FLIGHT SUMMARY REPORT

Flight Number: 98-084

Calendar/Julian Date: 03 July 1998 • 184

Sensor Package: Wild Heerbrugg RC-10
Airborne Visible and Infrared Imaging Spectrometer (AVIRIS)

Area(s) Covered: Yorktown, VA/Baltimore, MD

Investigator(s): Slonecker, EPA;
Foresman, University of Maryland

Aircraft #: 809

SENSOR DATA

Accession #:	05265	-----
Sensor ID #:	034	099
Sensor Type:	RC-10	AVIRIS
Focal Length:	12” 304.66 mm	-----
Film Type:	Aerochrome IR SO-134	-----
Filtration:	Wratten 12	-----
Spectral Band:	510-900 nm	-----
f Stop:	11	-----
Shutter Speed:	1/300	-----
# of Frames:	79	-----
% Overlap:	60	-----
Quality:	Excellent	-----
Remarks:	Subtract 2 seconds for correct UTC	

Airborne Science and Applications Program

The Airborne Science Branch at NASA's Dryden Flight Research Center, Edwards, California, operates two ER-2 high altitude aircraft in support of NASA earth science research. 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, Fiji, New Zealand, 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 mm).

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 nmi (10.6 km) at 65,000 feet
Spectral Coverage:	0.41-2.45 mm
Pixels/Scan Line:	614
Number of Spectral Bands:	224
Digitization:	10-bits
Data Rate:	17 MBPS

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

Data Availability

The U.S. Geological Survey's EROS Data Center at Sioux Falls, South Dakota serves as the archive and product distribution facility for Airborne Science Program aircraft acquired photographic and digital imagery. The photographic archive consists of photography acquired by the program from 1971 to April 1996. 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).

As of April 1996 the EROS Data Center no longer receives an archive copy of newly acquired Airborne Science Program photography. Original photography is archived with the Airborne Sensor Facility at Ames Research Center. A user copy of the photography is provided to the principal investigators for each flight. Principal investigators are cited on the first page of their respective flight summary reports. For information regarding photography acquired from April 1996 to the present contact the Airborne Sensor Facility as follows:

Flight Documentation and Data Archive Searches

The following is the web site for flight documentation as published by the Airborne Sensor Facility at NASA Ames Research Center:

http://asapdata.arc.nasa.gov/er-2fsr.html

Additional information regarding flight documentation to include data archive searches, data availability, sensor parameters, and areas of coverage may be obtained from the following:

