

FLIGHT SUMMARY REPORT

Flight #: 91-055
Date: 20 January 1991
Sensor Package: Wild-Heerbrug RC-10
 Dual Hycon HR-732
 Thematic Mapper Simulator (TMS)
Area(s) Covered: Puerto Rico

Investigator(s): Griffin, USDA

Aircraft #: 708

Flight Request: 91R295

Julian Date: 020

SENSOR DATA

Accession #:	04186	04187	04188	-----
Sensor ID #:	076	018	019	074
Sensor Type:	RC-10	HR-732	HR-732	TMS
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:	41	139	139	-----
% 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.

Thematic Mapper Simulator

The Daedalus Thematic Mapper Simulator (TMS) is a multispectral scanner flown aboard the ER-2 aircraft which simulates spatial and spectral characteristics of the seven Landsat-D Thematic Mapper bands. The specific bands are as follows:

<u>Daedalus Channel</u>	<u>TM Band</u>	<u>Wavelength, μm</u>
1	A	0.42 - 0.45
2	1	0.45 - 0.52
3	2	0.52 - 0.60
4	B	0.60 - 0.62
5	3	0.63 - 0.69
6	C	0.69 - 0.75
7	4	0.76 - 0.90
8	D	0.91 - 1.05
9	5	1.55 - 1.75
10	7	2.08 - 2.35
11	6	8.5 - 14.0 low gain
12	6	8.5 - 14.0 high gain

Sensor/aircraft parameters are as follows:

IFOV:	1.25 mrad
Ground Resolution:	81 feet (25 meters) at 65,000 feet
Total Scan Angle:	43°
Swath Width:	8.4 nmi (15.6 km) at 65,000 feet
Pixels/Scan Line:	716
Scan Rate:	12.5 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. 91-055

Accession # 04186

Sensor # 076

Check Points	Frame Numbers	Time (GMT-hr, min, sec)		Altitude, MSL feet/meters	Cloud Cover/Remarks
		START	END		
A - B	3575-3584	13:19:39	13:23:30	65000/19800	10-30% scattered cumulus
E - F	3585-3606	13:34:23	13:43:43	"	10-40% scattered cumulus (frames 3585-3591)
G - H	3607-3615	13:49:37	13:52:57	"	Clear

**CAMERA FLIGHT LINE DATA
FLIGHT NO. 91-055**

Accession # 04187

Sensor # 018

Check Points	Frame Numbers	Time (GMT-hr, min, sec)		Altitude, MSL feet/meters	Cloud Cover/Remarks
		START	END		
A - B	0001-0017	13:19:07	13:23:06	65000/19800	10-30% scattered cumulus
E - F	0018-0056	13:33:55	13:43:16	"	10-50% scattered cumulus (frames 0018-0028); minor smoke obstruction (frames 0034-0036)
G - I	0057-0097	13:49:10	13:58:56	"	10% cumulus (frames 0083-0089); 10-40% scattered cumulus (frames 0092-0097)
J - K	0098-0126	14:06:16	14:13:04	"	10-50% scattered cumulus (frames 0098-0118)
N - O	0127-0139	14:32:41	14:35:34	"	10-40% scattered cumulus (frames 0127-0138)

