

# FLIGHT SUMMARY REPORT

**Flight #:** 90-045  
**Date:** 24 January 1990  
**Sensor Package:** Airborne Ocean Color Imager (AOCI)  
Wild-Heerbrug RC-10  
Dual Hycon HR-732  
  
**Area(s) Covered:** Virgin Islands

**Investigator(s):** Patterson, University of Virginia  
**Flight Request:** 89R247

**Aircraft #:** 709  
**Julian Date:** 024

## SENSOR DATA

<b>Accession #:</b>	-----	03994	03995	03996
<b>Sensor ID #:</b>	090	076	018	019
<b>Sensor Type:</b>	AOCI	RC-10	HR-732	HR-732
<b>Focal Length:</b>	-----	12" 304.89 mm	24" 609.6 mm	24" 609.6 mm
<b>Film Type:</b>	-----	Aerial Color SO-242	Aerial Color SO-242	High Definition Aerochrome IR SO-131
<b>Filtration:</b>	-----	None	None	cc .30B
<b>Spectral Band:</b>	-----	400-700 nm	400-700 nm	510-900 nm
<b>f Stop:</b>	-----	4	8	8
<b>Shutter Speed:</b>	-----	1/200	1/75	1/75
<b># of Frames:</b>	-----	69	133	133
<b>% Overlap:</b>	-----	60	60	60
<b>Quality:</b>	-----	Excellent	Excellent	Good
<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 Ocean Color Imager

The Airborne Ocean Color Imager (AOCI) is a high altitude multispectral scanner designed for oceanographic remote sensing. It provides 10-bit digitization of eight bands in the visible/near-infrared region of the spectrum, plus two 8-bit bands in the near and thermal infrared. The bandwidths are as follows:

<u>Channel</u>	<u>Wavelength, <math>\mu m</math></u>
1	0.436 - 0.455
2	0.481 - 0.501
3	0.511 - 0.531
4	0.554 - 0.575
5	0.610 - 0.631
6	0.655 - 0.676
7	0.741 - 0.800
8	0.831 - 0.897
9	0.989 - 1.054
10	8.423 - 12.279

Sensor/aircraft parameters are as follows:

IFOV:	2.5 mrad
Ground Resolution:	163 feet (50 meters at 65,000 feet)
Total Scan Angle:	85 <sup>o</sup>
Swath Width:	18 nmi (33.3 km)
Pixels/Scan Line:	716
Scan Rate:	6.25 scans/second
Ground Speed:	400 kts (206 m/second)

**NOTE:** Information on data tape format, logical record format, and scanner calibration data may be obtained from the NASA-Ames Aircraft Data Facility at (415) 604-6252 or FTS 464-6252.

**CAMERA FLIGHT LINE DATA  
FLIGHT NO. 90-045**

Accession # 03994

Sensor # 076

Check Points	Frame Numbers	Time (GMT-hr, min, sec)		Altitude, MSL feet/meters	Cloud Cover/Remarks
		START	END		
A - B	1470-1487	14:46:29	14:54:17	65000/19800	30-50% cumulus
B - C	1488-1495	14:54:40	14:58:02	"	30-50% cumulus, oblique frames in turn
C - D	1496-1508	14:58:31	15:04:19	"	20-50% cumulus
E - F	1509-1527	15:11:43	15:20:02	"	20-70% cumulus
G - H	1528-1530	15:30:58	15:31:41	"	30-40% cumulus
I - J	1531-1538	15:44:00	15:46:53	"	30-40% cumulus

**CAMERA FLIGHT LINE DATA  
FLIGHT NO. 90-045**

Accession # 03995

Sensor # 018

Check Points	Frame Numbers	Time (GMT-hr, min, sec)		Altitude, MSL feet/meters	Cloud Cover/Remarks
		START	END		
A - B	0001-0033	14:46:04	14:53:47	65000/19800	10-50% cumulus
B - C	0034-0049	14:53:56	14:57:25	"	20-50% cumulus, oblique frames in turn
C - D	0050-0076	14:57:40	15:03:58	"	10-50% cumulus
E - F	0077-0113	15:11:16	15:19:45	"	10-70% cumulus
G - H	0114-0119	15:30:32	15:34:30	"	30-50% cumulus
I - J	0120-0133	15:43:34	15:46:27	"	30-50% cumulus