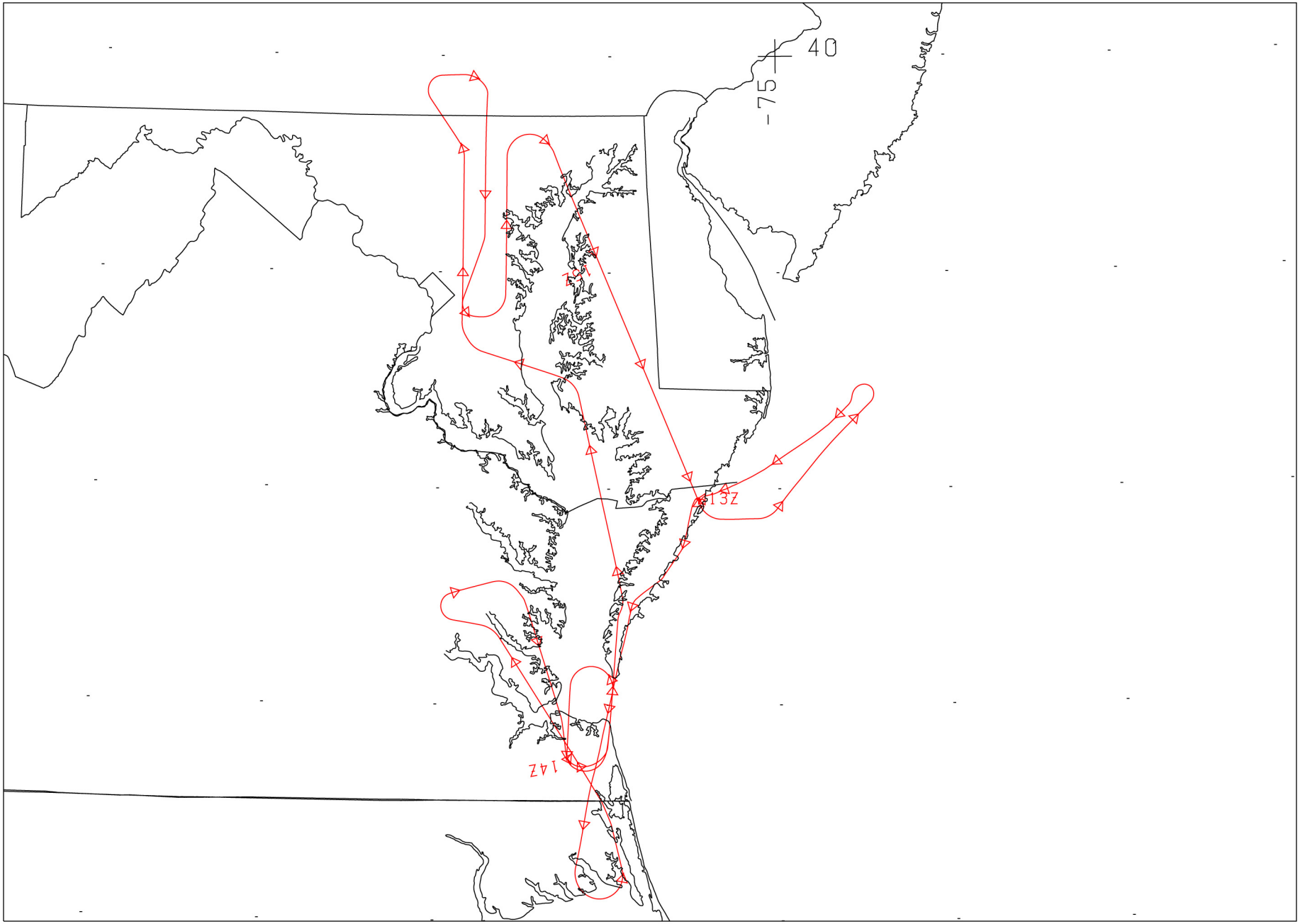
Airborne Sensor Facility
MS 240-6
NASA Ames Research Center
Moffett Field, CA 94035-1000
Telephone: (650)604-6252 (FAX 4987)

CAMERA FLIGHT LINE DATA
FLIGHT NO. 98-084

Accession # 05265

Sensor # 034

Check Points	Frame Numbers	Time (GMT-hr, min, sec)		Altitude, MSL feet/meters	Cloud Cover/Remarks
		START	END		
A - B	7241-7249	13:32:27	13:36:01	67167/20473	Clear
C - D	7250-7258	13:43:22	13:46:54	69222/21099	Clear
E	7259-7261	13:52:50	13:53:28	69167/21082	10% cumulus
E - F	7262-7272	14:03:18	14:07:40	69273/21114	10% cumulus (frames 7262-7263); 10-30% cumulus (frames 7265-7272)
F - G	7273-7288	14:09:36	14:16:46	69675/21237	Minor-cumulus (frame 7273); 10% cumulus (frames 7284-7286)
H - I	7289-7298	14:25:02	14:29:19	69930/21315	10-20% cumulus (frames 7289-7293); 10-20% cirrus (frames 7297-7298)
J - K	7299-7309	14:36:55	14:41:16	69845/21289	10-30% cirrus (frames 7299-7305)
L - M	7310-7319	14:47:58	14:52:14	69940/21318	10% cirrus (frames 7310, 7313-7316); 30% cirrus (frame 7319)



