

# FLIGHT SUMMARY REPORT

**Flight #:** 90-078  
**Date:** 12 April 1990  
**Sensor Package:** Dual Wild-Heerbrug RC-10  
**Area(s) Covered:** San Joaquin Valley, California

**Investigator(s):** Penberth, Dept. of Conservation  
**Flight Request:** 90R255

**Aircraft #:** 706  
**Julian Date:** 102

## SENSOR DATA

<b>Accession #:</b>	04019	04020
<b>Sensor ID #:</b>	034	036
<b>Sensor Type:</b>	RC-10	RC-10
<b>Focal Length:</b>	12" 304.66 mm	6" 153.19 mm
<b>Film Type:</b>	High Definition Aerochrome IR SO-131	High Definition Aerochrome IR SO-131
<b>Filtration:</b>	cc.10B	cc.10B
<b>Spectral Band:</b>	510-900 nm	510-900 nm
<b>f Stop:</b>	4	4
<b>Shutter Speed:</b>	1/150	1/100
<b># of Frames:</b>	431	213
<b>% Overlap:</b>	60	60
<b>Quality:</b>	Excellent	Excellent
<b>Remarks:</b>		

## 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.

### Camera Systems

Various camera systems and films are used for photographic data collection. Film types include high definition color infrared, natural color, and black and white emulsions. Available photographic systems are as follows:

- Wild-Heerbrug RC-10 metric mapping camera
  - 9 x 9 inch film format
  - 6 inch focal length lens provides area coverage of 16 x 16 nautical miles from 65,000 feet
  - 12 inch focal length lens provides area coverage of 8 x 8 nautical miles from 65,000 feet
- Hycon HR-732 large scale mapping camera
  - 9 x 18 inch film format
  - 24 inch focal length lens provides area coverage of 4 x 8 nautical miles from 65,000 feet
- IRIS II Panoramic camera
  - 4.5 x 34.7 inch film format
  - 24 inch focal length lens
  - 90 degree field of view provides area coverage of 2 x 21.4 nautical miles from 65,000 feet

**CAMERA FLIGHT LINE DATA**  
**FLIGHT NO. 90-078**

Accession # 04019

Sensor # 034

Check Points	Frame Numbers	Time (GMT-hr, min, sec)		Altitude, MSL feet/meters	Cloud Cover/Remarks
		START	END		
A - B	1510-1514	16:59:35	17:01:07	65000/19800	Clear
C - D	1515-1529	17:10:01	17:16:11	"	10% minor contrail (frames 1526-1529)
E - F	1530-1551	17:19:19	17:28:45	"	Clear
G - H	1552-1569	17:31:59	17:39:31	"	Clear
I - J	1570-1586	17:42:49	17:50:16	"	Clear
K - L	1587-1605	17:53:23	18:01:22	"	Clear
M - N	1606-1617	18:04:54	18:09:38	"	Clear
O - P	1618-1653	18:13:25	18:29:17	"	Clear
Q - R	1654-1689	18:53:36	19:09:24	"	10% thin cirrus (frames 1654-1655)
S - T	1690-1731	19:23:50	19:42:11	"	10% minor contrail and shadow (frames 1706-1712); 10% thin cirrus (frames 1729-1731)

**CAMERA FLIGHT LINE DATA  
FLIGHT NO. 90-078**

Accession # 04019

Sensor # 034

Check Points	Frame Numbers	Time (GMT-hr, min, sec)		Altitude, MSL feet/meters	Cloud Cover/Remarks
		START	END		
U - V	1732-1779	19:45:18	20:06:13	65000/19800	10% contrail shadow (frames 1753-1765 and 1769-1772)
W - X	1780-1834	20:09:59	20:34:36	"	10% minor contrail and shadow (frames 1791-1793); 10% thin contrail (frames 1824-1834)
Y - Z	1835-1886	20:37:52	21:01:06	"	Clear
1 - 2	1887-1940	21:04:41	21:28:34	"	Clear

