

# FLIGHT SUMMARY REPORT

**Flight #:** 91-166  
**Date:** 4 September 1991  
**Sensor Package:** AVIRIS  
Wild-Heerbrug RC-10  
**Area(s) Covered:** Wisconsin, Illinois, Indiana

**Investigator(s):** Aber, University of New Hampshire  
**Flight Request:** 91L234

**Aircraft #:** 706  
**Julian Date:** 247

## SENSOR DATA

<b>Accession #:</b>	----	04297
<b>Sensor ID #:</b>	099	034
<b>Sensor Type:</b>	AVIRIS	RC-10
<b>Focal Length:</b>	----	12" 304.66 mm
<b>Film Type:</b>	----	High Definition Aerochrome IR SO-131
<b>Filtration:</b>	----	cc.20B
<b>Spectral Band:</b>	----	510-900 nm
<b>f Stop:</b>	----	4
<b>Shutter Speed:</b>	----	1/125
<b># of Frames:</b>	----	51
<b>% Overlap:</b>	----	60
<b>Quality:</b>	----	Excellent
<b>Remarks:</b>		

## 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  $\mu\text{m}$ ).

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 $\mu\text{m}$
Pixels/Scan Line:	614
Number of Spectral Bands:	224
Digitization:	10-bits
Data Rate:	17 MBPS

<u>Spectrometer</u>	<u>Wavelength Range</u>	<u>Number of Bands</u>	<u>Sampling Interval</u>
1	0.41 - 0.70 $\mu\text{m}$	31	9.4 nm
2	0.68 - 1.27 $\mu\text{m}$	63	9.4 nm
3	1.25 - 1.86 $\mu\text{m}$	63	9.7 nm
4	1.84 - 2.45 $\mu\text{m}$	63	9.7 nm

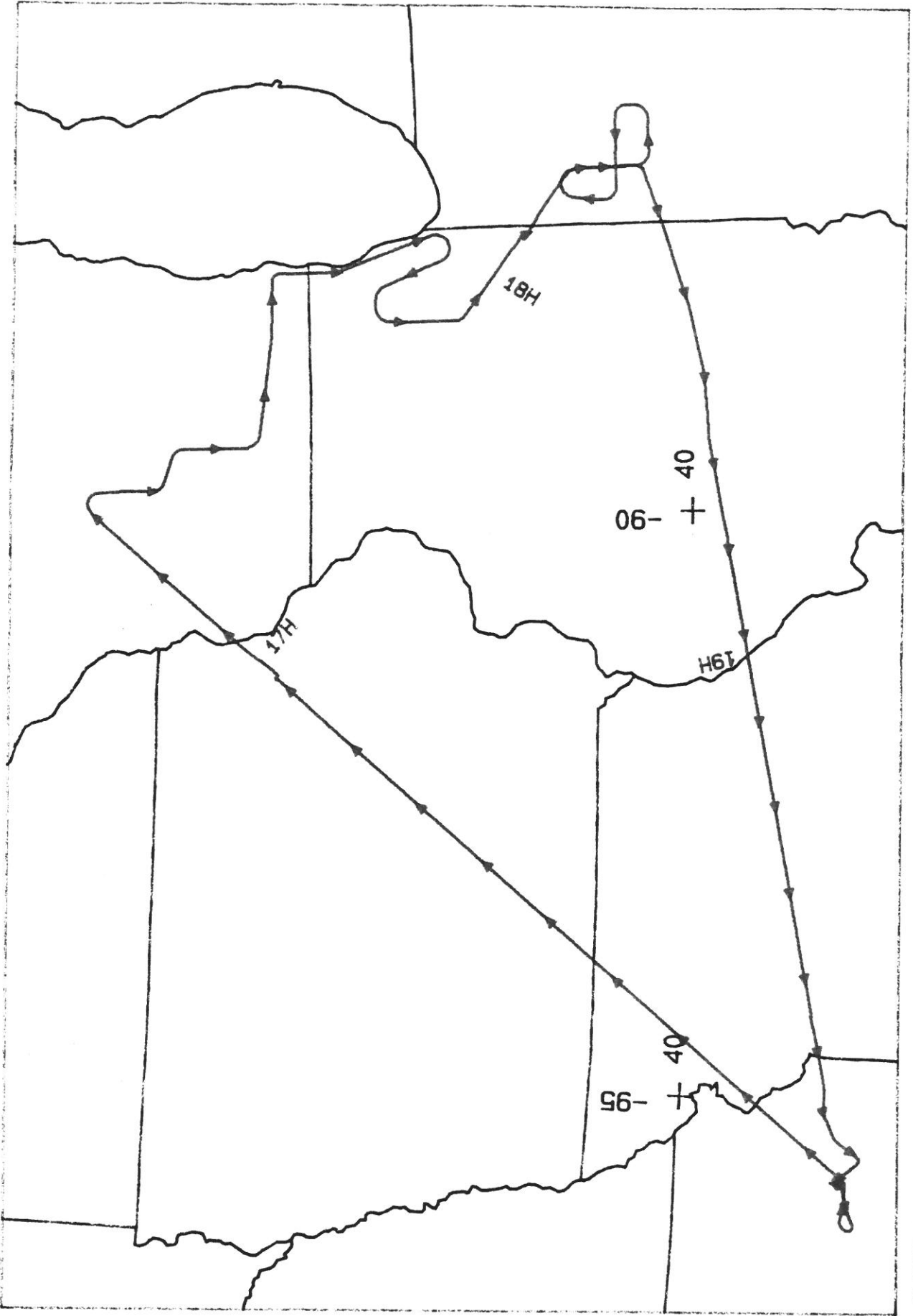
All AVIRIS data is decommutated and archived at JPL and not currently available for public distribution. For further information contact Rob Green at Jet Propulsion Laboratory, 4800 Oak Grove Drive, Mail Stop 183-501, Pasadena, California 91109-8099.

**CAMERA FLIGHT LINE DATA  
FLIGHT NO. 91-166**

Accession # 04297

Sensor # 034

Check Points	Frame Numbers	Time (GMT-hr, min, sec)		Altitude, MSL feet/meters	Cloud Cover/Remarks
		START	END		
A - B	4104-4108	17:17:12	17:19:04	65000/19800	10% cumulus (frames 4104-4105)
C - D	4109-4113	17:23:40	17:25:32	"	Clear
E - F	4114-4119	17:37:20	17:39:17	"	Clear
G - H	4120-4127	17:42:10	17:45:26	"	30-70% cumulus (frames 4120-4127)
I - J	4128-4135	17:54:40	17:57:56	"	20-30% cumulus (frames 4128-4135)
K - L	4136-4141	18:10:20	18:12:40	"	10% cumulus, cirrus and cirrus shadow (frames 4136-4141)
M - N	4142-4148	18:19:40	18:22:28	"	10% cloud shadow (frames 4142-4148)
K - L	4149-4154	18:29:10	18:31:15	"	10% cirro-cumulus (frame 4154)



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