**CAMERA FLIGHT LINE DATA  
FLIGHT NO. 90-045**

Accession # 03996

Sensor # 019

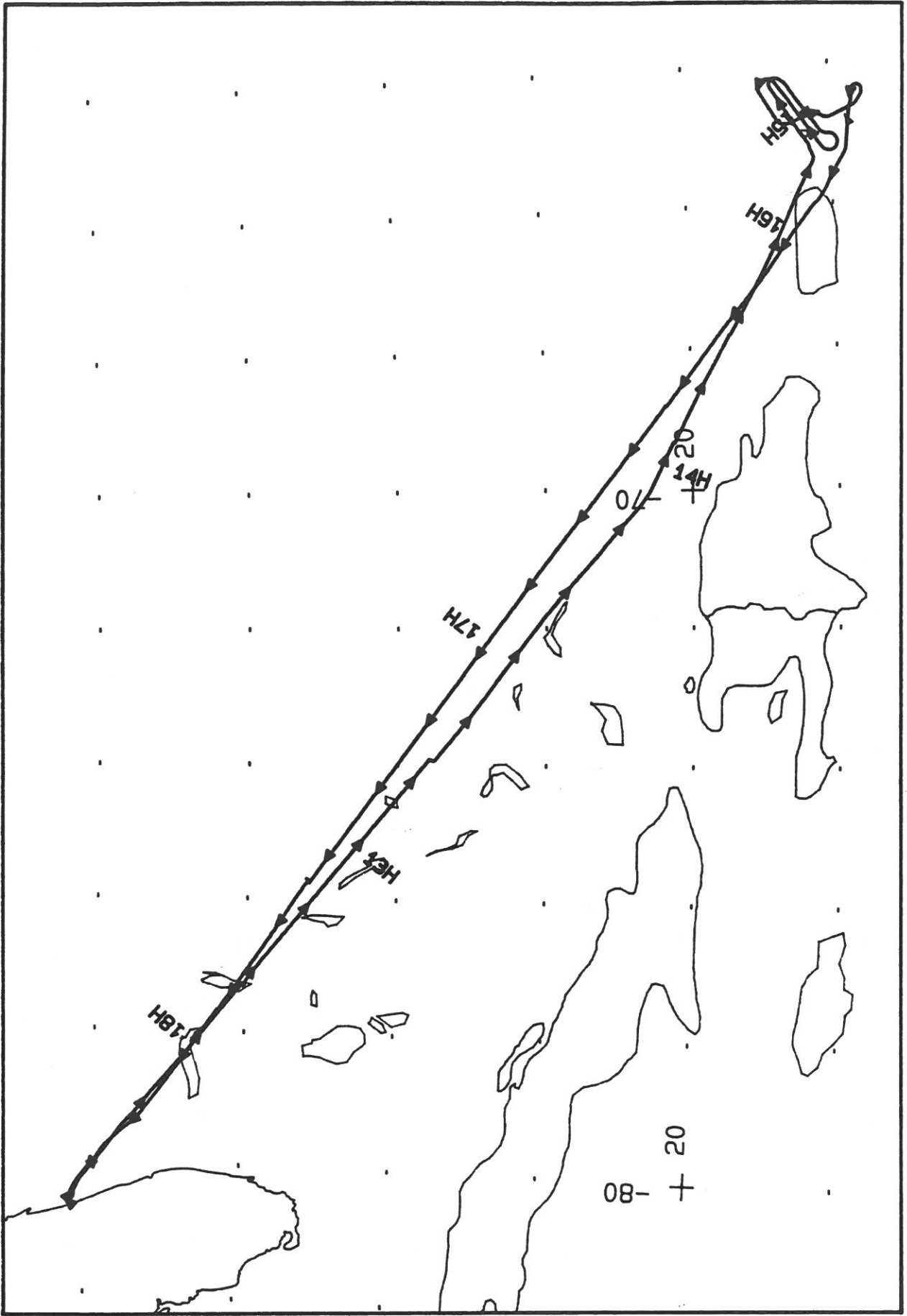
Check Points	Frame Numbers	Time (GMT-hr, min, sec)		Altitude, MSL feet/meters	Cloud Cover/Remarks
		START	END		
A - B	0001-0033	14:45:40	14:53:23	65000/19800	10-50% cumulus
B - C	0034-0049	14:53:32	14:57:01	"	20-50% cumulus, oblique frames in turn
C - D	0050-0076	14:57:16	15:03:34	"	10-50% cumulus
E - F	0077-0113	15:10:52	15:19:21	"	10-70% cumulus
G - H	0114-0119	15:30:08	15:31:06	"	30-50% cumulus
I - J	0120-0133	15:43:10	15:46:03	"	30-50% cumulus

# SCANNER FLIGHT LINE DATA

FLIGHT NO. 90-045

## DAEDALUS FLIGHT DATA FLIGHT NUMBER: 90-045

Check Points	A c t u a l t i m e b e g i n	A c t u a l s c a n l i n e b e g i n	A l t i t u d e f e e t / m e t e r	Scan S p e e d (r p s)	t o t a l G o o d s c a n l i n e s	t o t a l I n t e r p o l a t e d s c a n l i n e s	t o t a l R e p e a t e d s c a n l i n e s
A-B	14:45:58.0	14:53:58.0	65000/19812	6.25	3001	0	0
C-D	14:57:42.0	15:03:51.0	65000/19812	6.25	2301	0	2
E-F	15:10:22.0	15:19:20.0	65000/19812	6.25	3301	0	3
G-H	15:30:1.0	15:31:37.0	65000/19812	6.25	601	0	0
I-J	15:43:22.0	15:46:18.0	65000/19812	6.25	1101	0	0



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