

FLIGHT SUMMARY REPORT

Flight N	umber:	94-137		
Calendar/Julian Date:		23 August 1994 • 235		
Sensor	Package:	Wild-Heerbrug RC-10 Airborne Visible and Infrared Imaging Spectrometer (AVIRIS)		
Area(s)	Covered:	Sierra Nevada Mountains		

Investigator(s): Dozier, UCSB; Green, JPL

Aircraft #: 706

SENSOR DATA

Accession #:	04782		
Sensor ID #:	076	099	
Sensor Type:	RC-10	AVIRIS	
Focal Length:	12" 304.89 mm		
Film Type:	Aerochrome IR SO-060		
Filtration:	Wratten 12		
Spectral Band:	510-900 nm		
f Stop:	11		
Shutter Speed:	1/200		
# of Frames:	77		
% Overlap:	60		
Quality:	Excellent		
Remarks:	Camera clock offset 13.9 seconds from navigation data		

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.

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 Resolu	tion:	66 feet (20 meters) at 65,000 feet		
Total Scan Ang	le:	300		
Swath Width:		5.7 nmi (10.6 km) at 65.000 feet		
Spectral Covera	age:	0.41-2.45 μm	,	
Pixels/Scan Lin	ne:	614		
Number of Spe	ctral Bands:	224		
Digitization:		10-bits		
Data Rate:		17 MBPS		
	Wavelength	Number of	Sampling	
Spectrometer	Range	Bands	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	$1.84 - 2.45 \mu m$	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.

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-Heerbrug 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).

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: 415-604-6252). Additional information regarding ER-2 acquired photographic and digital data is also available through the Aircraft Data Facility.

CAMERA FLIGHT LINE DATA FLIGHT NO. 94-137

Accession # 04782

Sensor # 076

Check	Check Frame Time (GMT-hr, min, sec)		Altitude, MSL		
Points	Numbers	START	END	feet/meters	Cloud Cover/Remarks
A - B	5935-5945	18:42:14	18:46:47	65000/19800	Clear; static discharge (frames 5935-5940)
B - C	5946-5948	18:47:01	18:47:58		Clear; oblique frames in turn
C - D	5949-5952	18:48:27	18:49:53	н	Clear
D-E	5953-5958	18:50:21	18:52:45		Clear; oblique frames in turn
E-F	5959-5975	18:53:13	19:00:38		Clear; oblique (frame 5960)
G-H	5976-5990	19:07:04	19:13:15	99	Clear
H-I	5991-5995	19:13:43	19:15:37		Clear; oblique (frames 5991-5994)
J-K	5996-6011	19:21:16	19:27:53		Clear





14

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FLIGHT 94-137 23 AUGUST 1994 A/C 706 RC-10 / AVIRIS

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