

FLIGHT SUMMARY REPORT

Flight #: 91-053
Date: 17 January 1991
Sensor Package: Wild-Heerbrug RC-10
 Dual Hycon HR-732
 Airborne Ocean Color Imager (AOCI)
Area(s) Covered: Puerto Rico

Investigator(s): Miller, NASA-SSC

Aircraft #: 708

Flight Request: 91D256

Julian Date: 017

SENSOR DATA

Accession #:	04180	04181	04182	-----
Sensor ID #:	076	018	019	090
Sensor Type:	RC-10	HR-732	HR-732	AOCI
Focal Length:	12" 304.89 mm	24" 609.6 mm	24" 609.6 mm	-----
Film Type:	Aerial Color SO-242	Aerial Color SO-242	High Definition Aerochrome IR SO-131	-----
Filtration:	None	None	cc.20B	-----
Spectral Band:	400-700 nm	400-700 nm	510-900 nm	-----
f Stop:	4	8	8	-----
Shutter Speed:	1/200	1/75	1/75	-----
# of Frames:	182	18	18	-----
% Overlap:	60	60	60	-----
Quality:	Excellent	Excellent	Excellent	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 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, μm</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:

I FOV:	2.5 mrad
Ground Resolution:	163 feet (50 meters) at 65,000 feet
Total Scan Angle:	85°
Swath Width:	19.6 nmi (36.3 km) at 65,000 feet
Pixels/Scan Line:	716
Scan Rate:	6.25 scans/second
Ground Speed:	400 kts (206 m/second)
Digitization:	8-bit channels 9-10 10-bit channels 1-8

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. 91-053**

Accession # 04180

Sensor # 076

Check Points	Frame Numbers	Time (GMT-hr, min, sec)		Altitude, MSL feet/meters	Cloud Cover/Remarks
		START	END		
A - B	3162-3174	14:33:26	14:39:08	65000/19800	10-40% scattered cumulus (frames 3162-3169); 10% scattered cumulus (frames 3171-3174)
C - D	3175-3197	14:42:47	14:52:45	"	10% cumulus (frames 3175-3177; 3180-3185); 10-50% scattered cumulus (frames 3187-3197)
E - F	3198-3224	14:56:51	15:08:35	"	10-30% scattered cumulus (frames 3198-3214); 10-70% strato-cumulus (frames 3216-3224)
G - H	3225-3247	15:13:31	15:23:07	"	10-30% stratus (frames 3225-3232); 10% cumulus (frames 3233-3234); 10-30% scattered cumulus (frames 3236-3247)
I - J	3248-3274	15:28:19	15:39:51	"	10-40% scattered cumulus (frames 3248-3253); 10-30% scattered cumulus (frames 3256-3259); 10% cumulus (frames 3261-3268); 10-20% scattered cumulus (frames 3270-3273)

**CAMERA FLIGHT LINE DATA
FLIGHT NO. 91-053**

Accession # 04180

Sensor # 076

Check Points	Frame Numbers	Time (GMT-hr, min, sec)		Altitude, MSL feet/meters	Cloud Cover/Remarks
		START	END		
K - L	3275-3297	15:43:35	15:53:15	65000/19800	10-20% scattered cumulus (frames 3290-3297)
M - N	3298-3313	15:57:40	16:04:07	"	10-70% scattered cumulus (frames 3298-3307); 10% cumulus (frames 3310-3312)
O - P	3314-3318	16:09:36	16:10:35	"	Clear
Q - F	3319-3326	16:14:24	16:17:11	"	10-30% cumulus (frames 3319-3322); 10-20% cumulus (frames 3324-3326)
R - S	3327-3343	16:22:23	16:29:13	"	10-20% scattered cumulus (frames 3327-3332); 10-20% cumulus (frames 3342-3343)

