

FLIGHT SUMMARY REPORT

Flight #: 91-090
Date: 15 May 1991
Sensor Package: Wild-Heerbrug RC-10
Airborne Ocean Color Imager (AOCI)
Area(s) Covered: Pacific Ocean off Southern California

Investigator(s): Carlson, Naval Ocean Systems Center

Aircraft #: 708

Flight Request: 91R100

Julian Date: 135

SENSOR DATA

| | | |
|-----------------------|-----------------------|-----------|
| Accession #: | 04221 | ----- |
| Sensor ID #: | 036 | 090 |
| Sensor Type: | RC-10 | AOCI |
| Focal Length: | 6" 153.19 mm | ----- |
| Film Type: | Aerial Color SO242 | ----- |
| Filtration: | 2.2 AV | ----- |
| Spectral Band: | 400-700 nm | ----- |
| f Stop: | 4 | ----- |
| Shutter Speed: | 1/100 | ----- |
| # of Frames: | 52 | ----- |
| % Overlap: | 60 | ----- |
| Quality: | Excellent | 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 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:

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

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. 91-090

Accession # 04221

Sensor # 036

| Check Points | Frame Numbers | Time (GMT-hr, min, sec) | | Altitude, MSL feet/meters | Cloud Cover/Remarks |
|--------------|---------------|-------------------------|----------|---------------------------|--|
| | | START | END | | |
| A - B | 8075-8086 | 22:53:18 | 23:03:43 | 65000/19800 | 10% minor cumulus (frames 8082-8086) |
| C - D | 8087-8100 | 23:07:38 | 23:18:57 | " | 10% minor cumulus (frames 8087-8091) |
| ----- | 8101-8102 | 23:19:54 | 23:20:50 | " | Oblique frames in turn; 30% cumulus (frames 8101-8102) |
| E - F | 8103-8114 | 23:21:47 | 23:32:09 | " | 10% minor cumulus (frames 8110-8114) |
| G - H | 8115-8124 | 23:35:58 | 23:44:25 | " | 10% minor cumulus (frames 8115-8120) |
| I | 8125-8126 | 23:56:33 | 23:56:40 | " | Clear; Santa Cruz Island |

SCANNER FLIGHT LINE DATA

FLIGHT NO. 91-090

DAEDALUS FLIGHT DATA
FLIGHT NUMBER: 91-090

| Check Points | A c t u a l t i m e b e g i n | (GMT) e n d | A c t u a l s c a n l i n e b e g i n | e n d | A l t i t u d e f e e t / m e t e r | Scan S p e e d (rps) | t o t a l G o o d s c a n l i n e s | t o t a l I n t e r p o l a t e d s c a n l i n e s | t o t a l R e p e a t e d s c a n l i n e s |
|--------------|-------------------------------------|----------------|---|-------|--|----------------------------|---|---|---|
| A-B | 22:53:20.0 | 23:04:16.0 | 23287 | 27389 | 65000/19812 | 6.25 | 4101 | 0 | 2 |
| C-D | 23:07:44.0 | 23:18:42.0 | 28591 | 32800 | 65000/19812 | 6.25 | 4101 | 0 | 9 |
| E-F | 23:23:14.0 | 23:32:35.0 | 34500 | 38006 | 65000/19812 | 6.25 | 3501 | 0 | 6 |
| G-H | 23:35:47.0 | 23:45: 8.0 | 39206 | 42713 | 65000/19812 | 6.25 | 3501 | 0 | 7 |

