FLIGHT SUMMARY REPORT

Flight Number: 90-018

Date: 17 October 1989

Julian Date: 290

Aircraft #: 709

Sensor Package: Wild-Heerbrug RC-10
Multispectral Atmospheric Mapping Sensor (MAMS)

Purpose of Flight: 89T225
G. Jedlovec, NASA-MSFC

Area(s) Covered: Northern California Coast and Pacific Ocean

SENSOR DATA

Accession #:	03966	-----
Sensor ID #:	034	080
Sensor Type:	RC-10	MAMS
Focal Length:	12" 304.66 mm	-----
Film Type:	Aerial Color SO-242	-----
Filtration:	None	-----
Spectral Band:	400-700 nm	-----
f Stop:	4	-----
Shutter Speed:	1/200	-----
# of Frames:	253	-----
% Overlap:	60	-----
Quality:	Excellent	-----
Remarks:		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.

Multispectral Atmospheric Mapping Sensor

The Multispectral Atmospheric Mapping Sensor (MAMS) is a modified Daedalus Scanner flown aboard the ER-2 aircraft. It is designed to study weather related phenomena including storm system structure, cloud-top temperatures, and upper atmosphere water vapor. The scanner retains the eight silicon-detector channels in the visible/near-infrared region found on the Daedalus Thematic Mapper Simulator, with the addition of four channels in the thermal infrared relating to specific water vapor features. The specific bands are as follows:

Daedalus Channel	Wavelength, *um*
1	LSBs for Channels 9-12
2	0.45 - 0.52
3	0.52 - 0.60
4	0.57 - 0.67
5	0.60 - 0.73
6	0.65 - 0.83
7	0.72 - 0.99
8	0.83 - 1.05
9	3.55 - 3.93 low range
10	3.55 - 3.93 high range
11	10.3 - 12.1
12	12.5 - 12.8

The data will not be archived at EROS Data Center because this is an experimental system with low spatial resolution and unique spectral characteristics. As all scenes will be primarily cloud-covered there would be little terrestrial application for the data. Further information concerning the data can be obtained from principal investigator, Gregory S. Wilson, Atmospheric Effects Branch, George C. Marshall Space Flight Center, National Aeronautics and Space Administration, Marshall Space Flight Center, Alabama 35812-5001.

Sensor specifications are as follows:

IFOV:	5.0 mrad
Pixel/Scan Line:	716
Total Scan Angle:	86^{o}
Scan Rate:	6.25 scans/second
Digitization:	8-bit Channels 2-8
	10-bit Channels 9-12

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) 694-6252 or FTS 464-6252.

