

FLIGHT SUMMARY REPORT

Flight #: 90-138
Date: 30 August 1990
Sensor Package: Wild-Heerbrug RC-10
Airborne Visible and Infrared Imaging
Spectrometer (AVIRIS)
Area(s) Covered: Wisconsin, Canada, Massachusetts,
New Hampshire

Investigator(s): Aber, University of New Hampshire
Rowan, USGS
Aircraft #: 706
Flight Request: 90L218 and 90L211
Julian Date: 242

SENSOR DATA

| | | |
|-----------------------|--|--------|
| Accession #: | 04102 | ----- |
| Sensor ID #: | 036 | 099 |
| Sensor Type: | RC-10 | AVIRIS |
| Focal Length: | 6" 153.19 mm | ----- |
| Film Type: | High Definition Aerochrome IR SO-131 | ----- |
| Filtration: | cc.30B | ----- |
| Spectral Band: | 510-900 nm | ----- |
| f Stop: | 4 | ----- |
| Shutter Speed: | 1/100 | ----- |
| # of Frames: | 20 | ----- |
| % 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 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 nmi (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 |

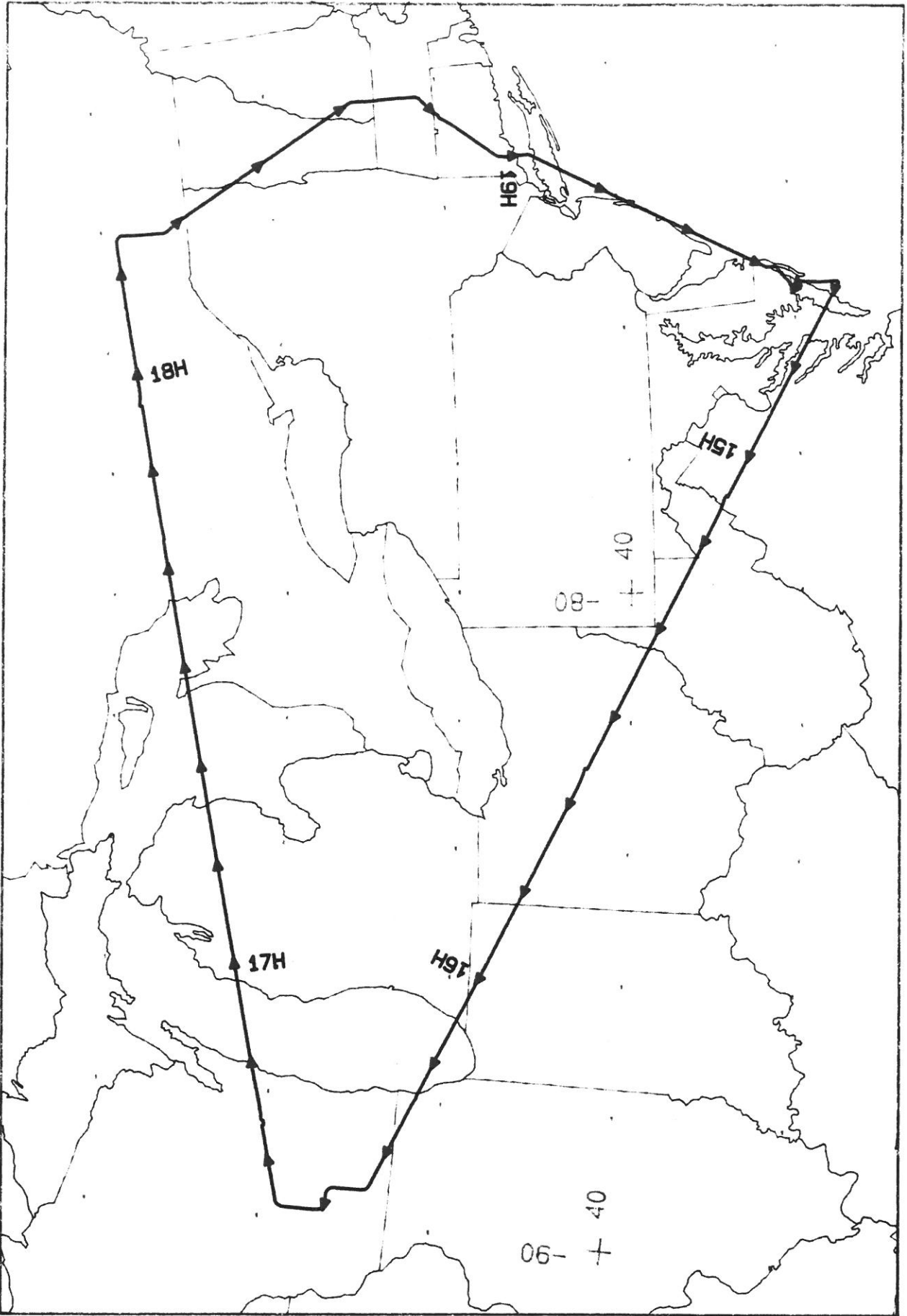
All AVIRIS data is decommutated and archived at JPL and not currently available for public distribution. For further information contact Rob Greene at Jet Propulsion Laboratory, 4800 Oak Grove Drive, Mail Stop 11-116, Pasadena, California 91109-8099.

