

FLIGHT SUMMARY REPORT

Flight #: 90-115
Date: 25 July 1990
Sensor Package: Wild-Heerbrug RC-10
Thematic Mapper Simulator (TMS)
Area(s) Covered: Southern California

Investigator(s): Functional Check Flight
Flight Request: 90X001

Aircraft #: 706
Julian Date: 206

SENSOR DATA

Accession #:	04078	-----
Sensor ID #:	076	101
Sensor Type:	RC-10	TMS
Focal Length:	12" 304.89 mm	-----
Film Type:	High Definition Aerochrome IR SO-131	-----
Filtration:	cc.30B	-----
Spectral Band:	510-900 nm	-----
f Stop:	4	-----
Shutter Speed:	1/175	-----
# of Frames:	401	-----
% Overlap:	60	-----
Quality:	Excellent	Fair
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 high altitude 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:	1.3 mrad
Ground Resolution:	91 feet (28 meters at 70,000 feet)
Total Scan Angle:	43 ^o
Swath Width:	9.0 nmi (16.6 km at 70,000 feet)
Pixels/Scan Line:	716 (750 following rectification)
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. 90-115**

Accession # 04078

Sensor # 076

Check Points	Frame Numbers	Time (GMT-hr, min, sec)		Altitude, MSL feet/meters	Cloud Cover/Remarks
		START	END		
A - B	2780-2814	17:32:28	17:48:03	65000/19800	Clear
C - D	2815-2851	17:51:24	18:07:54	"	Clear
E - F	2852-2890	18:12:57	18:30:05	"	Clear
G - H	2891-2929	18:33:08	18:50:08	"	Clear
I - J	2930-2957	18:54:18	19:06:30	"	Clear
K - L	2958-2986	19:10:06	19:22:46	"	10-20% strato cumulus (frames 2962-2964)
M - N	2987-3013	19:30:59	19:42:32	"	10-30% strato cumulus (frames 3009-3013)
O - P	3014-3039	19:47:17	19:58:31	"	10-30% strato cumulus (frames 3014-3019)
Q - R	3040-3063	20:01:40	20:11:59	"	10-30% strato cumulus (frames 3060-3063)
S - T	3064-3088	20:19:20	20:29:55	"	Minor-10% strato cumulus (frames 3064-3068)