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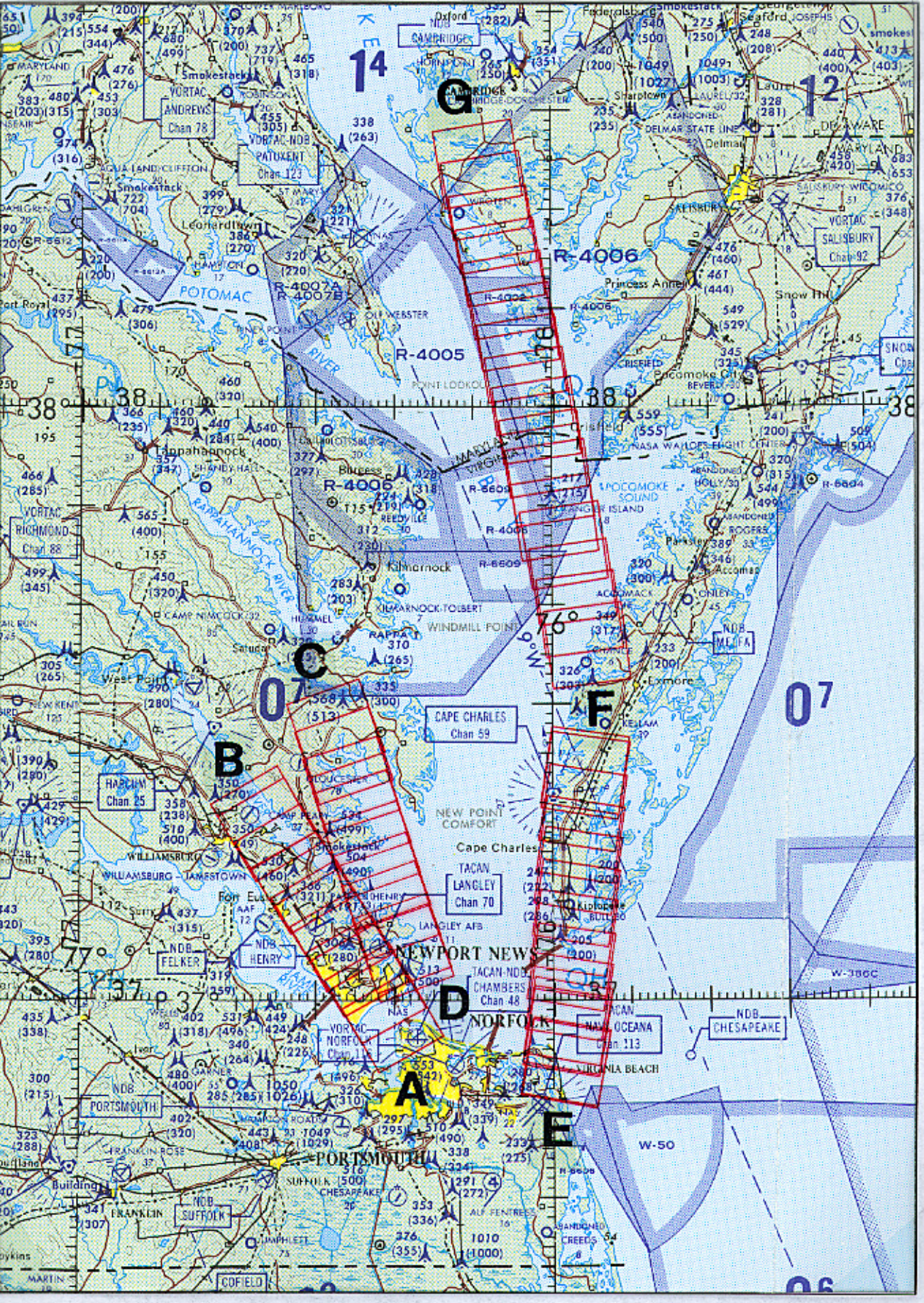
A
B
C
D
E
F
G
R-4006
R-4005
R-4007A
R-4007B
R-6609
CAPE CHARLES
Chan 59
LANGLEY
Chan 70
NORFOLK
NAVAL OCEANA
Chan 113
CHESAPEAKE
HARRIM
Chan 25
RICHMOND
Chan 88
ANDREWS
Chan 78
PATUXENT
Chan 123
SALISBURY
Chan 92
NEWPORT NEWS
PORTSMOUTH
NEW POINT COMFORT
Cape Charles
Exmore
Princess Anne
Pocomoke City
Crisfield
Tangier Island
