

FLIGHT SUMMARY REPORT

Flight Number: 96-082
Calendar/Julian Date: 27 March 1996 • 087
Sensor Package: Wild-Heerbrugg RC-10
Airborne Visible and Infrared Imaging
Spectrometer (AVIRIS)
Area(s) Covered: Ferry Flight -- Houston, TX to
Moffett Field, CA

Investigator(s): Green, JPL, Sandor, TRW

Aircraft #: 706

SENSOR DATA

Accession #:	05051	-----
Sensor ID #:	026	099
Sensor Type:	RC-10	AVIRIS
Focal Length:	12" 304.97 mm	-----
Film Type:	Aerochrome IR SO-060	-----
Filtration:	Wratten 12	-----
Spectral Band:	510-900 nm	-----
f Stop:	11	-----
Shutter Speed:	1/275	-----
# of Frames:	111	-----
% Overlap:	60	-----
Quality:	Excellent	-----
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(s) and camera(s) used for data collection during this flight.

Airborne Visible and Infrared Imaging Spectrometer

The Airborne Visible and Infrared Imaging Spectrometer (AVIRIS) is the second in the series of imaging spectrometer instruments developed at the Jet Propulsion Laboratory (JPL) for earth remote sensing. This instrument uses scanning optics and four spectrometers to image a 614 pixel swath simultaneously in 224 contiguous spectral bands (0.4-2.4 μm).

AVIRIS parameters are as follows:

IFOV:	1 mrad
Ground Resolution:	66 feet (20 meters) at 65,000 feet
Total Scan Angle:	30°
Swath Width:	5.7 nm (10.6 km) at 65,000 feet
Spectral Coverage:	0.41-2.45 μm
Pixels/Scan Line:	614
Number of Spectral Bands:	224
Digitization:	10-bits
Data Rate:	17 MBPS

<u>Spectrometer</u>	<u>Wavelength Range</u>	<u>Number of Bands</u>	<u>Sampling Interval</u>
1	0.41 - 0.70 μm	31	9.4 nm
2	0.68 - 1.27 μm	63	9.4 nm
3	1.25 - 1.86 μm	63	9.7 nm
4	1.84 - 2.45 μm	63	9.7 nm

All AVIRIS data is decommutated and archived at JPL and not currently available for public distribution. For further information contact Rob Green at Jet Propulsion Laboratory, 4800 Oak Grove Drive, Mail Stop 183-501, Pasadena, California 91109-8099

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-Heerbrugg 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

The U.S. Geological Survey's EROS Data Center at Sioux Falls, South Dakota serves as the archive and product distribution facility for NASA-Ames aircraft acquired photographic and digital imagery. For information regarding photography and digital data (including areas of coverage, products, and product costs) contact EROS Data Center, Customer Services, Sioux Falls, South Dakota 57198 (Telephone: 605-594-6151).

