FLIGHT SUMMARY REPORT

Flight Number: 97-132

Calendar/Julian Date: 28 July 1997 • 209

Sensor Package: Wild Heerbrugg RC-10
Thematic Mapper Simulator (TMS)

Area(s) Covered: Central Valley

Investigator(s): Posley, Farm Land Mapping Bureau **Aircraft #:** 706

SENSOR DATA

Accession #:	05224	-----
Sensor ID #:	035	074
Sensor Type:	RC-10	TMS
Focal Length:	6” 153.46 mm	-----
Film Type:	Aerochrome IR SO-060	-----
Filtration:	Wratten 12 +2.2 AV	-----
Spectral Band:	510-900 nm	-----
f Stop:	8	-----
Shutter Speed:	1/225	-----
# of Frames:	139	-----
% Overlap:	60	-----
Quality:	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(s) and camera(s) 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:

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	0.76 - 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^{o}
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)

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 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).

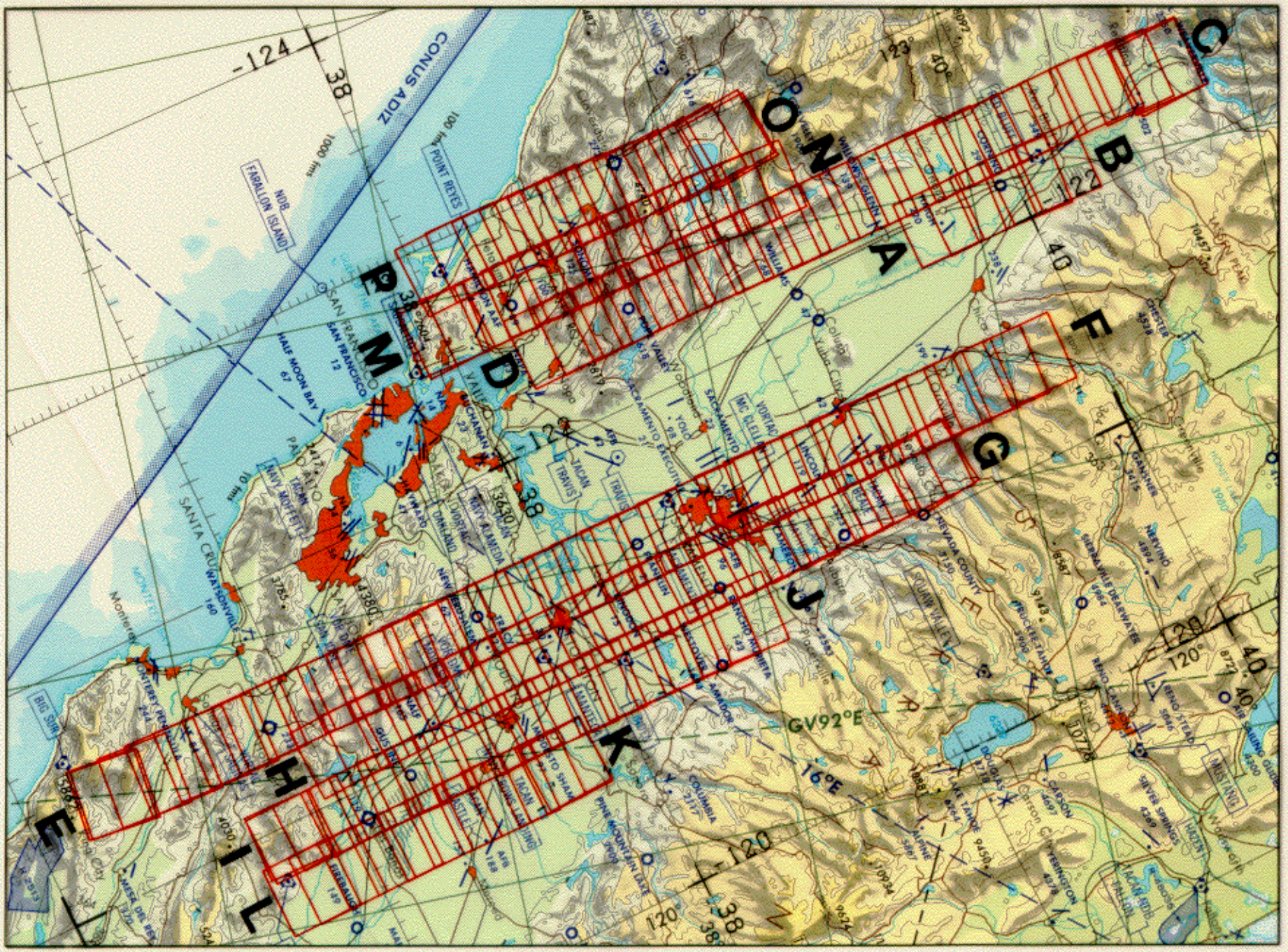
Information regarding ER-2 acquired photographic and digital data is available through the Aircraft Data Facility at Ames Research Center. For specific information regarding flight documentation, sensor parameters, and areas of coverage contact the Aircraft Data Facility, NASA-Ames Research Center, Mail Stop 240-6, Moffett Field, California 94035-1000 (Telephone: 650-604-6252).

CAMERA FLIGHT LINE DATA
FLIGHT NO. 97-132

Accession # 05224

Sensor # 035

Check Points	Frame Numbers	Time (GMT-hr, min, sec)		Altitude, MSL feet/meters	Cloud Cover/Remarks
		START	END		
A - B	8058-8062	18:25:23	18:29:12	65000/19812	10-20% cirrus and cumulus
C - D	8063-8085	18:36:53	18:57:00	65000/19812	10% cirrus (frames 8065-8067); 10% cumulus (frame 8085)
E - F	8086-8119	19:21:08	19:51:39	65000/19812	10% cumulus (frames 8090-8093, 8104-8107)
G - H	8120-8142	19:59:15	20:19:17	65000/19812	10% cumulus (frames 8131-8132)
I - J	8143-8160	20:25:13	20:40:30	65000/19812	10-40% cirrus (frames 8156-8160)
K - L	8161-8171	20:53:18	21:01:54	65000/19812	10-30% cirrus (frames 8161-8163)
M - N	8172-8184	21:21:46	21:32:15	65000/19812	10-30% coastal stratus (frames 8172-8174); 10% cumulus (frame 8184)
O - P	8185-8196	21:35:10	21:44:43	65000/19812	10-60% coastal stratus (frames 8192-8196)



FLIGHT 97-132 28 JULY 1997 A/C 706 RC-10 / TMS JNC 43