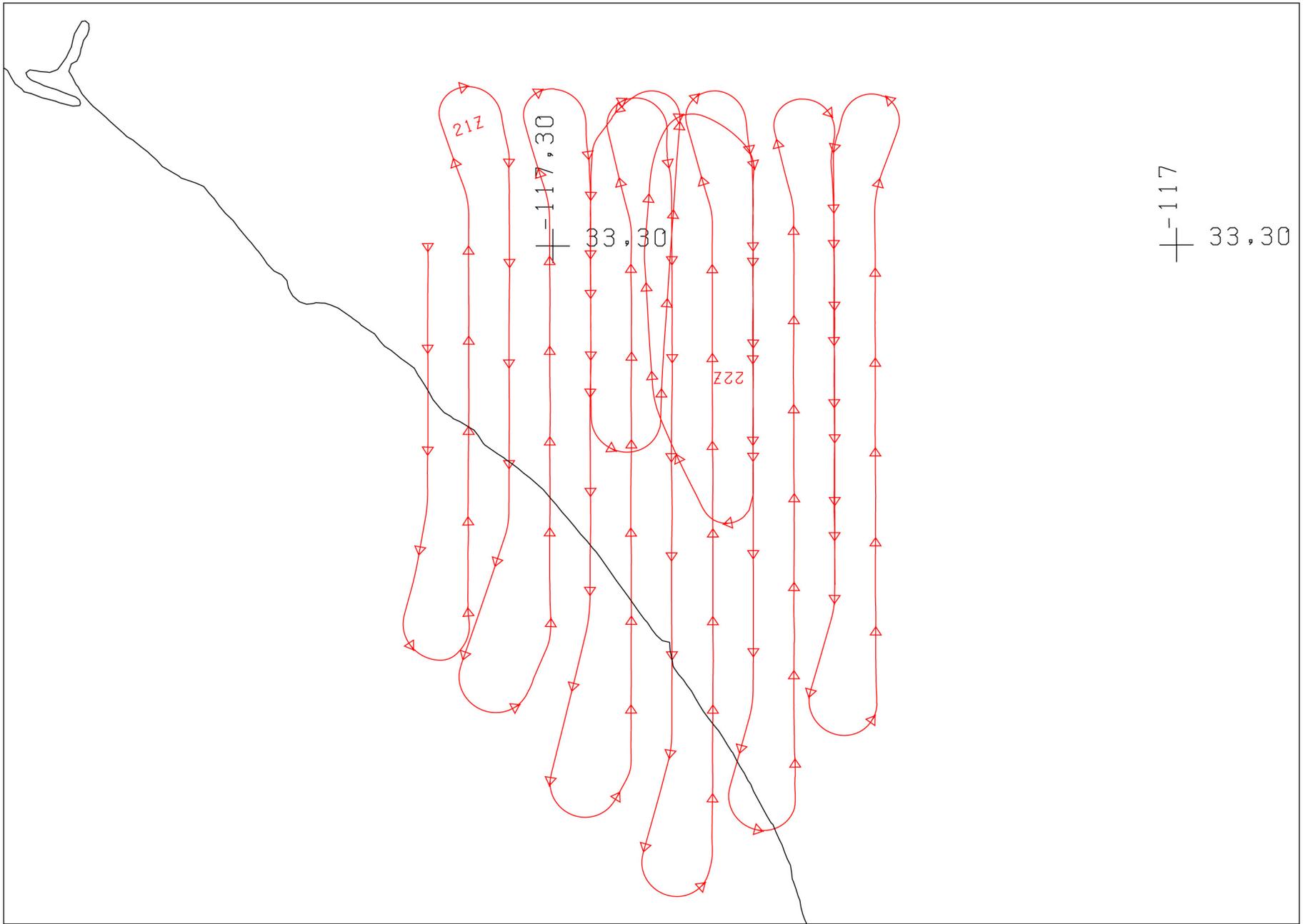
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Page 2/2

Check Points	Frame Numbers	Time (GMT-hr, min, sec)		Altitude, MGL feet/meters	Cloud Cover/Remarks
		START	END		
U - V	0193-0215	22:16:41	22:21:23	9000/2743	10% cumulus (frames 0209-0210 and 0213-0215)
W - X	0216-0235	22:24:15	22:28:05	"	10-40% cumulus (frames 0216-0221)
Y - Z	0236-0253	22:31:36	22:35:34	"	Clear
W - X	0254-0275	22:38:54	22:42:28	"	10-40% cumulus (frames 0254-0259)