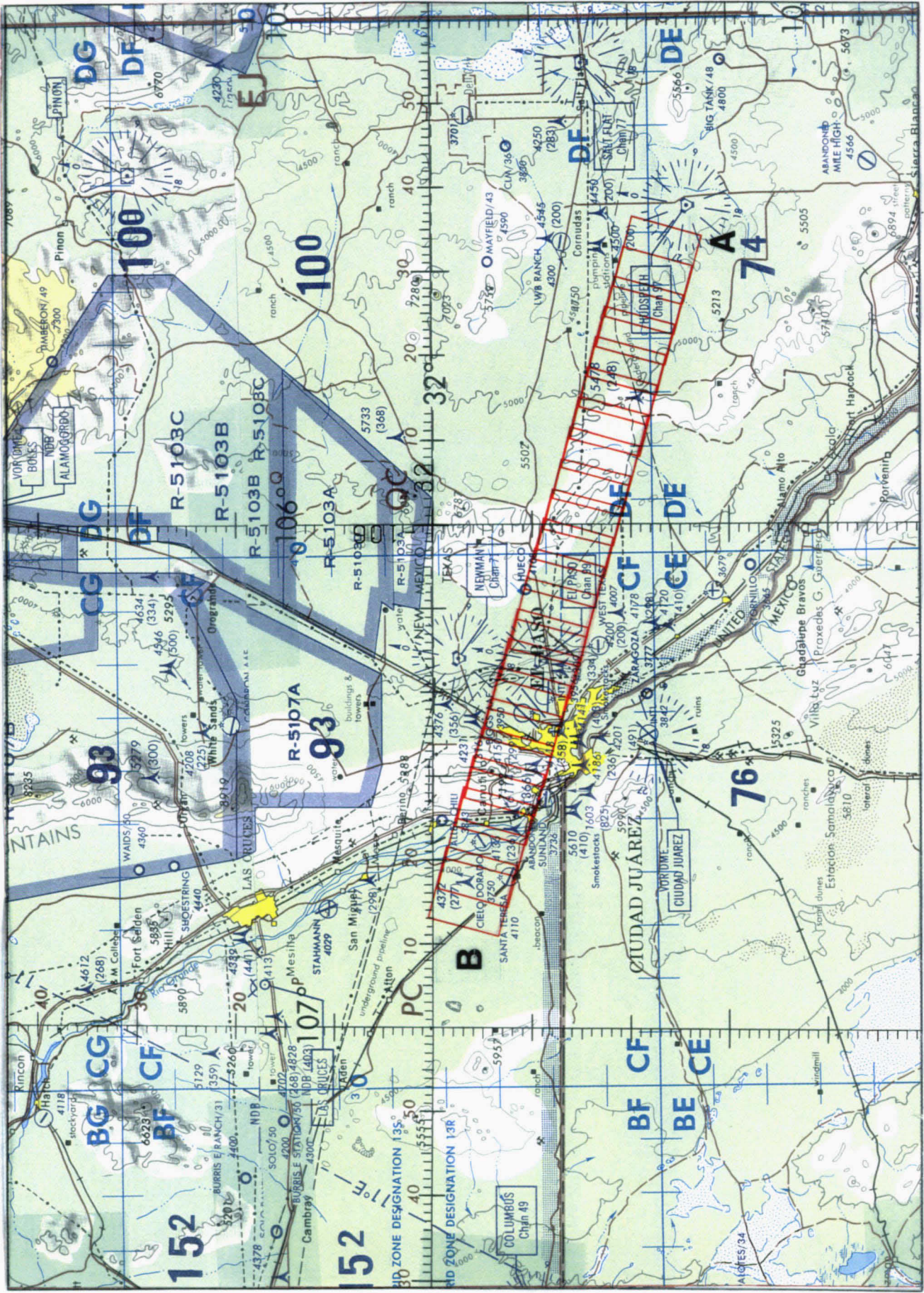
Additional information regarding ER-2 acquired photographic and digital data is available through the Aircraft Data Facility at Ames Research Center. For specific information regarding flight documentation, sensor parameters, and areas of coverage contact the Aircraft Data Facility, NASA-Ames Research Center, Mail Stop 240-6, Moffett Field, California 94035-1000 (Telephone: 415-604-6252).