CAMERA FLIGHT LINE DATA
FLIGHT NO. 91-055

Accession # 04188

Sensor # 019

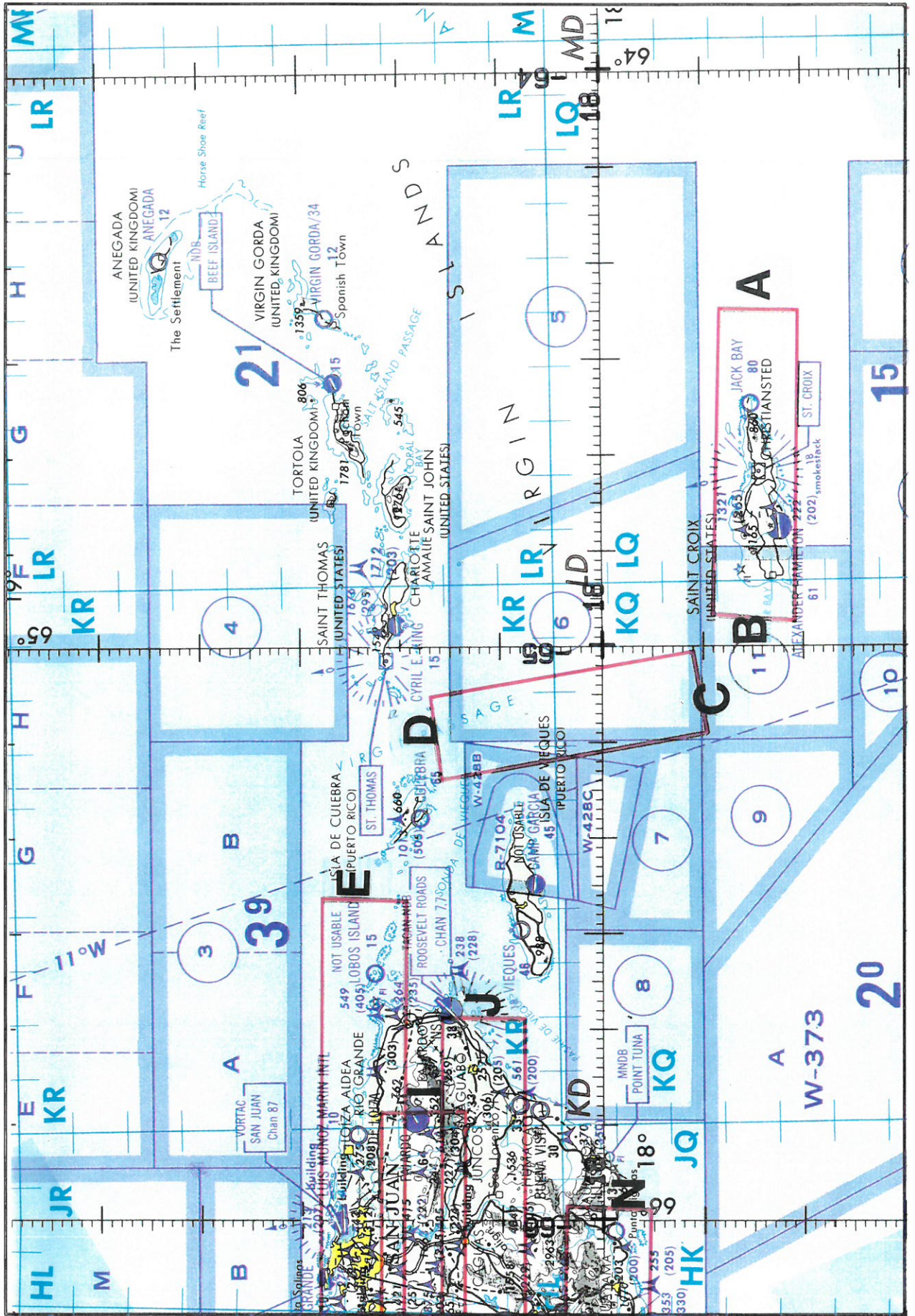
Check Points	Frame Numbers	Time (GMT-hr, min, sec)		Altitude, MSL feet/meters	Cloud Cover/Remarks
		START	END		
A - B	0001-0017	13:19:33	13:23:32	65000/19800	10-30% scattered cumulus (frames 0001-0017)
E - F	0018-0056	13:34:21	13:43:42	"	10-40% scattered cumulus (frames 0018-0025)
G - I	0057-0097	13:49:36	13:59:22	"	10% cumulus (frames 0085-0088); 10-30% cumulus (frames 0092-0097)
J - K	0098-0126	14:06:42	14:13:30	"	10-40% cumulus (frames 0098-0117)
N - O	0127-0139	14:33:07	14:36:00	"	10-50% scattered cumulus (frames 0127-0133)