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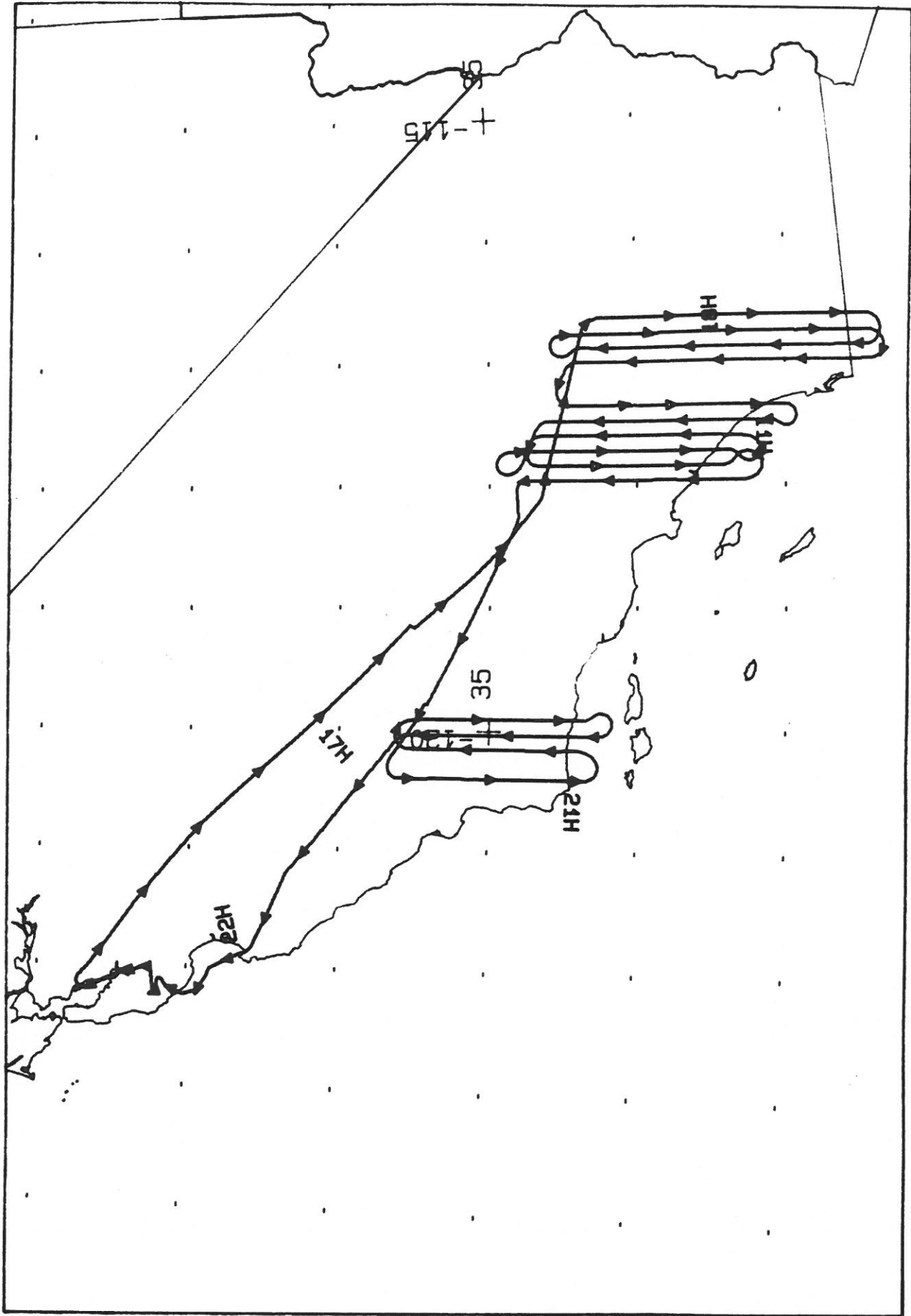
Check Points	Frame Numbers	Time (GMT-hr, min, sec)		Altitude, MSL feet/meters	Cloud Cover/Remarks
		START	END		
U - V	3089-3111	20:50:31	21:00:19	65000/19800	Clear
W - X	3112-3133	21:04:28	21:13:50	"	Clear
Y - Z	3134-3156	21:17:19	21:27:01	"	10% strato cumulus (frames 3153-3155)
1 - 2	3157-3180	21:31:36	21:41:54	"	Clear