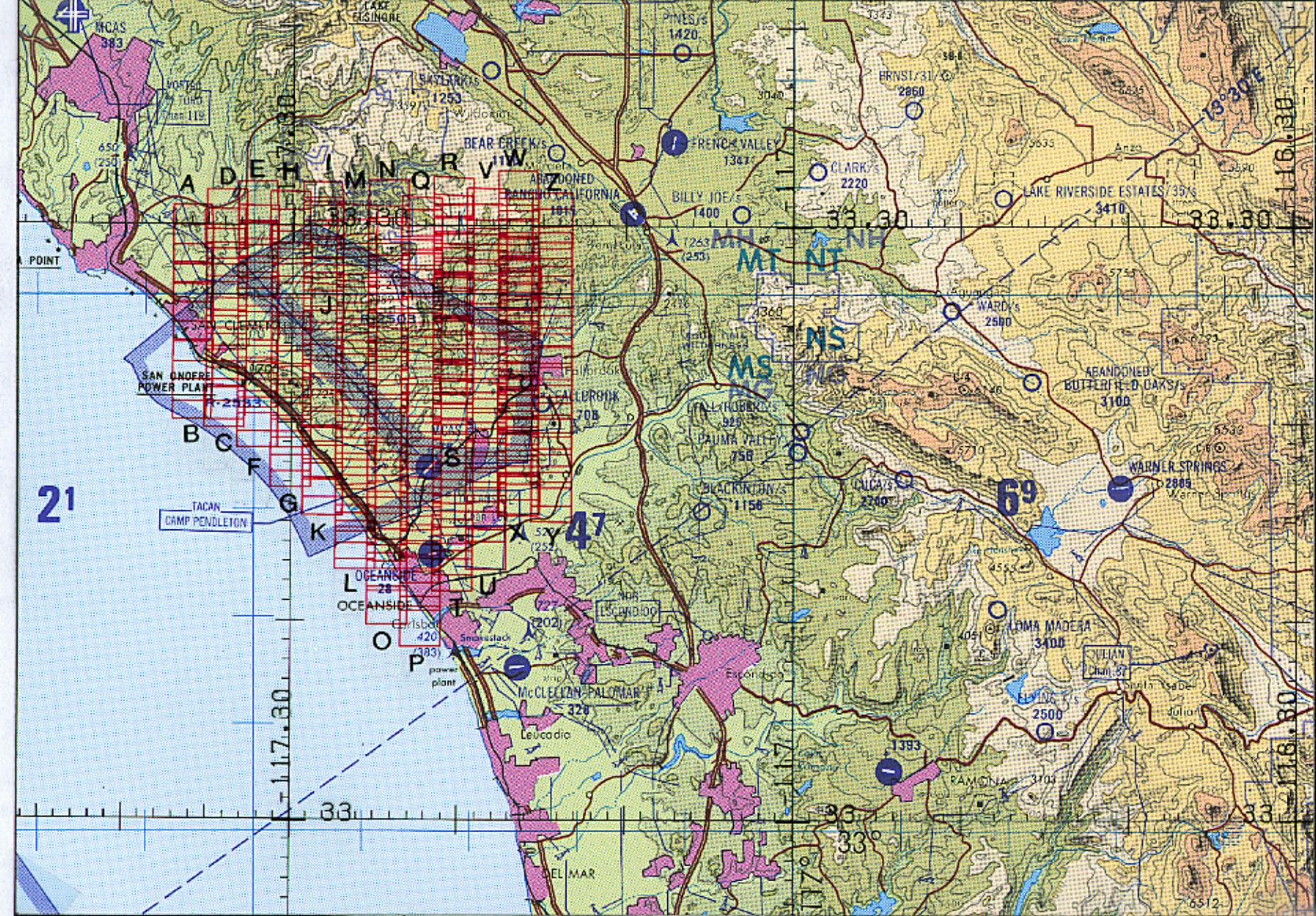


FLIGHT 98-005-02

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A/C 798 (B200)

RC-30 / MSS 1268



FLIGHT 98-005-02

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A/C 798

(B200)

RC-30

TPC G-18C



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MSS 1268

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