**CAMERA FLIGHT LINE DATA  
FLIGHT NO. 90-078**

Accession # 04020

Sensor # 036

Check Points	Frame Numbers	Time (GMT-hr, min, sec)		Altitude, MSL feet/meters	Cloud Cover/Remarks
		START	END		
A - B	2622-2624	16:59:36	17:01:09	65000/19800	Clear
C - D	2625-2631	17:10:07	17:15:48	"	Contrail (frames 2630-2631)
E - F	2632-2642	17:19:26	17:28:53	"	Clear
G - H	2643-2651	17:32:05	17:39:38	"	Clear
I - J	2652-2660	17:42:50	17:50:10	"	Clear
K - L	2661-2669	17:53:29	18:01:01	"	Clear
M - N	2670-2675	18:05:01	18:09:43	"	Clear
O - P	2676-2693	18:13:31	18:29:31	"	Clear
Q - R	2694-2710	18:53:42	19:08:43	"	10% thin cirrus (frame 2694)
S - T	2711-2731	19:23:56	19:42:10	65000/19800	Minor contrail shadows (frames 2711-2714); Minor contrail and shadows (frames 2719-2723); 10% cirrus (frames 2729-2731)

**CAMERA FLIGHT LINE DATA**  
**FLIGHT NO. 90-078**

Accession # 04020

Sensor # 036

Check Points	Frame Numbers	Time (GMT-hr, min, sec)		Altitude, MSL feet/meters	Cloud Cover/Remarks
		START	END		
U - V	2732-2755	19:45:26	20:06:05	65000/19800	10% minor contrails and shadows (frames 2744-2752)
W - X	2756-2782	20:10:06	20:34:31	"	10% minor contrails and cirrus (frames 2760-2761); 10% minor cirrus (frames 2777-2782)
Y - Z	2783-2807	20:37:59	21:00:32	"	Clear
1 - 2	2808-2834	21:04:48	21:28:35	"	Clear