**CAMERA FLIGHT LINE DATA
FLIGHT NO. 96-082**

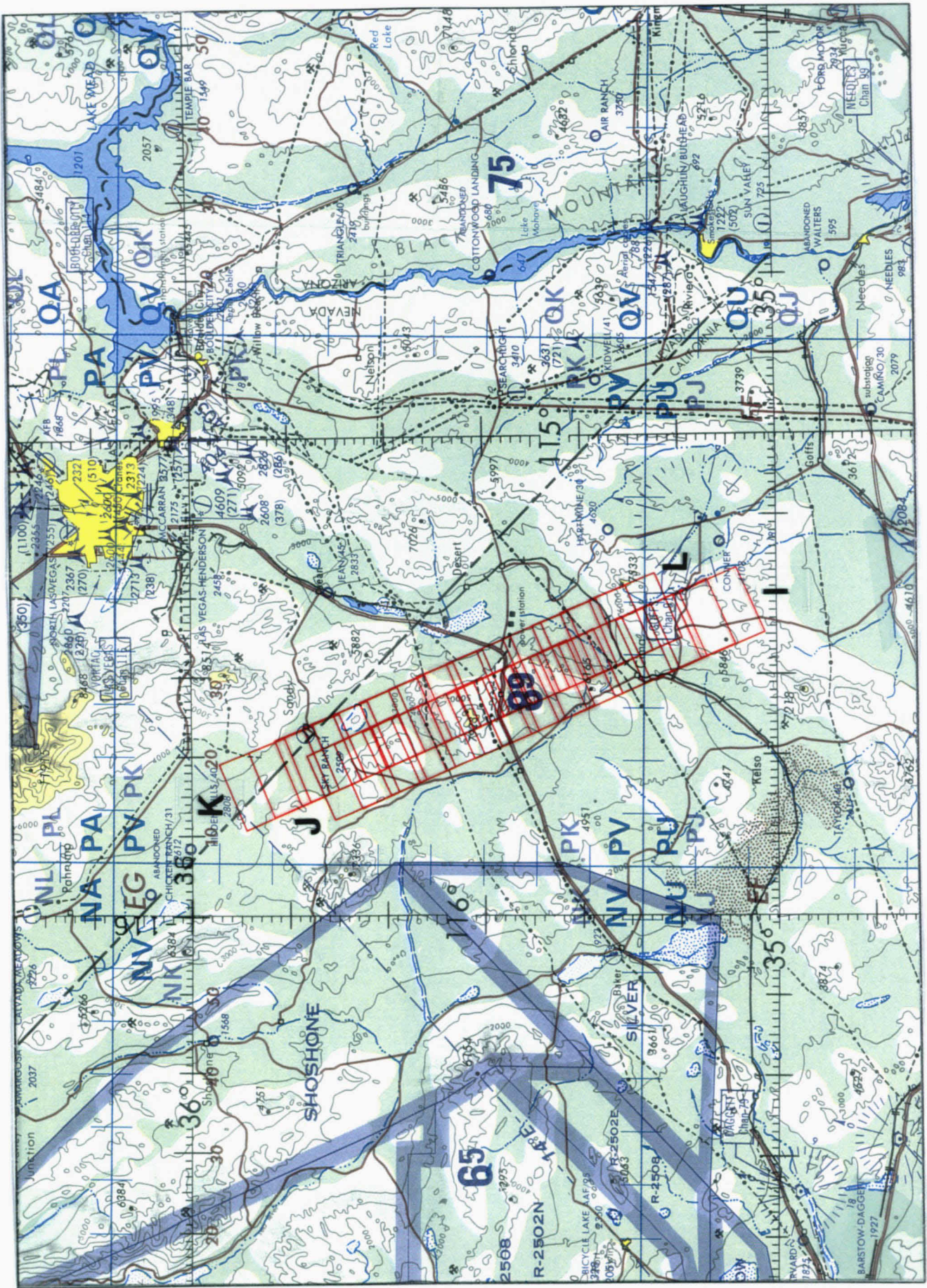
Accession # 05051

Sensor # 026

Check Points	Frame Numbers	Time (GMT-hr, min, sec)		Altitude, MSL feet/meters	Cloud Cover/Remarks
		START	END		
A - B	5107-5128	17 30 19	17 40 10	66114/20152	Clear
C - D	5129-5140	18 14 21	18 19 29	66017/20122	Minor cirrus (frame 5140)
E - F	5141-5146	18 43 36	18 45 56	65200/19873	10-20% cumulus (frames 5141-5146)
G - H	5147-5152	18 51 08	18 53 28	65050/19827	10% cumulus (frames 5151)
I - J	5153-5166	19 07 04	19 13 08	64664/19710	10% cumulus (frames 5153-5156), minor- 10% cirrus (frames 5163-5164)
K - L	5167-5180	19 19 25	19 25 29	64871/19773	20-50% cirrus (frames 5167-5169 and 5177-5179), 10% cirrus (frames 5173- 5176)
E - F	5181-5187	19 40 04	19 42 51	65543/19978	10% cumulus (frames 5181 and 5187)
G - H	5188-5193	19 47 18	19 49 38	65183/19868	Minor cumulus (frame 5188)
M - N	5194-5200	19 55 28	19 58 16	65200/19873	Clear
O - P	5201-5207	20 03 23	20 06 11	64700/19721	Clear
Q - R	5208-5217	20 27 49	20 32 00	65610/19998	Clear