**CAMERA FLIGHT LINE DATA
FLIGHT NO. 90-138**

Accession # 04102

Sensor # 036

| Check Points | Frame Numbers | Time (GMT-hr, min, sec) | | Altitude, MSL feet/meters | Cloud Cover/Remarks |
|--------------|---------------|-------------------------|----------|---------------------------|--------------------------------------|
| | | START | END | | |
| A - B | 4407-4409 | 16:26:20 | 16:28:13 | 65000/19800 | Clear |
| C - D | 4410-4412 | 16:33:31 | 16:35:23 | " | 10% minor cumulus (frames 4410-4412) |
| E - F | 4413-4416 | 18:15:49 | 18:18:38 | " | 30% cumulus (frames 4413-4416) |
| G - H | 4417-4421 | 18:44:27 | 18:48:11 | " | 20-30% cumulus (frames 4417-4421) |
| I - J | 4422-4426 | 19:00:14 | 19:02:06 | " | 10-20% cumulus (frames 4422-4426) |

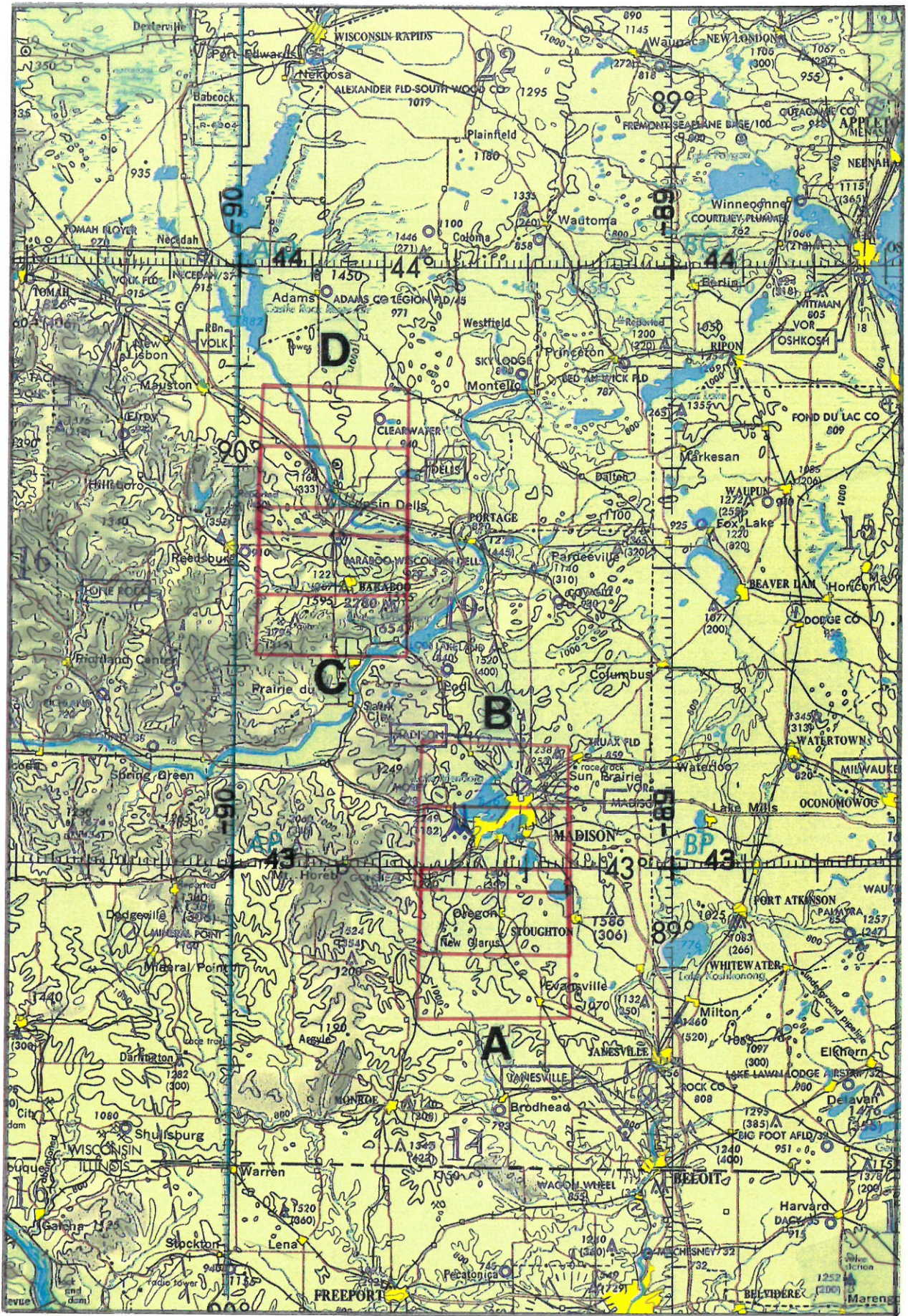


AVIRIS / AC-10

A/C 706

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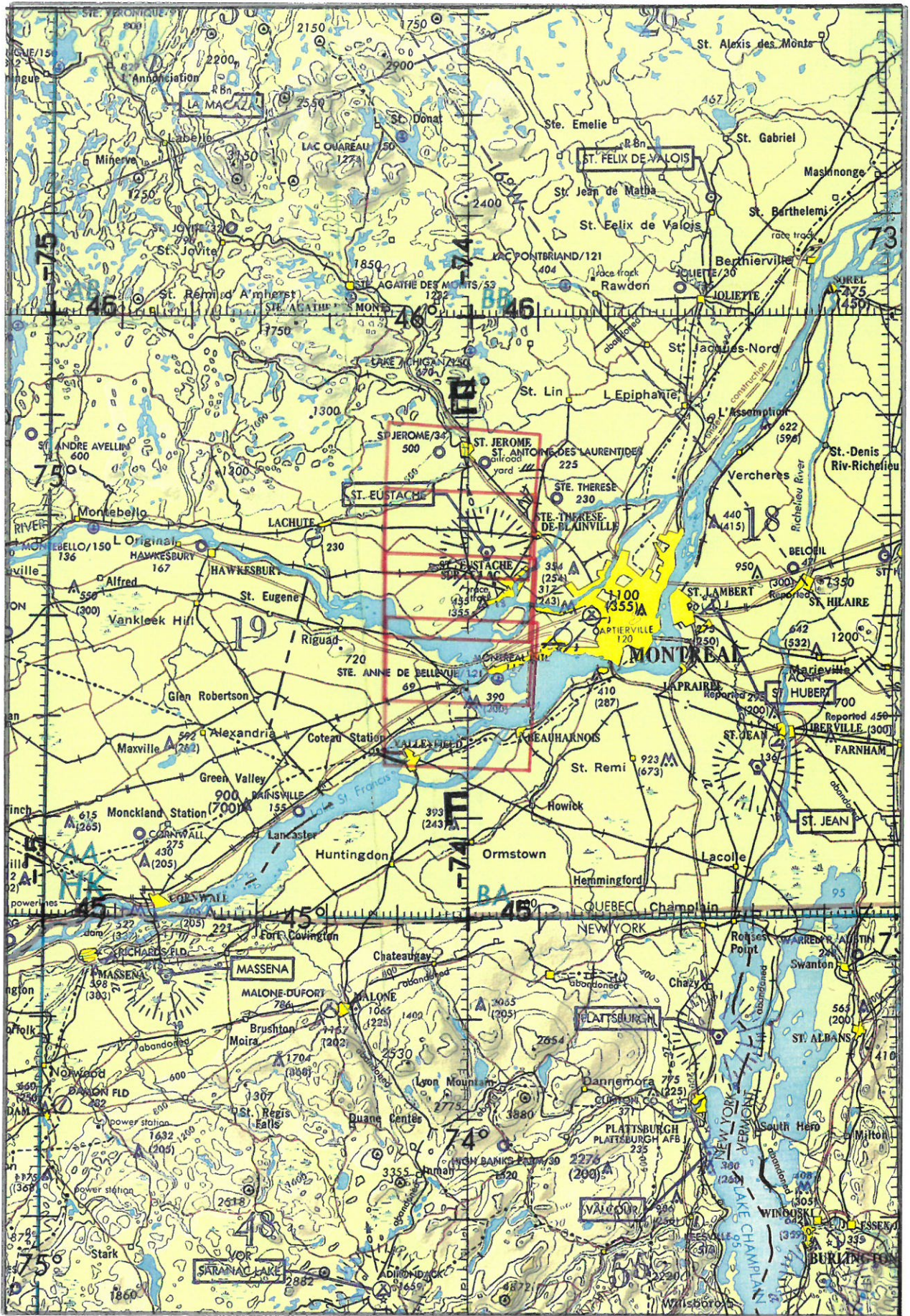
ONC F-18

Accession # 04102

AVIRIS / FC-10

30 August 1990

FLIGHT 90-138



ONC F-19

Accession # 04102

AVIRIS/RC-10

30 August 1980

FLIGHT 90-136



ONC F-19

Accession # 04102

AVIRIS/RC-10

30 August 1990

FLIGHT 90-158