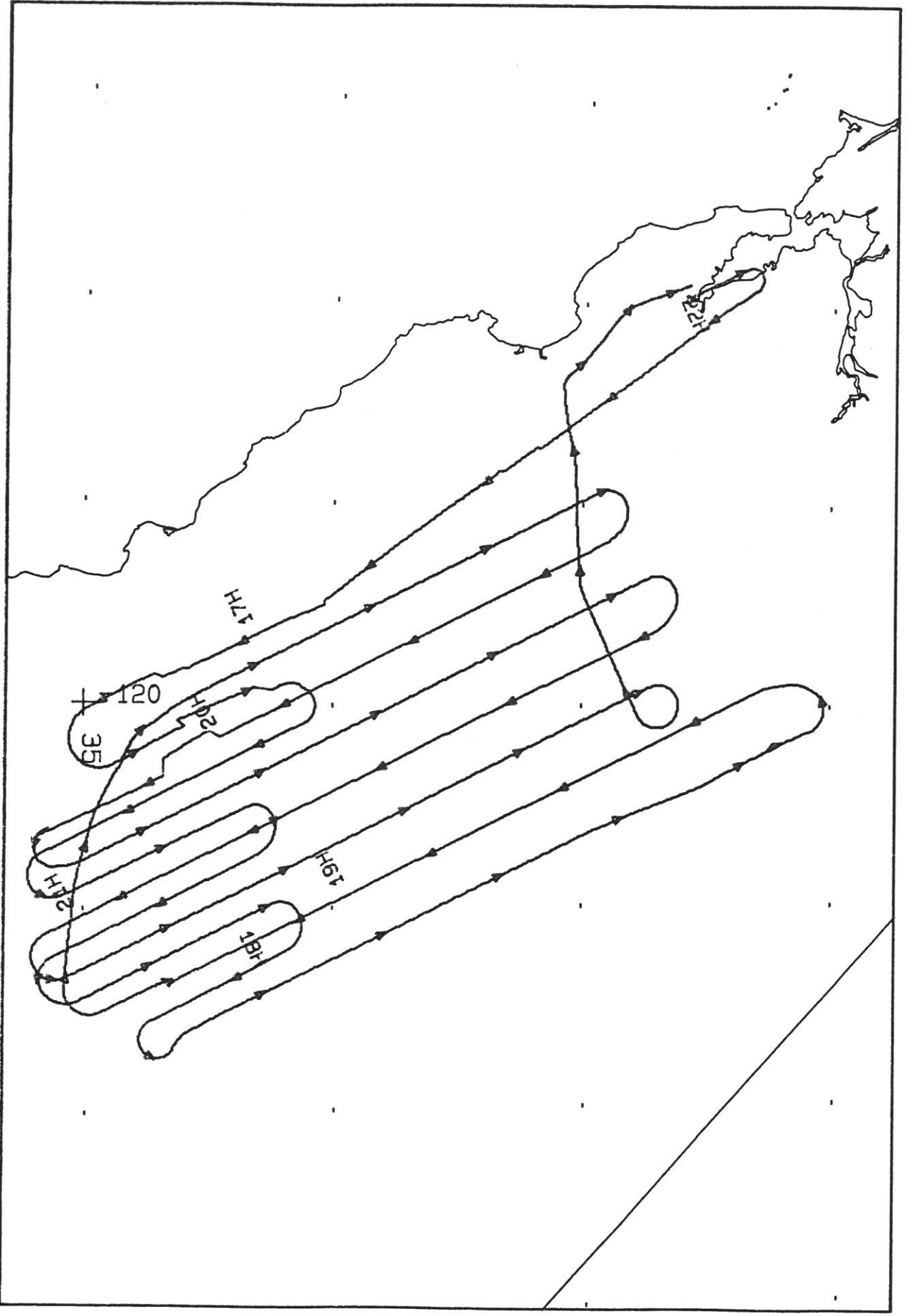
FLIGHT 90-078

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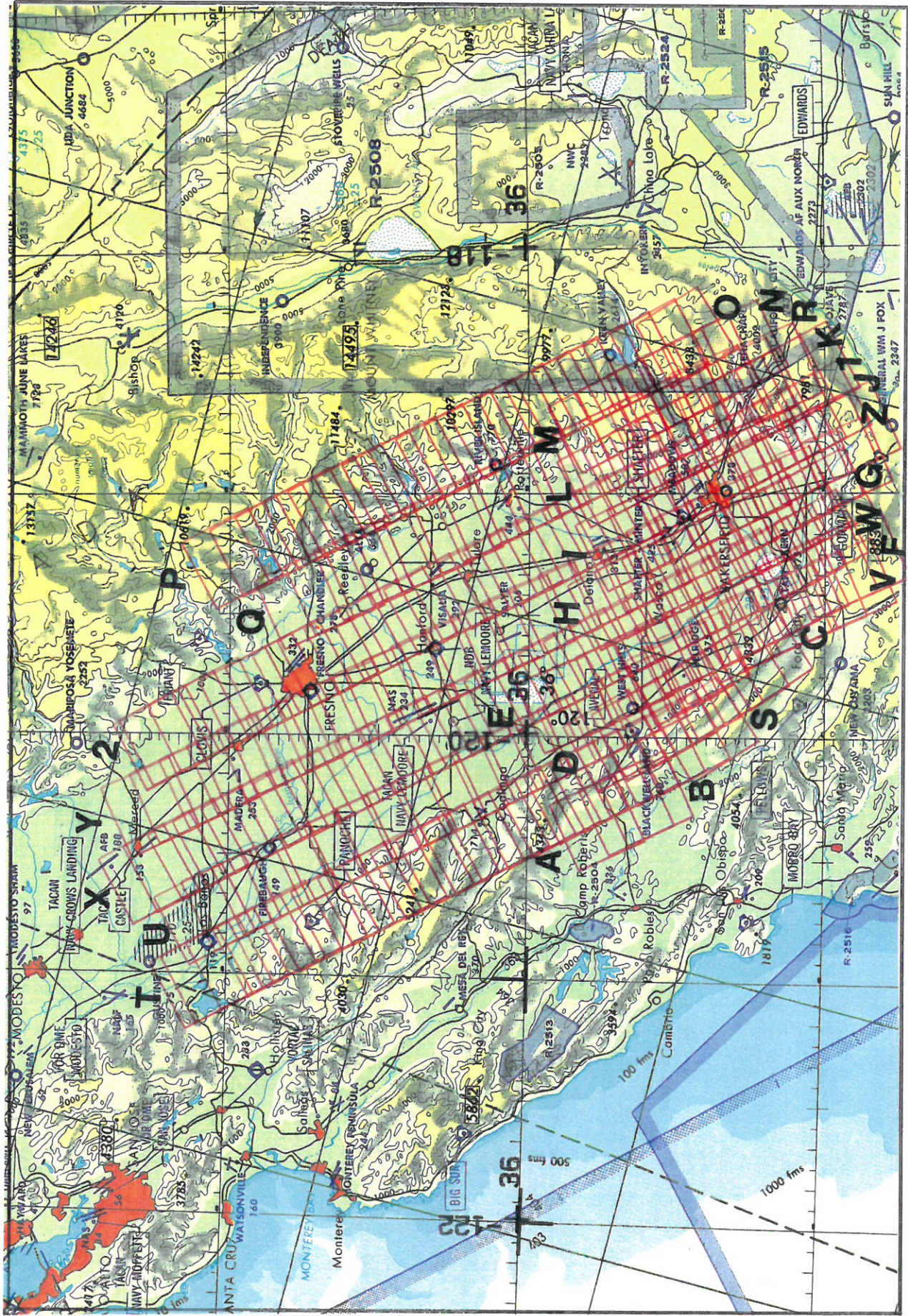
A/C 706