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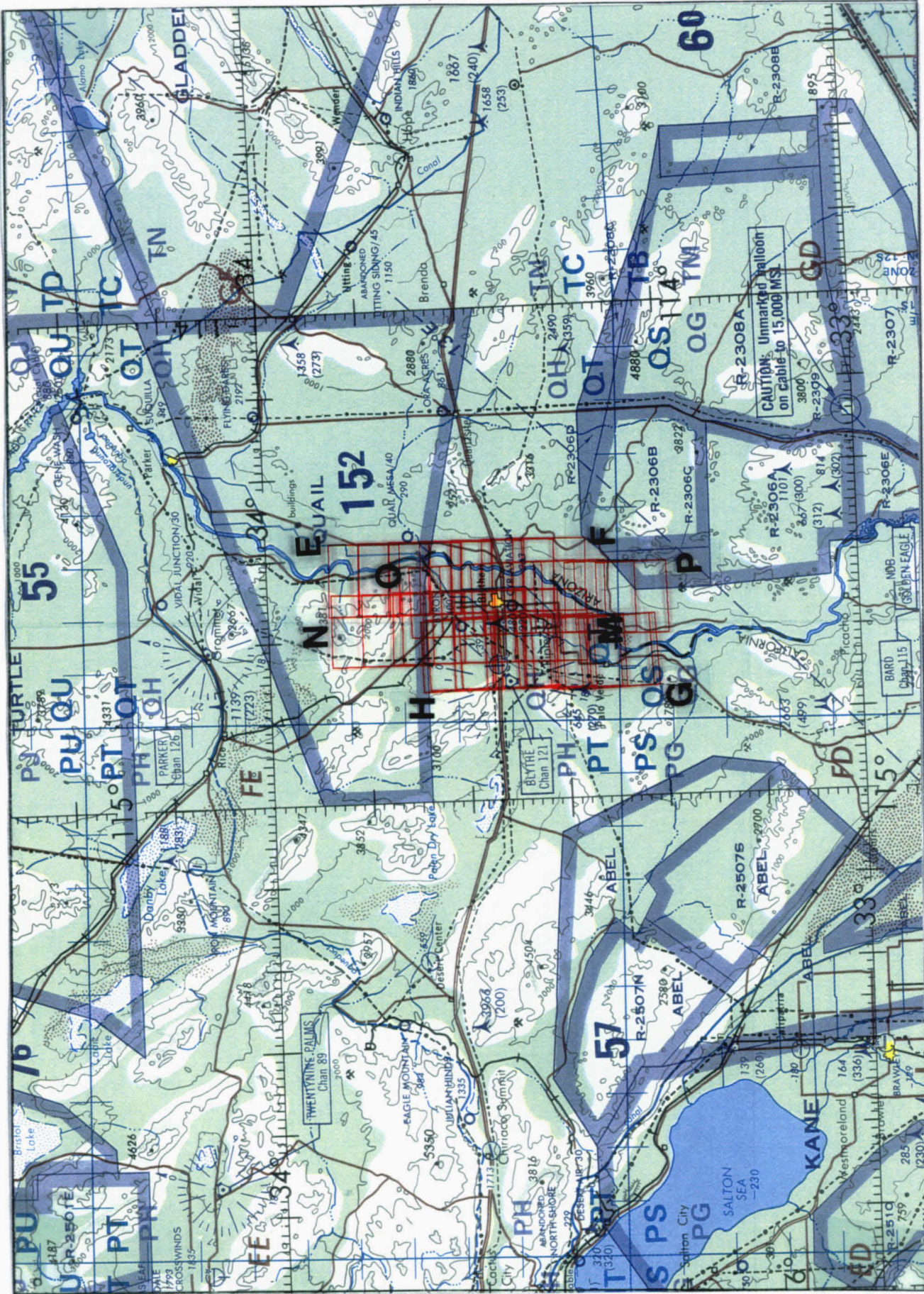
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