SCANNER FLIGHT LINE DATA

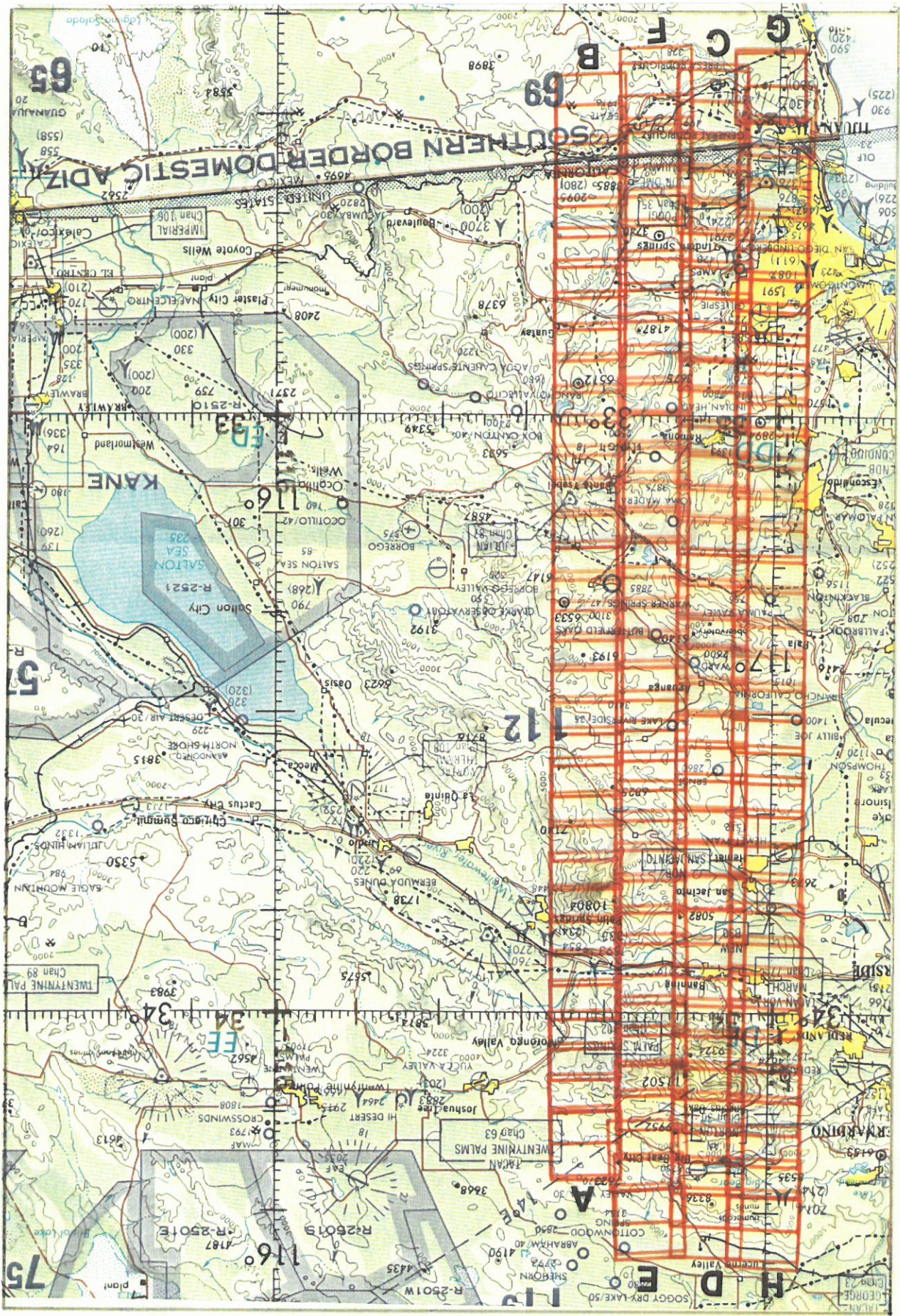
FLIGHT NO. 90-115

DAEDALUS FLIGHT DATA
FLIGHT NUMBER: 90-115

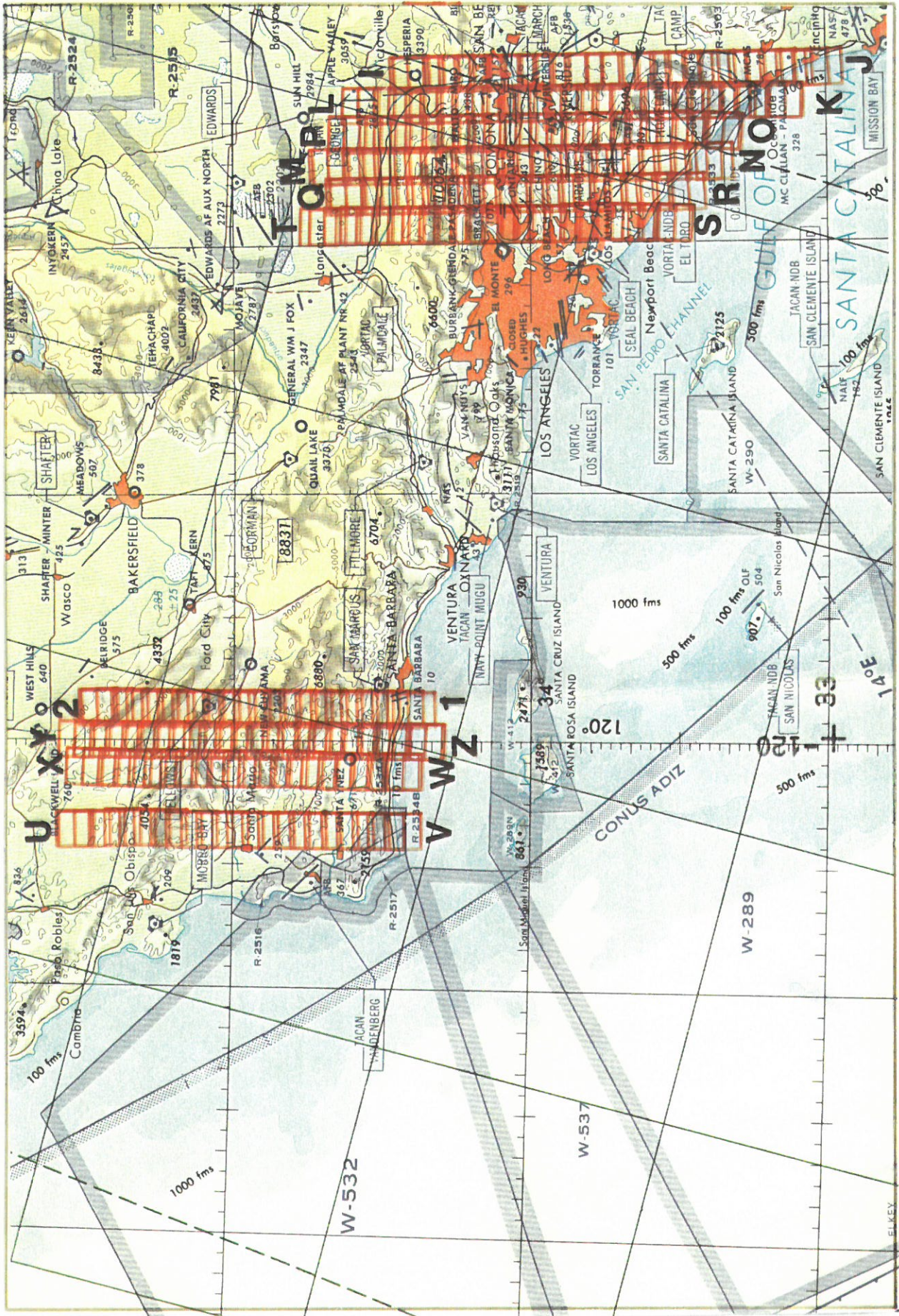
Check Points	Actual Time (GMT)		Actual Scanline		Altitude feet/meter	Scan Speed (rps)	Total Good Scanlines	Total Interpolated Scanlines	Total Repeated Scanlines
	Begin	End	Begin	End					
A-B	17:32:28.0	17:48:09.0	43184	52817	65000/19812	12.50	9606	0	28
C-D	17:51:23.0	18:08:00.0	54811	65026	65000/19812	12.50	10186	0	30
E-F	18:13:00.0	18:30:10.0	68095	78658	65000/19812	12.50	10541	0	23
G-H	18:33:08.0	18:50:17.0	80478	91023	65000/19812	12.50	10518	0	28
I-J	18:54:17.0	19:06:40.0	93486	101099	65000/19812	12.50	7596	0	18
K-L	19:10:06.0	19:22:59.0	103211	111136	65000/19812	12.50	7916	0	10
M-N	19:30:58.0	19:42:31.0	116049	123149	65000/19812	12.50	7078	0	23
O-P	19:47:16.0	19:58:33.0	126065	133012	65000/19812	12.50	6873	0	75
Q-R	20:01:39.0	20:12:03.0	134919	141314	65000/19812	12.50	6321	0	75
S-T	20:19:26.0	20:29:59.0	145853	152345	65000/19812	12.50	5785	1	707



FLIGHT 90-115 25 July 1990 A/C 706 TMS / RC-10 Southern California



FLIGHT 90-115 25, JULY 1990 A/C 706 RC-10 ACCESSION #4078 ONC 6-18



FLIGHT 90-115 25, JULY 1990 A/C 706 RC-10 ACCESSION #4079 JNC 43