**CAMERA FLIGHT LINE DATA
FLIGHT NO. 91-053**

Accession # 04181

Sensor # 018

Check Points	Frame Numbers	Time (GMT-hr, min, sec)		Altitude, MSL feet/meters	Cloud Cover/Remarks
		START	END		
M - N	0001-0013	16:00:32	16:03:10	65000/19800	Clear; Isla Mona
O - P	0014-0018	16:09:12	16:10:10	"	Clear; Isla Desecheo

**CAMERA FLIGHT LINE DATA
FLIGHT NO. 91-053**

Accession # 04182

Sensor # 019

Check Points	Frame Numbers	Time (GMT-hr, min, sec)		Altitude, MSL feet/meters	Cloud Cover/Remarks
		START	END		
M - N	0001-0013	16:00:55	16:03:33	65000/19800	Clear; Isla Mona
O - P	0014-0018	16:09:36	16:10:33	"	Clear; Isla Desecheo

SCANNER FLIGHT LINE DATA

FLIGHT NO. 91-053

DAEDALUS FLIGHT DATA
FLIGHT NUMBER: 91-053

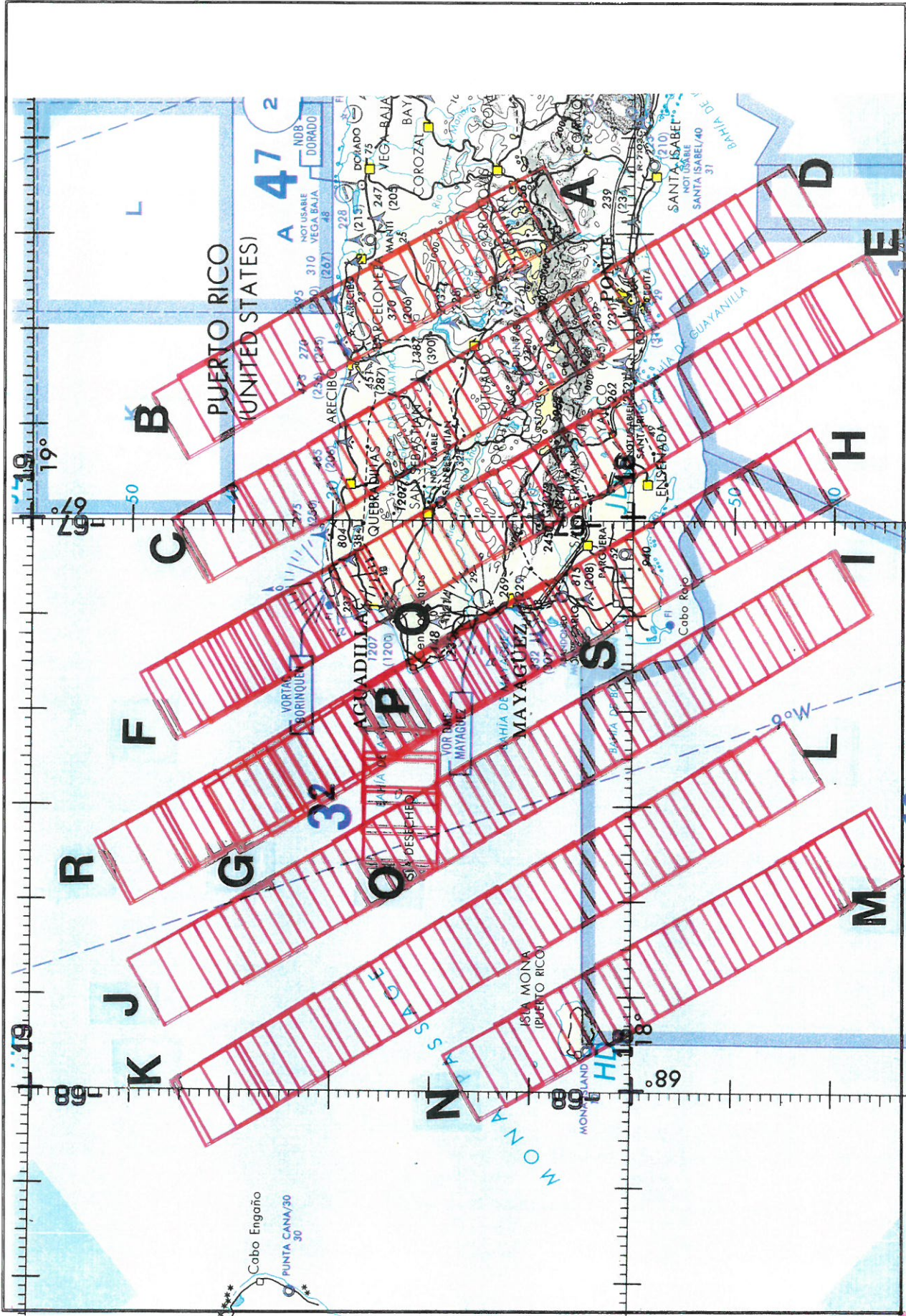
Check Points	A c t i v a l t i m e b e q u i n e n d (GMT)	A c t i v a l s c a n l i n e b e q u i n e n d	A l t i t u d e f e e t / m e t e r	S c a n S p e e d (rps)	t o t a l G o o d s c a n l i n e s	t o t a l I n t e r p o l a t e d s c a n l i n e s	t o t a l R e p e a t e d s c a n l i n e s
A-B	14:33:19.0 14:39:11.0	15021 17223	65000/19812	6.25	2201	0	2
C-D	14:42:47.0 14:52:50.0	18575 22340	65000/19812	6.25	3749	0	17
E-F	14:56:51.0 15:09: 9.0	23844 28458	65000/19812	6.25	4601	0	14
G-H	15:13:26.0 15:23:36.0	30063 33875	65000/19812	6.25	3801	0	12
I-J	15:27:37.0 15:39:55.0	35383 39996	65000/19812	6.25	4601	0	13
K-L	15:43:56.0 15:53:35.0	41500 45119	65000/19812	6.25	3601	0	19
M-N	15:57:19.0 16:03:44.0	46521 48927	65000/19812	6.25	2401	0	6
O-P	16:07:13.0 16:09:53.0	50233 51237	65000/19812	6.25	1001	0	4
Q-F	16:14:26.0 16:18:27.0	52940 54444	65000/19812	6.25	1501	0	4
R-S	16:22:11.0 16:28:52.0	55844 58353	65000/19812	6.25	2501	0	9

