

# FLIGHT SUMMARY REPORT

**Flight #:** 90-042  
**Date:** 20 January 1990  
**Sensor Package:** Wild Heerbrug RC-10  
Airborne Ocean Color Imager (AOCI)  
**Area(s) Covered:** Puerto Rico

**Investigator(s):** Miller, NASA-Stennis Space Center      **Aircraft #:** 709  
**Flight Request:** 90D204      **Julian Date:** 020

## SENSOR DATA

<b>Accession #:</b>	03992	-----
<b>Sensor ID #:</b>	076	090
<b>Sensor Type:</b>	RC-10	AOCI
<b>Focal Length:</b>	12" 304.89 mm	-----
<b>Film Type:</b>	Aerial Color SO-242	-----
<b>Filtration:</b>	None	-----
<b>Spectral Band:</b>	400-700 nm	
<b>f Stop:</b>	4	-----
<b>Shutter Speed:</b>	1/200	-----
<b># of Frames:</b>	92	-----
<b>% Overlap:</b>	60	-----
<b>Quality:</b>	Excellent	-----
<b>Remarks:</b>	-----	See write up

## 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°
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. 90-042**

Accession # 03992

Sensor # 076

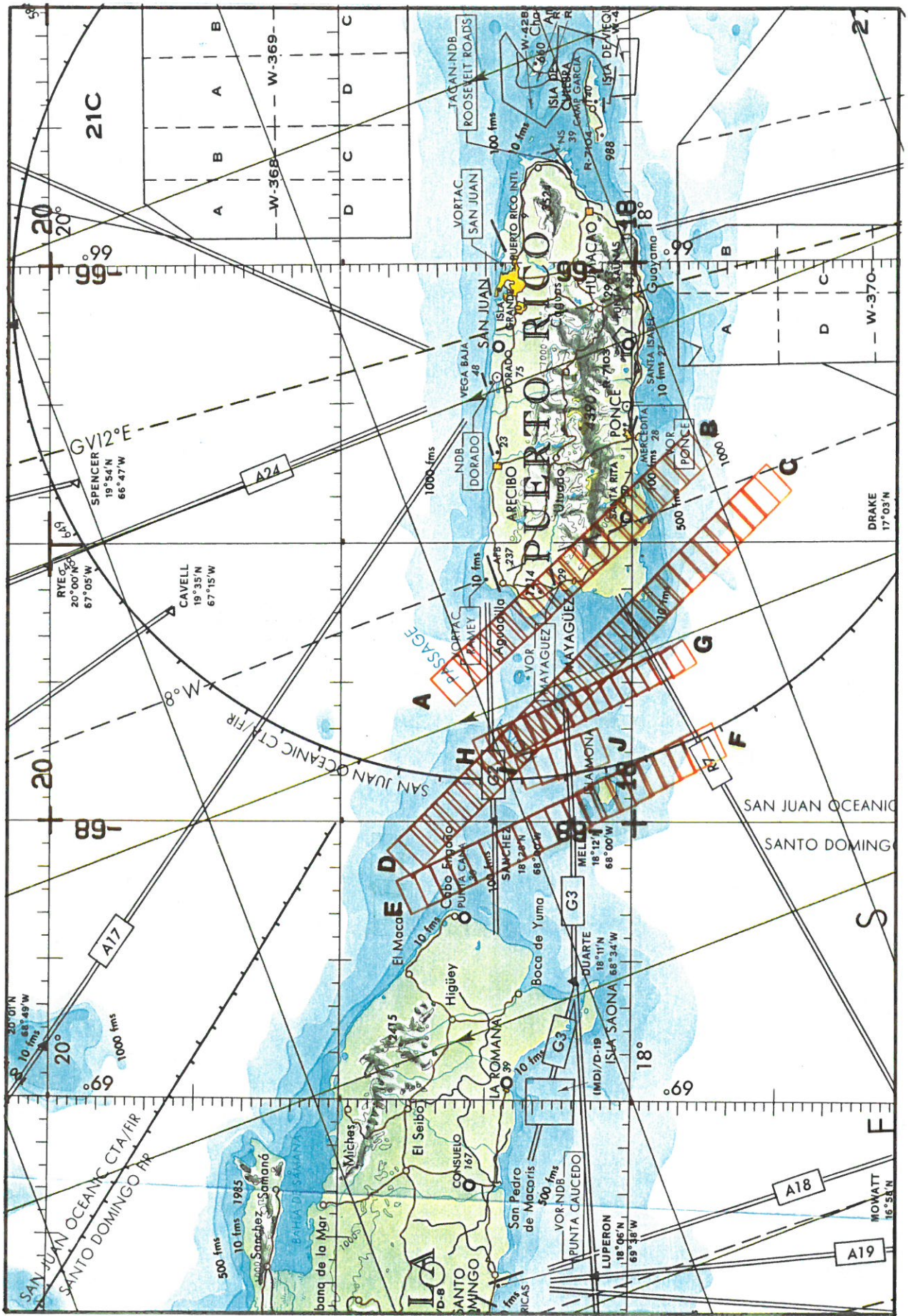
Check Points	Frame Numbers	Time (GMT-hr, min, sec)		Altitude, MSL feet/meters	Cloud Cover/Remarks
		START	END		
A - B	1671-1691	14:23:29	14:33:06	65000/19800	10-90% cumulus cloud cover
C - D	1692-1723	14:39:31	14:54:27	"	10-90% cumulus cloud cover
E - F	1724-1742	14:57:31	15:06:11	"	10-90% cumulus cloud cover
G - H	1743-1758	15:11:18	15:18:31	"	10-90% cumulus cloud cover
I - J	1759-1762	15:24:46	15:26:12	"	80-90% cumulus cloud cover

