FLIGHT SUMMARY REPORT

Flight #: 91-097
Date: 5 June 1991
Sensor Package: Wild-Heerbrug RC-10
Airborne Ocean Color Imager (AOCI)
Area(s) Covered: Off-shore Washington

Investigator(s): Richardson, Florida International University
Flight Request: 91B285

Aircraft #: 709
Julian Date: 156

SENSOR DATA

Accession #: 04229
Sensor ID #: 033 090
Sensor Type: RC-10 AOCI
Focal Length: 6" 153.17 mm
Film Type: Aerial Color SO242
Filtration: 2.2 AV
Spectral Band: 400-700 nm
f Stop: 4
Shutter Speed: 1/75
# of Frames: 59
% Overlap: 60
Quality: Excellent
Remarks: No Channel 5

Good
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 Ocean Color Imager

The Airborne Ocean Color Imager (AOCI) is a high altitude multispectral scanner designed for oceanographic remote sensing. It provides 10-bit digitization of eight bands in the visible/near-infrared region of the spectrum, plus two 8-bit bands in the near and thermal infrared. The bandwidths are as follows:

<table>
<thead>
<tr>
<th>Channel</th>
<th>Wavelength, μm</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0.436 - 0.455</td>
</tr>
<tr>
<td>2</td>
<td>0.481 - 0.501</td>
</tr>
<tr>
<td>3</td>
<td>0.511 - 0.531</td>
</tr>
<tr>
<td>4</td>
<td>0.554 - 0.575</td>
</tr>
<tr>
<td>5</td>
<td>0.610 - 0.631</td>
</tr>
<tr>
<td>6</td>
<td>0.655 - 0.676</td>
</tr>
<tr>
<td>7</td>
<td>0.741 - 0.800</td>
</tr>
<tr>
<td>8</td>
<td>0.831 - 0.897</td>
</tr>
<tr>
<td>9</td>
<td>0.989 - 1.054</td>
</tr>
<tr>
<td>10</td>
<td>8.423 - 12.279</td>
</tr>
</tbody>
</table>

Sensor/aircraft parameters are as follows:

- **IFOV:** 2.5 mrad
- **Ground Resolution:** 163 feet (50 meters) at 65,000 feet
- **Total Scan Angle:** 85°
- **Swath Width:** 19.6 nmi (36.3 km) at 65,000 feet
- **Pixels/Scan Line:** 716
- **Scan Rate:** 6.25 scans/second
- **Ground Speed:** 400 kts (206 m/second)
- **Digitization:**
  - 8-bit channels 9-10
  - 10-bit channels 1-8

**NOTE:** Information on data tape format, logical record format, and scanner calibration data may be obtained from the NASA-Ames Aircraft Data Facility at (415) 604-6252 or FTS 464-6252.
## CAMERA FLIGHT LINE DATA

### FLIGHT NO. 91-097

<table>
<thead>
<tr>
<th>Accession #</th>
<th>04229</th>
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<tbody>
<tr>
<td>Sensor #</td>
<td>033</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Check Points</th>
<th>Frame Numbers</th>
<th>Time (GMT-hr, min, sec)</th>
<th>Altitude, MSL feet/meters</th>
<th>Cloud Cover/Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>START</td>
<td>END</td>
<td></td>
</tr>
<tr>
<td>A - B</td>
<td>8740-8755</td>
<td>23:00:57</td>
<td>23:14:01</td>
<td>65000/19800</td>
</tr>
<tr>
<td>F - G</td>
<td>8770-8784</td>
<td>23:48:44</td>
<td>24:00:50</td>
<td>&quot;</td>
</tr>
<tr>
<td>H - I</td>
<td>8785-8798</td>
<td>24:05:26</td>
<td>24:16:36</td>
<td>&quot;</td>
</tr>
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</table>
## Scanner Flight Line Data

**Flight No. 91-097**

<table>
<thead>
<tr>
<th>Check Points</th>
<th>Actual time (GMT) begin end</th>
<th>Actual scanline begin end</th>
<th>Altitude feet/meter</th>
<th>Scan Speed (rps)</th>
<th>Total Good scanlines</th>
<th>Total Interpolated scanlines</th>
<th>Total Repeated scanlines</th>
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</thead>
<tbody>
<tr>
<td>A-B</td>
<td>23:00:21.0 23:13:43.0</td>
<td>44548 49560</td>
<td>65000/19812</td>
<td>6.25</td>
<td>5001</td>
<td>0</td>
<td>12</td>
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<tr>
<td>C-E</td>
<td>23:19:36.0 23:44:11.0</td>
<td>51766 60984</td>
<td>65000/19812</td>
<td>6.25</td>
<td>9201</td>
<td>0</td>
<td>18</td>
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<tr>
<td>F-G</td>
<td>23:48:27.0 00:00:44.0</td>
<td>62584 67190</td>
<td>65000/19812</td>
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<td>4501</td>
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<tr>
<td>H-I</td>
<td>00:04:44.0 00:16:31.0</td>
<td>68690 73108</td>
<td>65000/19812</td>
<td>6.25</td>
<td>4401</td>
<td>0</td>
<td>18</td>
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