CAMERA FLIGHT LINE DATA
FLIGHT NO. 90-018

Accession No. 03966

Sensor # 034

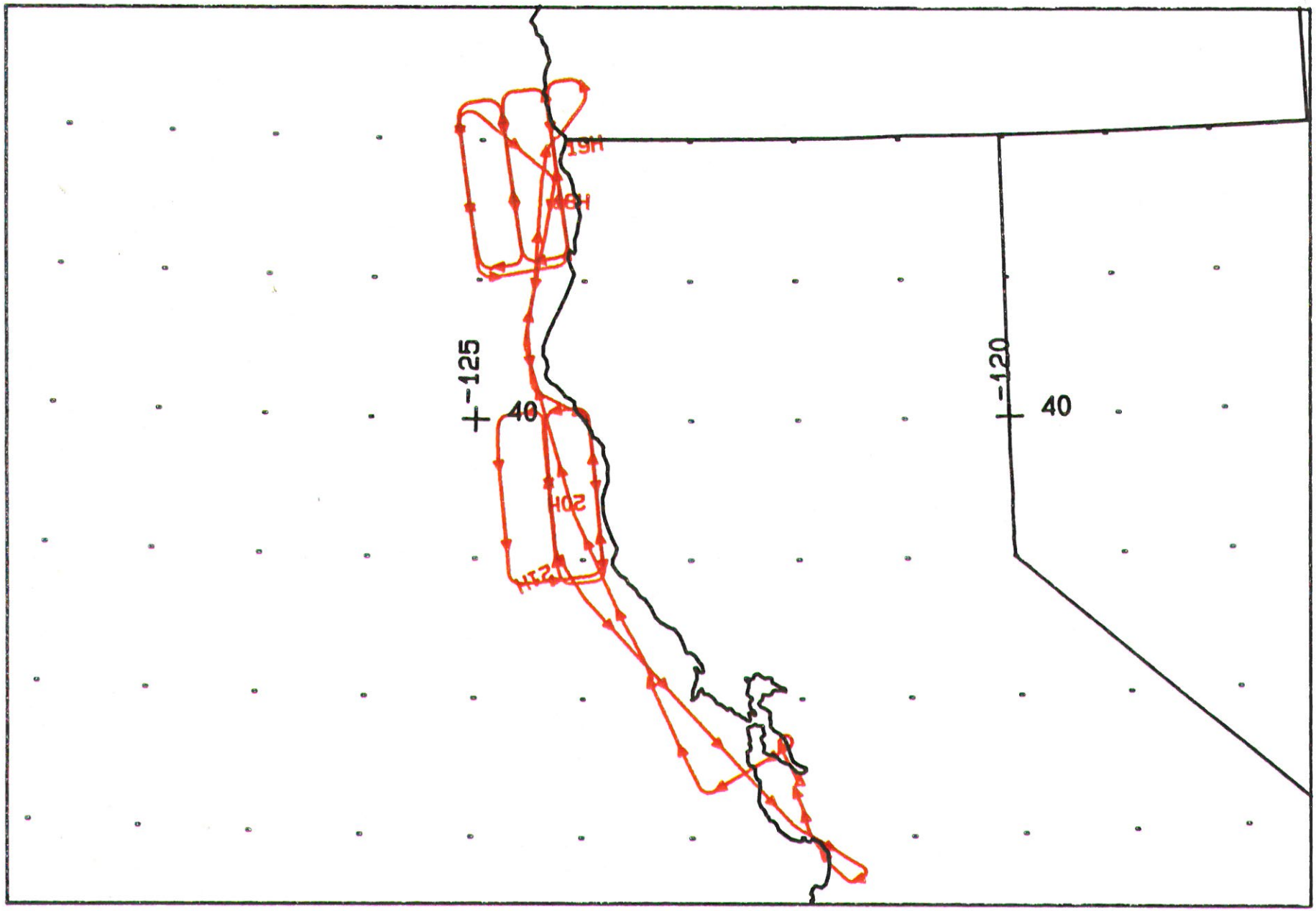
Check Points	Frame Numbers	Time (GMT-hr, min, sec)		Altitude, MSL feet/meters	Cloud Cover/Remarks
		START	END		
A - B	4881-4889	17:15:06	17:18:44	40000/12200	Clear; clearing frames over Princeton Harbor, California and Pacific Ocean
C - D	4890-4896	17:37:30	17:40:22	65000/19800	Clear; emulsion flow (frame 4891)
E - F	4897-4903	17:48:30	17:55:26	"	Clear
G - H	4904-4910	18:01:30	18:03:25	"	Clear
I - J	4911-4915	18:12:30	18:21:08	"	Clear
K - L	4916-4934	18:26:00	18:34:10	"	Clear
M - N	4935-4952	18:38:37	18:47:44	"	Clear
O - P	4953-4972	18:54:59	19:04:06	"	Clear
L - K	4973-4993	19:08:31	19:17:10	"	Clear
N - M	4994-5012	19:21:48	19:29:30	"	Clear
P - O	5013-5029	19:36:15	19:37:28	"	Clear
Q - R	5030-5033	19:45:30	19:51:11	"	Clear
H - E	5034-5045	19:56:27	20:05:06	"	Clear
S - T	5046-5064	20:09:27	20:19:04	"	Clear

CAMERA FLIGHT LINE DATA
FLIGHT NO. 90-018

Accession No. 03966

Sensor # 034

Check Points	Frame Numbers	Time (GMT-hr, min, sec)		Altitude, MSL feet/meters	Cloud Cover/Remarks
		START	END		
U - V	5065-5086	20:09:27	20:19:04	65000/19800	Clear
W - X	5087-5106	20:23:11	20:31:59	"	Clear
T - S	5107-5125	20:39:18	20:47:58	"	Clear
V - Y	5126-5133	20:52:17	20:55:39	"	Clear; stepwedges overprinted (frames 5131-5132)