# SCANNER FLIGHT LINE DATA

FLIGHT NO. 90-042

DAEDALUS FLIGHT DATA  
FLIGHT NUMBER: 90-042

Check Points	A c t u a l t i m e b e g i n e n d (GMT)	A c t u a l s c a n l i n e b e g i n e n d	A l t i t u d e f e e t / m e t e r	Scan 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	14:20: 8.0 14:34: 3.0	67060 72280	65000/19812	6.25	5183	0	38
C-D	14:39:11.0 14:54: 5.0	74200 79790	65000/19812	6.25	5585	0	6
E-F	14:56:47.0 15:06:23.0	80800 84400	65000/19812	6.25	3601	0	0
G-H	15:10:23.0 15:17:51.0	85900 88700	65000/19812	6.25	2799	0	2
I-J	15:23:51.0 15:25:35.0	90950 91600	65000/19812	6.25	651	0	0



FLIGHT 90-042

20 January 1990

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# FLIGHT SUMMARY REPORT

**Flight #:** 90-043  
**Date:** 22 January 1990  
**Sensor Package:** Wild Heerbrug RC-10  
Airborne Ocean Color Imager (AOCI)  
**Area(s) Covered:** Puerto Rico

**Investigator(s):** Miller, NASA-Stennis Space Center      **Aircraft #:** 709  
**Flight Request:** 90D204      **Julian Date:** 022

## SENSOR DATA

<b>Accession #:</b>	03993	-----
<b>Sensor ID #:</b>	076	090
<b>Sensor Type:</b>	RC-10	AOCI
<b>Focal Length:</b>	12" 304.89 mm	-----
<b>Film Type:</b>	Aerial Color SO-242	-----
<b>Filtration:</b>	None	-----
<b>Spectral Band:</b>	400-700 nm	
<b>f Stop:</b>	4	-----
<b>Shutter Speed:</b>	1/200	-----
<b># of Frames:</b>	108	-----
<b>% Overlap:</b>	60	-----
<b>Quality:</b>	Excellent	-----
<b>Remarks:</b>	-----	See write up

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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. 90-043**

Accession # 03993

Sensor # 076

Check Points	Frame Numbers	Time (GMT-hr, min, sec)		Altitude, MSL feet/meters	Cloud Cover/Remarks
		START	END		
A - B	1767-1795	14:17:49	14:31:19	65000/19800	10-70% cumulus and cirro cumulus cloud cover (frames 1767-1774); 10% cirro cumulus (frames 1778-1780)
C - D	1796-1823	14:35:20	14:48:22	"	10% cumulus (frames 1796-1797, 1800-1802, 1811-1812); 10-50% cumulus (frames 1818-1821)
E - F	1824-1846	14:53:07	15:03:15	"	10-50% cumulus (frames 1824-1831)
G - H	1847-1864	15:08:45	15:16:57	"	10% cumulus (frames 1847-1864)
I - J	1865-1874	15:25:15	15:29:35	"	10% cumulus (frames 1865-1866)