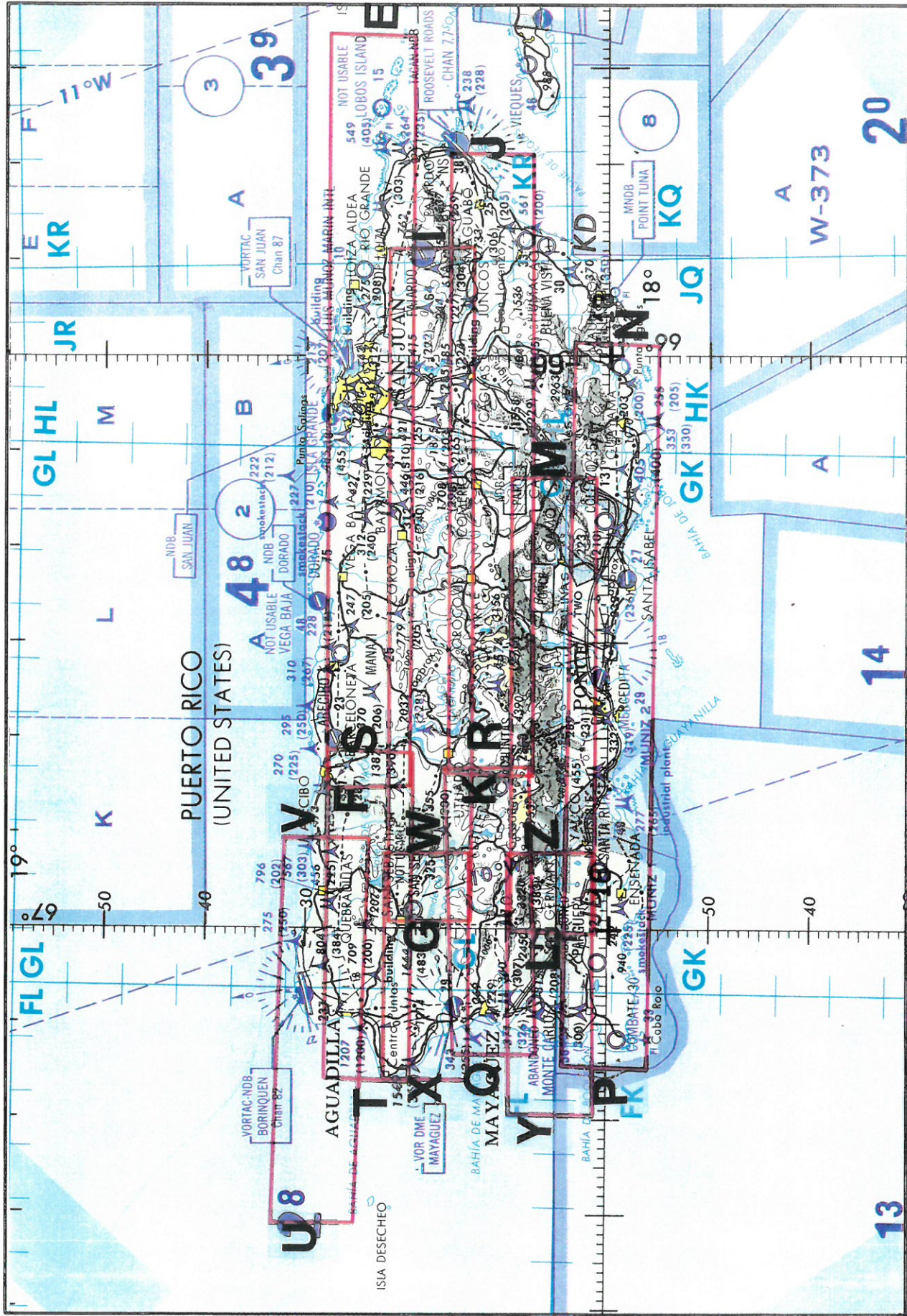
SCANNER FLIGHT LINE DATA

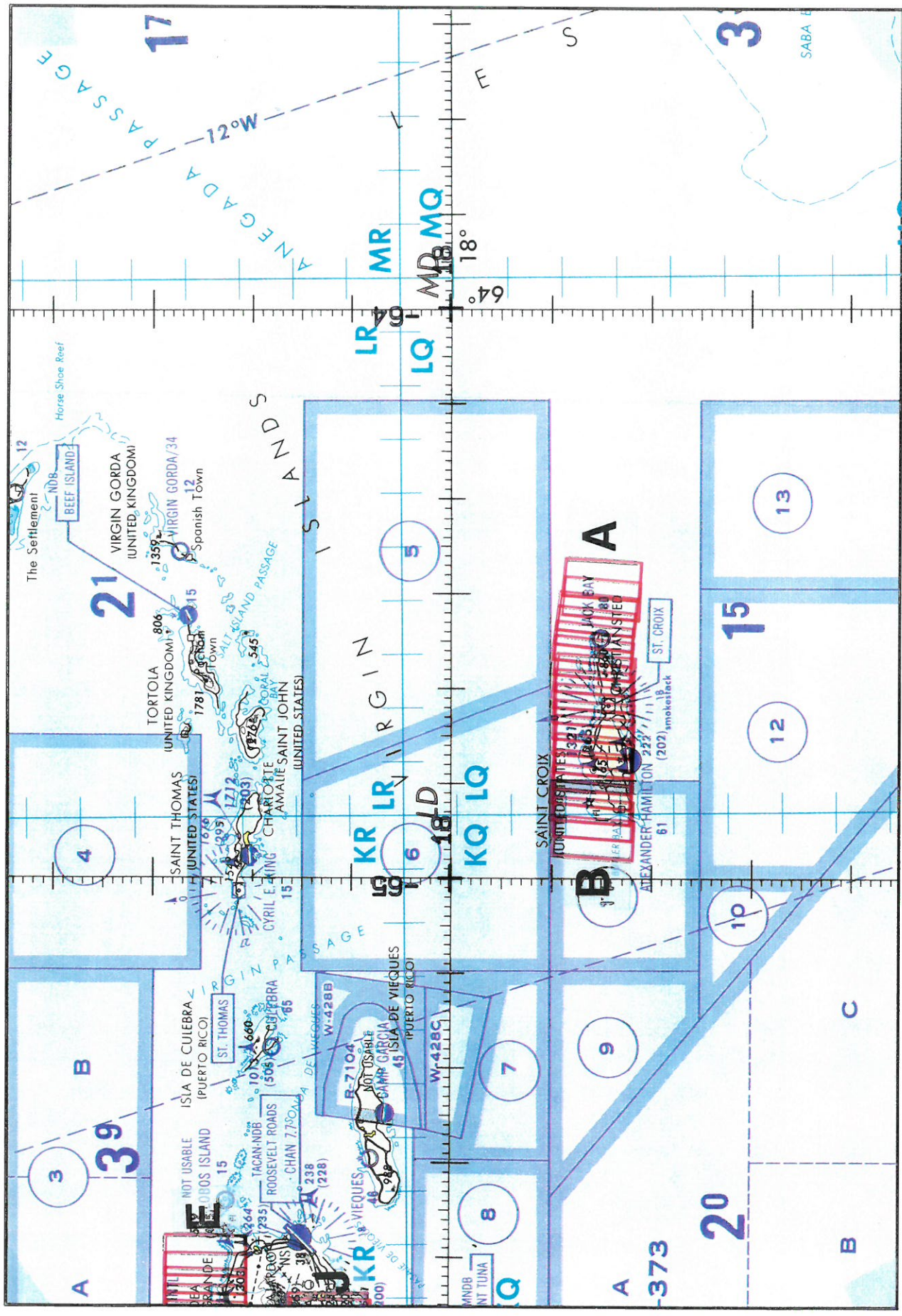
FLIGHT NO. 91-055

DAEDALUS FLIGHT DATA
FLIGHT NUMBER: 91-055

Check Points	Actual Time (GMT)		Actual Scanline		Altitude feet/meter	Scan Speed (rps)	Total Good Scanlines	Total Interpolated Scanlines	Total Repeated Scanlines
	Begin	End	Begin	End					
A-B	13:18:40.0	13:23:21.0	18864	22372	65000/19812	12.50	3501	0	8
C-D	13:24:57.0	13:29:05.0	23574	26682	65000/19812	12.50	3101	0	8
E-F	13:32:03.0	13:43:18.0	28896	37341	65000/19812	12.50	8401	1	44
G-I	13:49:04.0	13:59:37.0	41661	49577	65000/19812	12.50	7901	0	16
J-K	14:05:22.0	14:14:51.0	53891	61007	65000/19812	12.50	7101	0	16
L-M	14:20:21.0	14:27:18.0	65123	70345	65000/19812	12.50	5201	0	22
N-P	14:32:32.0	14:43:22.0	74264	82388	65000/19812	12.50	8101	0	24
Q-R	14:46:19.0	14:50:44.0	84596	87911	65000/19812	12.50	3301	0	15
S-T	14:53:56.0	14:58:53.0	90315	94021	65000/19812	12.50	3701	0	6
U-V	15:04:14.0	15:10:06.0	98035	102444	65000/19812	12.50	4401	1	8
W-X	15:12:39.0	15:16:08.0	104350	106962	65000/19812	12.50	2601	0	12
Y-Z	15:19:04.0	15:23:05.0	109166	112176	65000/19812	12.50	3001	0	10