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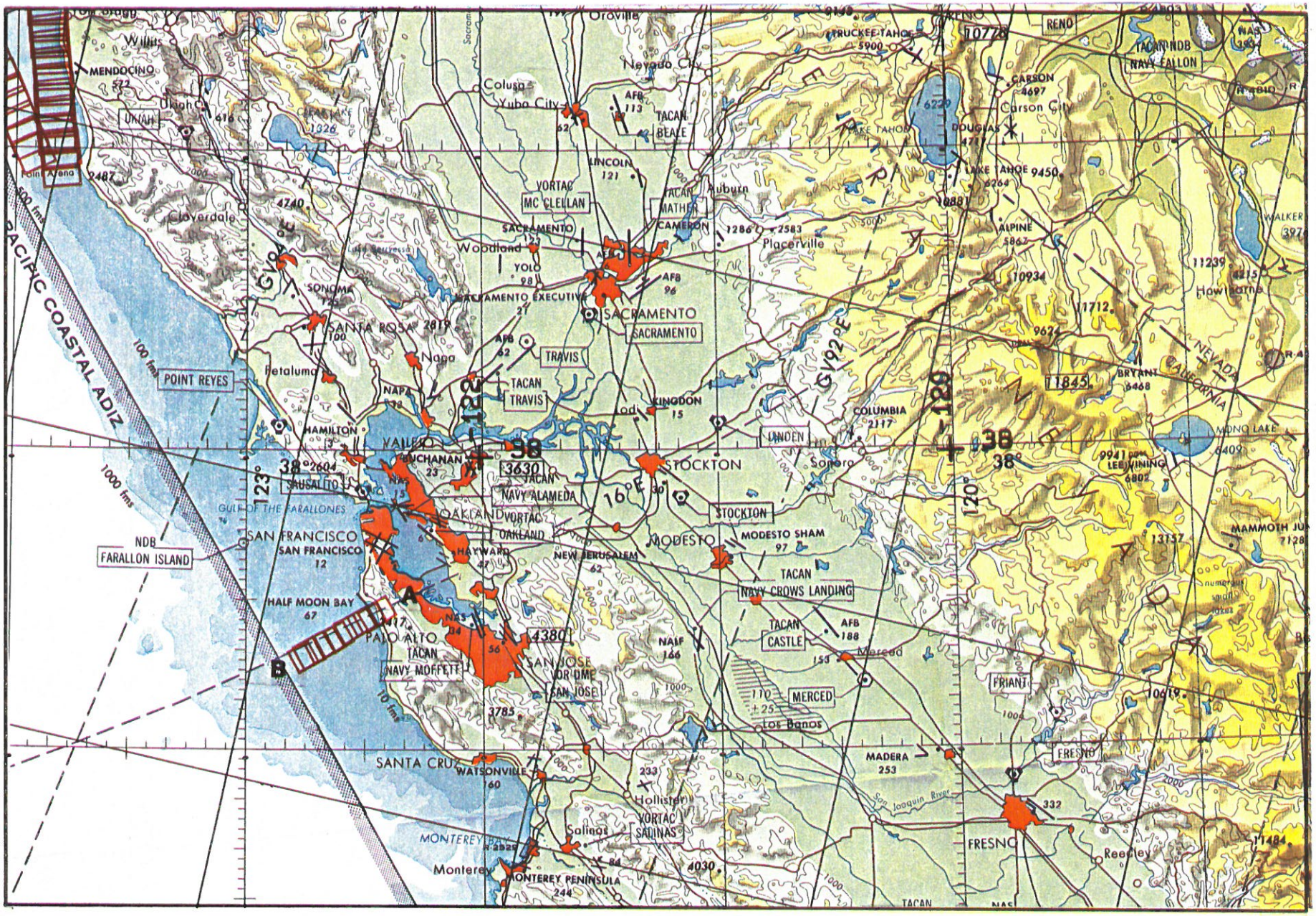