Dual RC-10

San Joaquin Valley, ca







FLIGHT 90-078

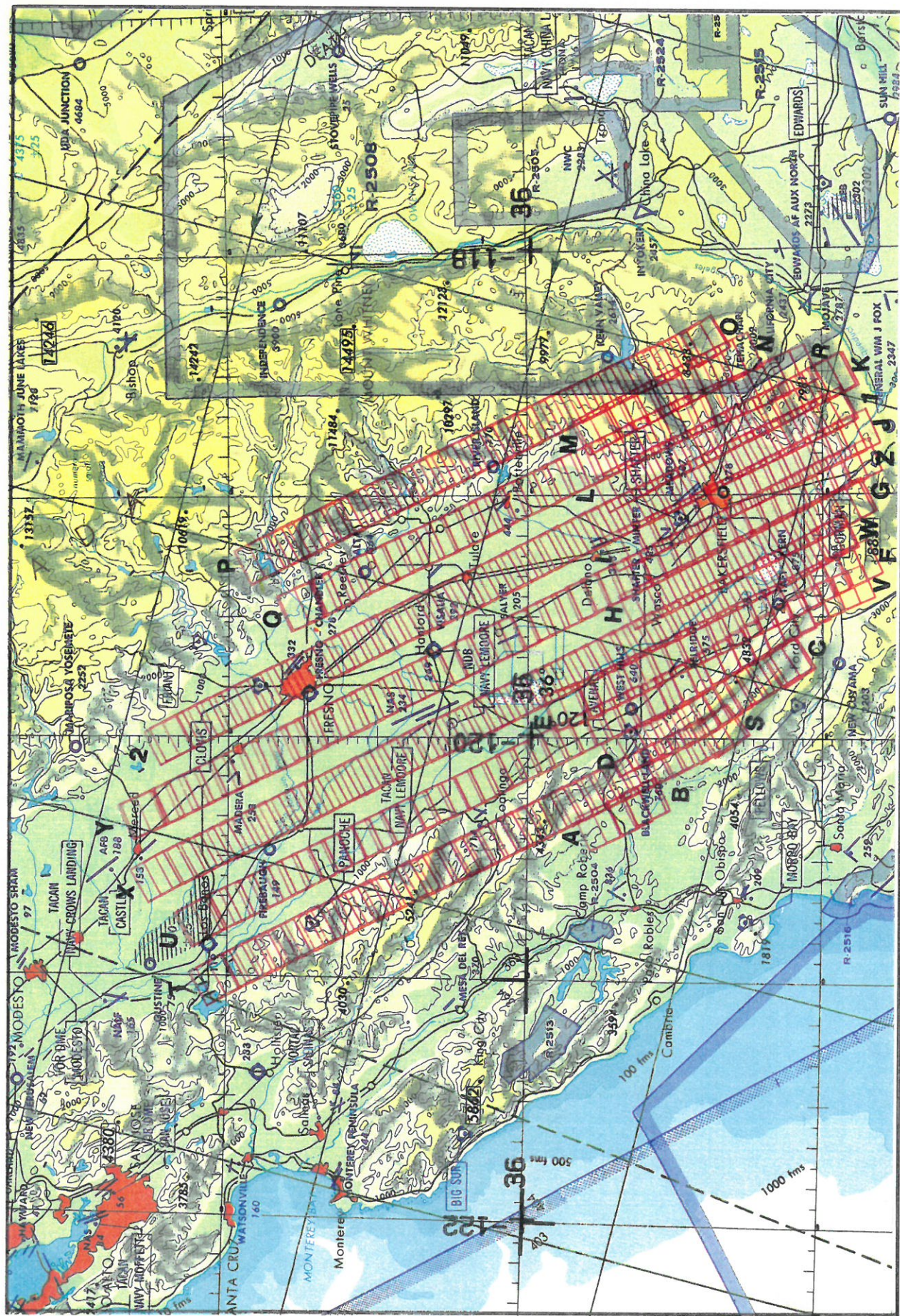
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FC-10

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JNC 43





FLIGHT 90-078

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RC-10

Accession # 04019

JNC 43