FLIGHT 91-055

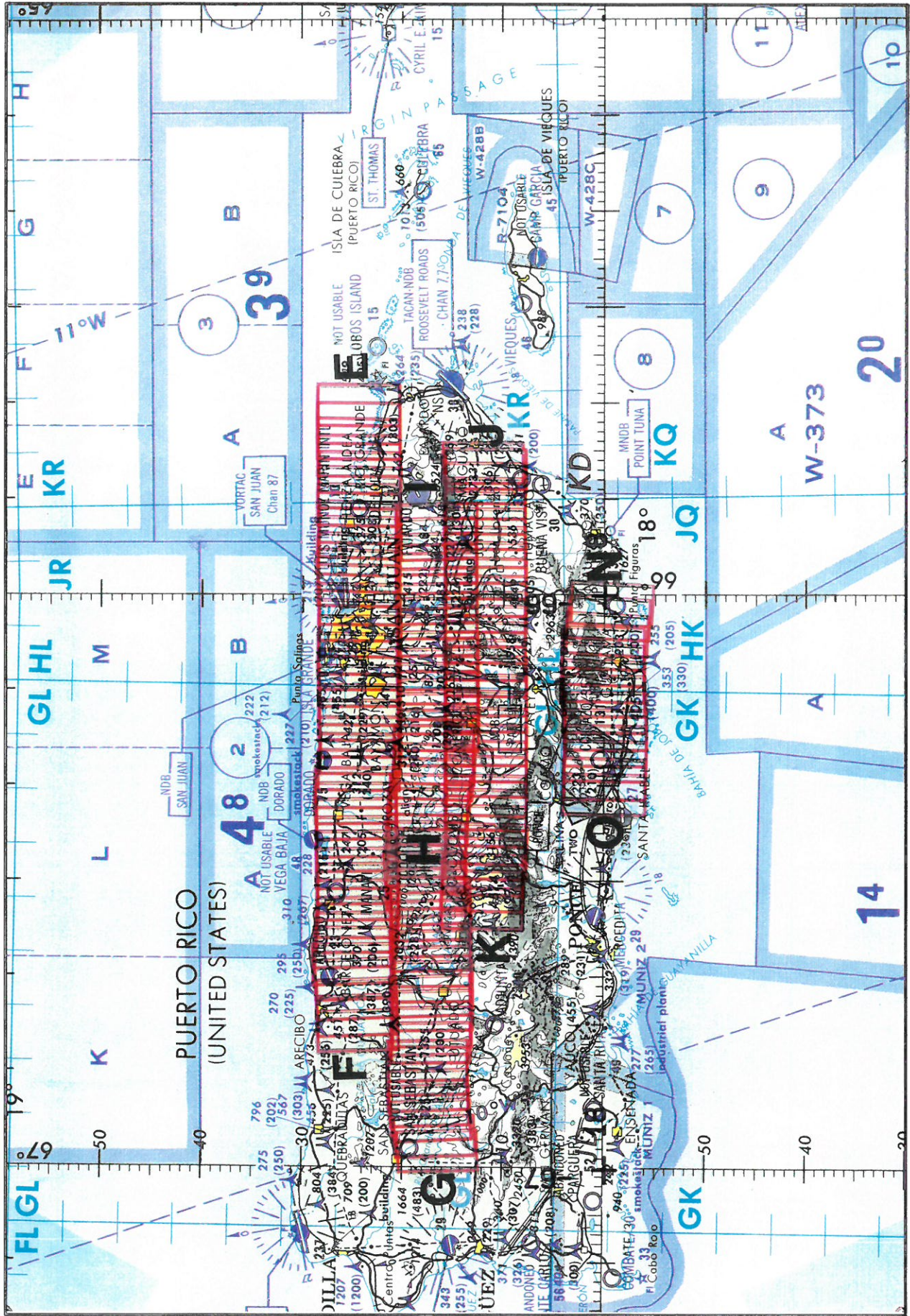
20 January 1991

A/C 708

HR-732

Accession # 04188

ONC J-27



ONC J-27

Accession # 04188

HR-732

A/C 708

20 January 1981

FLIGHT 91-085