# FLIGHT SUMMARY REPORT

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|---|---|
| **Flight #:** | 90-094 |
| **Date:** | 22 June 1990 |
| **Sensor Package:** | Wild-Heerbrug RC-10<br>Thematic Mapper Simulator (TMS) |
| **Area(s) Covered:** | Mono Lake and Central Valley, California |

| | | | |
|---|---|---|---|
| **Investigator(s):** | Functional Check Flight | **Aircraft #:** | 706 |
| **Flight Request:** | 90X001 | **Julian Date:** | 173 |

## SENSOR DATA

| | | |
|---|---|---|
| **Accession #:** | 04042 | ----- |
| **Sensor ID #:** | 026 | 101 |
| **Sensor Type:** | RC-10 | TMS |
| **Focal Length:** | 12"<br>304.97 mm | ----- |
| **Film Type:** | High Definition<br>Aerochrome IR<br>SO-131 | ----- |
| **Filtration:** | cc.30B | ----- |
| **Spectral Band:** | 510-900 nm | ----- |
| **f Stop:** | 4 | ----- |
| **Shutter Speed:** | 1/125 | ----- |
| **# of Frames:** | 117 | ----- |
| **% Overlap:** | 60 | ----- |
| **Quality:** | Excellent | Good |
| **Remarks:** | | Scan speed 10.8 rps |

## 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.

## Thematic Mapper Simulator

The Daedalus Thematic Mapper Simulator (TMS) is a high altitude multispectral scanner flown aboard the ER-2 aircraft which simulates spatial and spectral characteristics of the seven Landsat-D Thematic Mapper bands. The specific bands are as follows:

| Daedalus Channel | TM Band | Wavelength, $\mu m$ |
|---|---|---|
| 1 | A | 0.42 - 0.45 |
| 2 | 1 | 0.45 - 0.52 |
| 3 | 2 | 0.52 - 0.60 |
| 4 | B | 0.60 - 0.62 |
| 5 | 3 | 0.63 - 0.69 |
| 6 | C | 0.69 - 0.75 |
| 7 | 4 | 0.76 - 0.90 |
| 8 | D | 0.91 - 1.05 |
| 9 | 5 | 1.55 - 1.75 |
| 10 | 7 | 2.08 - 2.35 |
| 11 | 6 | 8.5 - 14.0 low gain |
| 12 | 6 | 8.5 - 14.0 high gain |

Sensor/aircraft parameters are as follows:

| | |
|---|---|
| IFOV: | 1.3 mrad |
| Ground Resolution: | 91 feet (28 meters at 70,000 feet) |
| Total Scan Angle: | $43^{o}$ |
| Swath Width: | 9.0 nmi (16.6 km at 70,000 feet) |
| Pixels/Scan Line: | 716 (750 following rectification) |
| Scan Rate: | 12.5 scans/second |
| Ground Speed: | 400 kts (206 m/second) |