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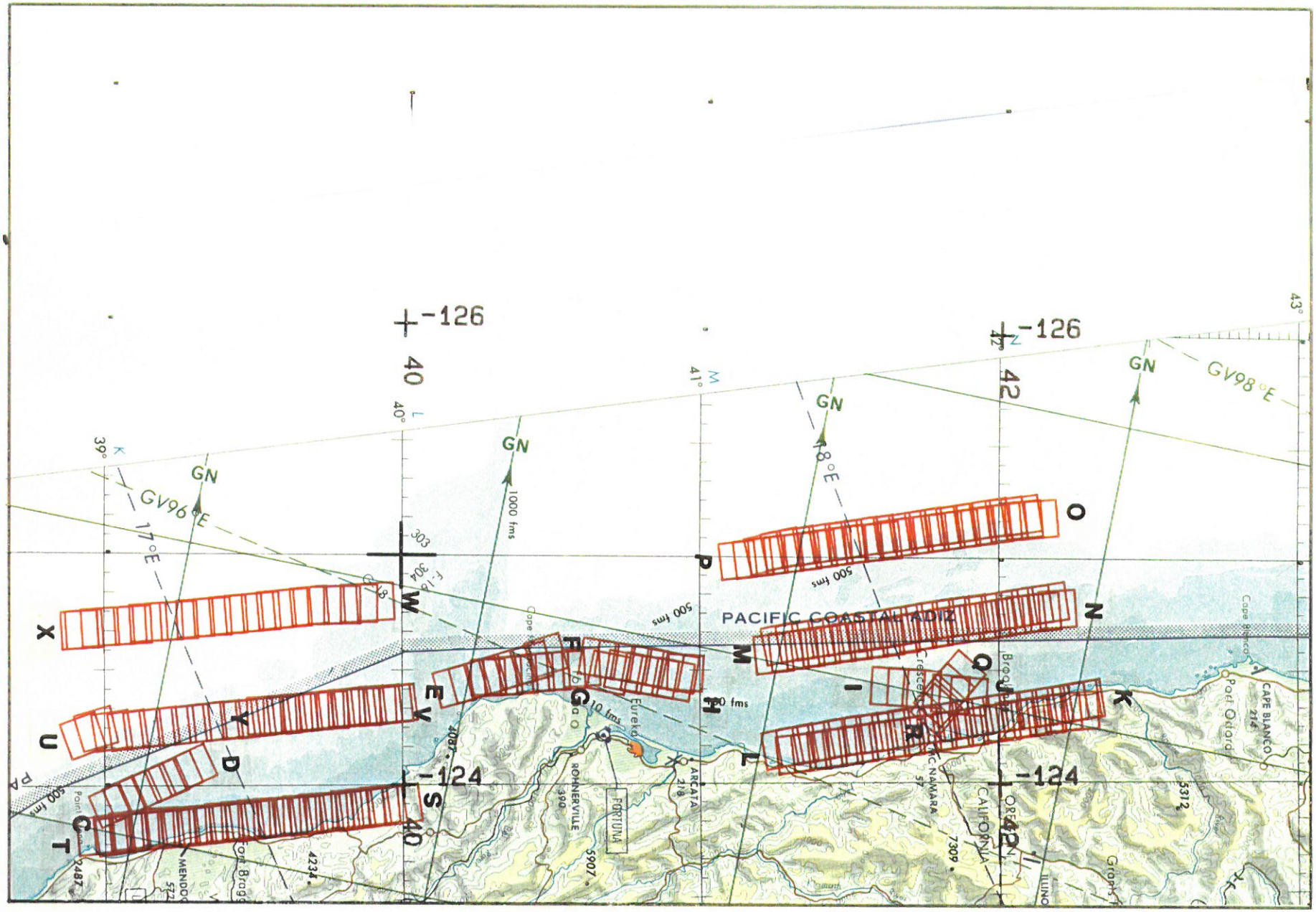
Multispectral Atmospheric Mapping Sensor (MAMS)



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Multispectral Atmospheric Mapping Sensor (MAMS)