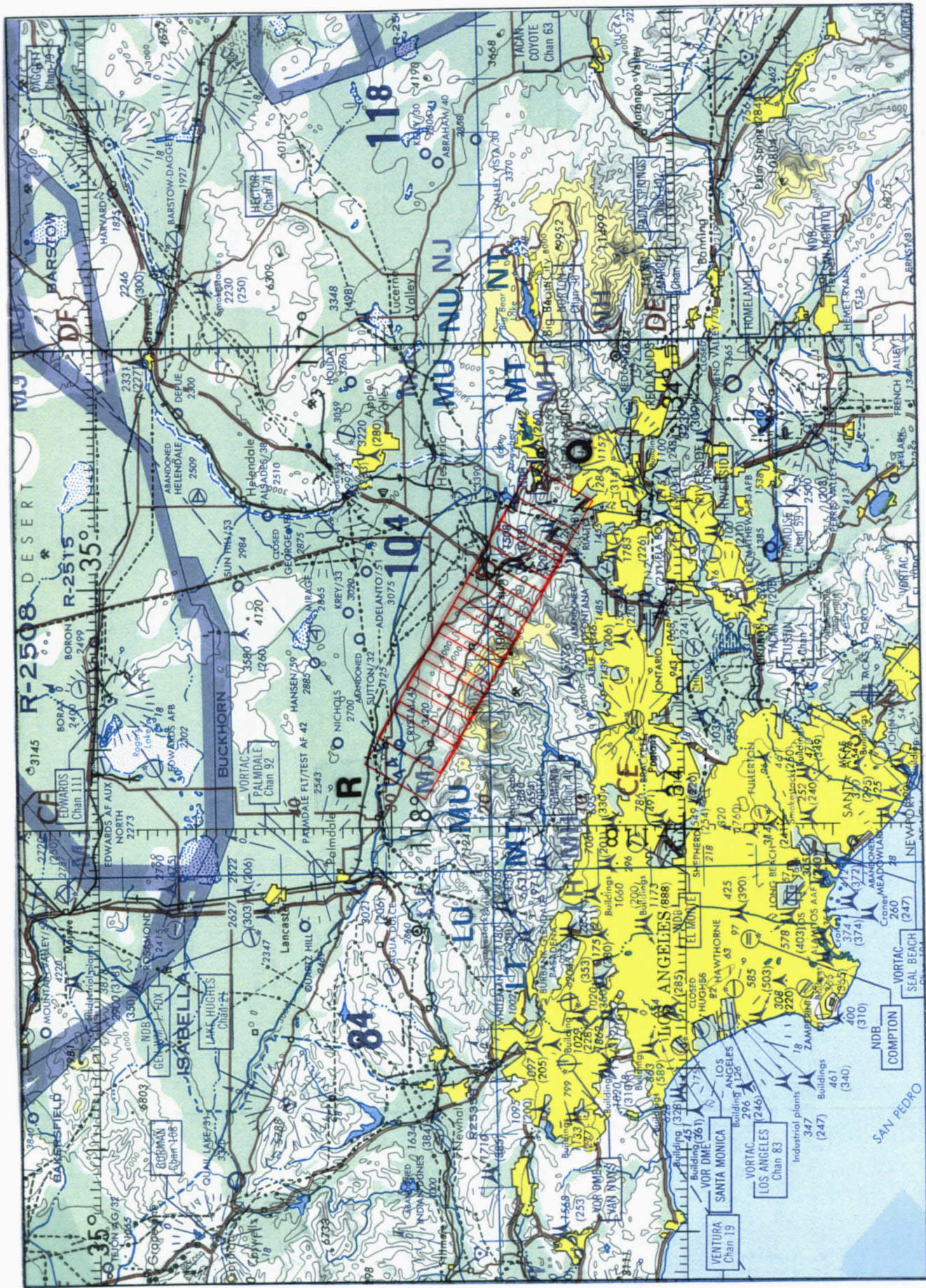
R/C 706

RC-10 / AVIRIS

ONC G-18



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