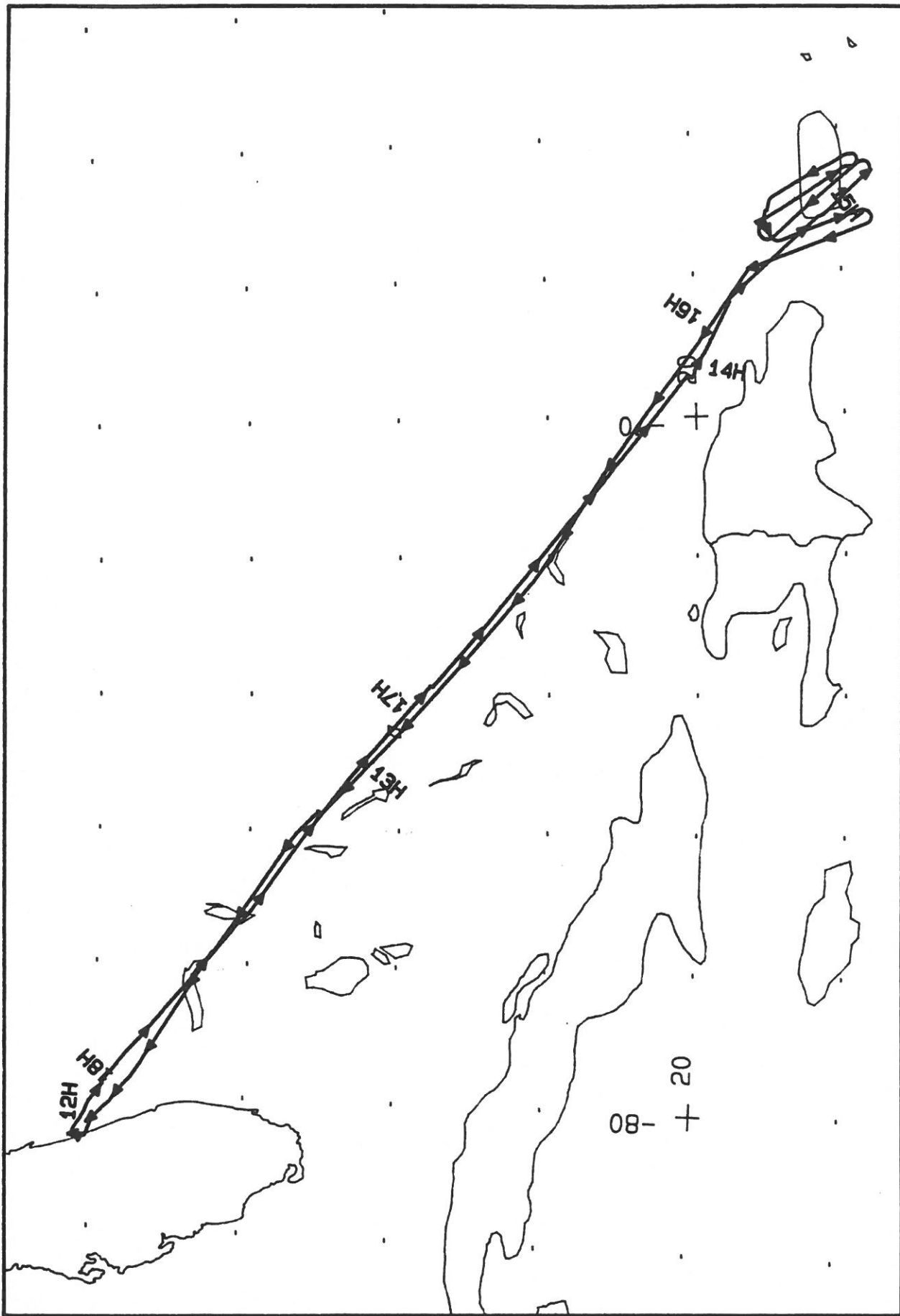


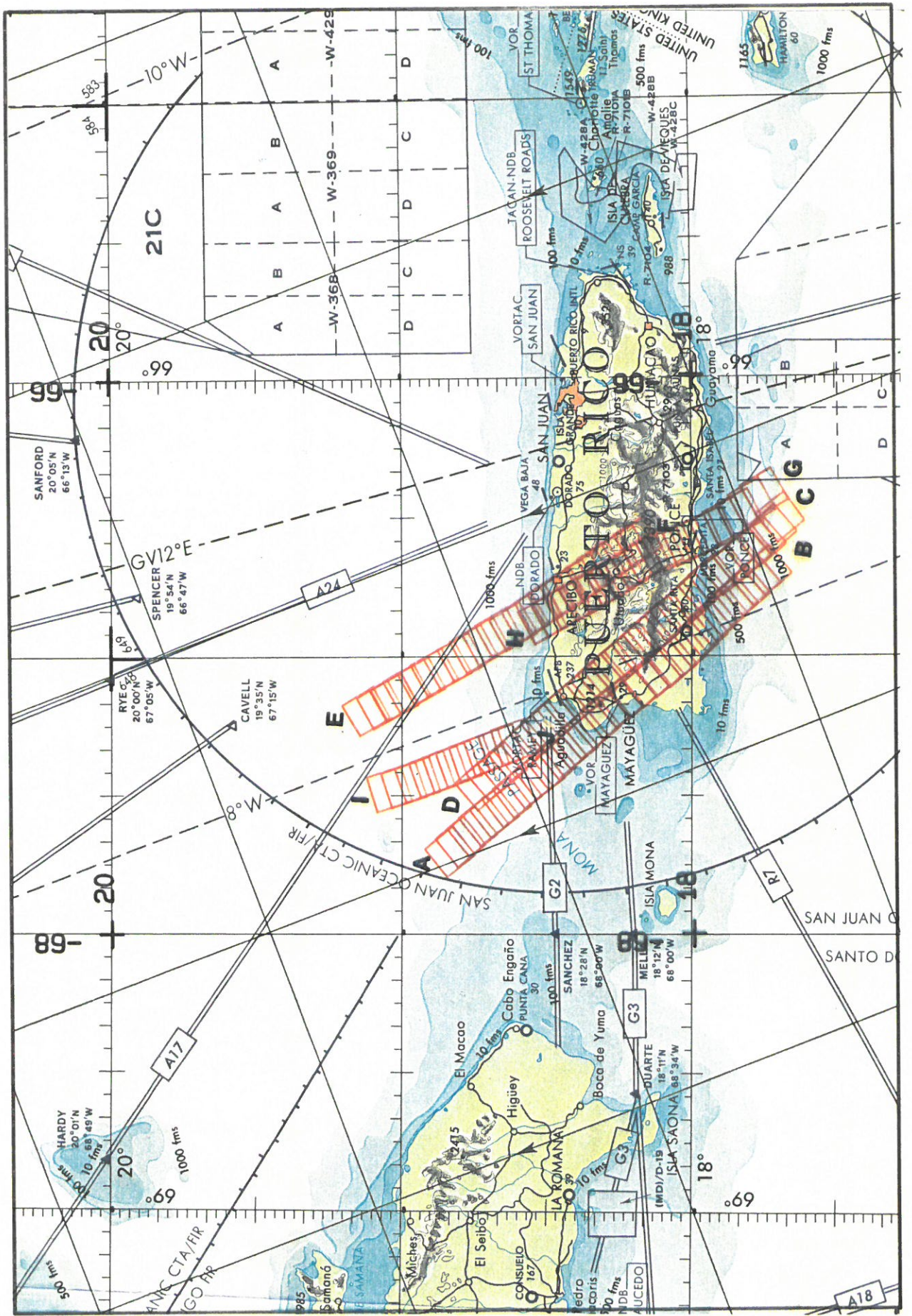
# SCANNER FLIGHT LINE DATA

FLIGHT NO. 90-043

DAEDALUS FLIGHT DATA  
FLIGHT NUMBER: 90-043

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	14:17:45.0	14:30:55.0	65000/19812	6.25	4917	0	20
C-D	14:35: 9.0	14:47:27.0	65000/19812	6.25	4605	0	8
E-F	14:53:18.0	15:02:39.0	65000/19812	6.25	3501	0	2
G-H	15:08:47.0	15:16:49.0	65000/19812	6.25	3001	0	10
I-J	15:25:22.0	15:29:40.0	65000/19812	6.25	1601	0	12





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AOCI / RC-10

A/C 709

22 January 1990

FLIGHT 90-043