FLIGHT SUMMARY REPORT

Flight Number: 99-071
Calendar/Julian Date: 16 May 1999 • 136
Sensor Package: Wild-Heerbrugg RC-10
Modis Airborne Simulator (MAS 50)
Area(s) Covered: Atlanta, GA

Investigator(s): Quattrochi, MSFC

Aircraft #: 809

SENSOR DATA

Accession #: 05341
Sensor ID #: 034 108
Sensor Type: RC-10 MAS 50
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: 120
% Overlap: 60
Quality: Excellent
Remarks: Subtract 8 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, 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.

**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).
MODIS Airborne Simulator

The MODIS Airborne Simulator (MAS) is a modified Daedalus multispectral scanner configured to replicate the capabilities of the Moderate-Resolution Imaging Spectrometer (MODIS), an instrument to be orbited on an EOS platform. MODIS is designed for the measurement of biological and physical processes and atmospheric temperature sounding. The MODIS Airborne Simulator records fifty 16-bit channels of multispectral data and is configured as follows:

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<th>Band center (µm)</th>
<th>Bandwidth (µm)</th>
<th>Spectral Range</th>
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NOTE: Bandpass centers approximate

Sensor/Aircraft Parameters:

- Spectral Bands: 50 (digitized to 16-bit resolution)
- IFOV: 2.5 mrad
- Ground Resolution: 163 feet (50 meter at 65,000 feet)
- Swath Width: 22.9 mi/19.9 nmi (36 km)
- Total Scan Angle: 85.92°
- Pixels/Scan Line: 716
Scan Rate: 6.25 scans/second
Ground Speed: 400 kts (206 m/second)
Roll Correction: Plus or minus 3.5 degrees (approx.)

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 Airborne Sensor Facility, NASA-Ames Research Center, Mail Stop 240-6, Moffett Field, California 94035-1000 (Telephone: 650-604-6252).
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NUMBER OF FILES FOR THIS FLIGHT = 23
TOTAL NUMBER OF SCAN LINES = 49836
DATE THESE FILES WERE PROCESSED = 07-Jun-99
DATE THIS LIST WAS CREATED = 07-Jun-99
GRANULE VERSION = 9
## CAMERA FLIGHT LINE DATA

**FLIGHT NO. 99-071**

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<th>Altitude, MSL (feet/meters)</th>
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