Kilmarnock
Tappahannock
Burgess
Accomac
Parksley
Onley
Melfa
Oxford
Cambridge
Seaford
Laurel
Delmar
Salisbury
Snow Hill
Leonardtown
Smokestack
POTOMAC
RAPPAHANNOCK RIVER
CHESAPEAKE BAY
DELAWARE
MARYLAND
VIRGINIA
W-386C
W-50
FELKER
HENRY
PORTSMOUTH
SUFFOLK
COFIELD
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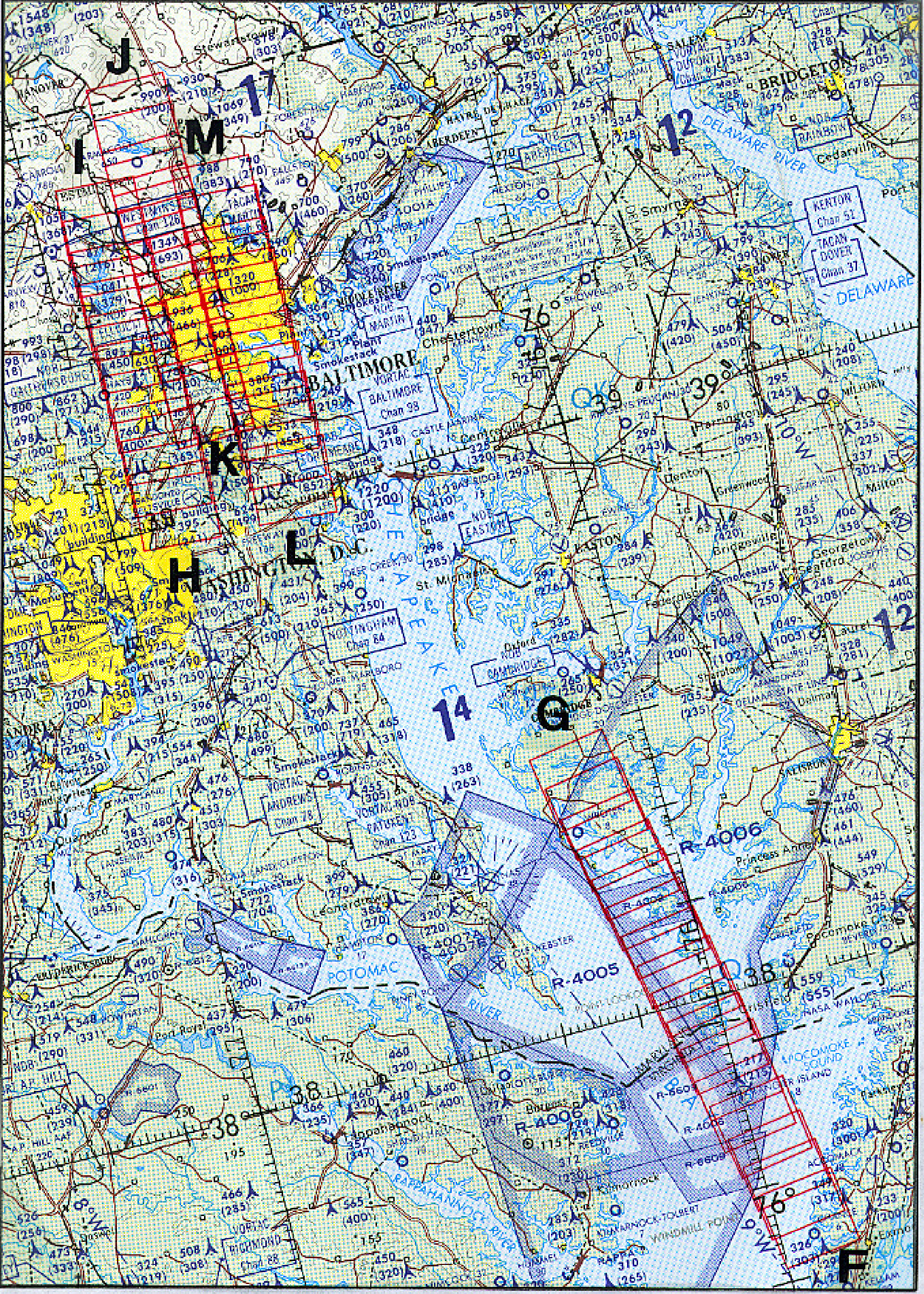

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