SCANNER FLIGHT LINE DATA

FLIGHT NO. 91-053

DAEDALUS FLIGHT DATA
FLIGHT NUMBER: 91-053

Check Points	Act u a l t i m e b e g i n e n d	Act u a l s c a n l i n e b e g i n e n d	Altitude feet/meter	Scan Speed (rps)	total G o d s c a n l i n e s	total I n t e r p o l a t e d s c a n l i n e s	total R e p e a t e d s c a n l i n e s
A-B	14:33:19.0 14:39:11.0	15021 17223	65000/19812	6.25	2201	0	2
C-D	14:42:47.0 14:52:50.0	18575 22340	65000/19812	6.25	3749	0	17
E-F	14:56:51.0 15:09: 9.0	23844 28458	65000/19812	6.25	4601	0	14
G-H	15:13:26.0 15:23:36.0	30063 33675	65000/19812	6.25	3601	0	12
I-J	15:27:37.0 15:39:55.0	35383 39996	65000/19812	6.25	4601	0	13
K-L	15:43:56.0 15:53:35.0	41500 45119	65000/19812	6.25	3601	0	19
M-N	15:57:19.0 16:03:44.0	46521 48927	65000/19812	6.25	2401	0	6
O-P	16:07:13.0 16:09:53.0	50233 51237	65000/19812	6.25	1001	0	4
Q-F	16:14:26.0 16:18:27.0	52940 54444	65000/19812	6.25	1501	0	4
R-S	16:22:11.0 16:28:52.0	55844 58353	65000/19812	6.25	2501	0	9



FLIGHT 91-063 17 January 1991 A/C 708 RC-10 / Dual HR-732 / AOCI ACC00010N # 04160 ONC J-27