**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. 90-094

**Accession #** 04042

**Sensor #** 026

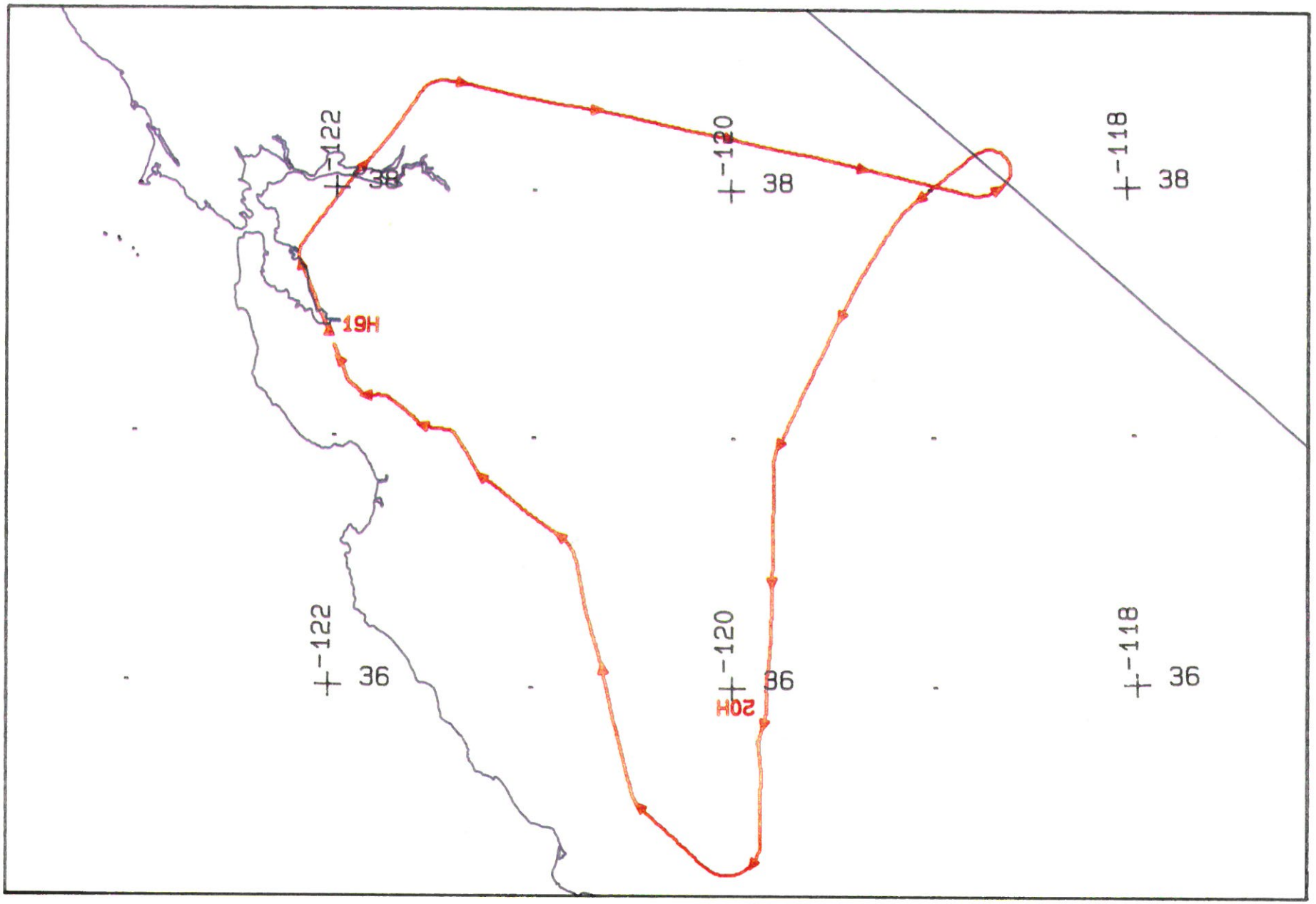
| Check Points | Frame Numbers | Time (GMT-hr, min, sec) START | Time (GMT-hr, min, sec) END | Altitude, MSL feet/meters | Cloud Cover/Remarks |
|---|---|---|---|---|---|
| A - B | 5896-5917 | 19:26:54 | 19:37:02 | 65000/19800 | Clear |
| C - D | 5918-5944 | 19:41:32 | 19:54:00 | " | Clear; oblique (frame 5944) |
| D - E | 5945-5960 | 19:54:29 | 20:01:39 | " | Clear |
| E - F | 5961-5967 | 20:02:08 | 20:05:00 | " | Clear; oblique in turn |
| F - G | 5968-5973 | 20:05:28 | 20:07:51 | " | Clear |
| G - H | 5974-5978 | 20:08:20 | 20:10:14 | " | Clear; oblique in turn |
| H - I | 5979-5986 | 20:10:43 | 20:14:03 | " | Clear; oblique (frame 5986) |
| I - J | 5987-6005 | 20:14:32 | 20:23:04 | 64000/19512-46000/14025* | Clear; oblique (frame 6005) |
| J - K | 6006-6012 | 20:23:33 | 20:26:23 | 45000/13700-36000/10976* | Clear; oblique (frame 6006) |
| | | * descending feet/meters to feet/meters | | | |

# SCANNER FLIGHT LINE DATA

# FLIGHT NO. 90-094

DAEDALUS FLIGHT DATA
FLIGHT NUMBER: 90-094

| Check Points | Actual Time (GMT) Begin | Actual Time (GMT) End | Actual Scanline Begin | Actual Scanline End | Altitude feet/meter | Scan Speed (rps) | Total Good Scanlines | Total Interpolated Scanlines | Total Repeated Scanlines |
|---|---|---|---|---|---|---|---|---|---|
| A-B | 19:24:00.0 | 19:34:30.0 | 19935 | 26361 | 65000/19812 | 12.50 | 6372 | 0 | 55 |
| C+ | 19:38:30.0 | 19:41:10.0 | 28810 | 30444 | 65000/19812 | 12.50 | 1633 | 0 | 2 |
| C+-D | 19:41:40.0 | 19:50:50.0 | 30751 | 36366 | 65000/19812 | 12.50 | 5544 | 0 | 72 |
| D-E | 19:51:40.0 | 19:57:50.0 | 36877 | 40656 | 65000/19812 | 12.50 | 3780 | 0 | 0 |
| F-G | 20:02:45.0 | 20:05:05.0 | 43669 | 45099 | 65000/19812 | 12.50 | 1431 | 0 | 0 |
| H-I | 20:08:00.0 | 20:10:50.0 | 46887 | 48625 | 65000/19812 | 12.50 | 1739 | 0 | 0 |
| I-J | 20:11:35.0 | 20:19:45.0 | 49084 | 54092 | 65000/19812 | 12.50 | 4918 | 0 | 91 |
| J-K | 20:21:20.0 | 20:25:45.0 | 55063 | 57773 | 65000/19812 | 12.50 | 2687 | 0 | 24 |

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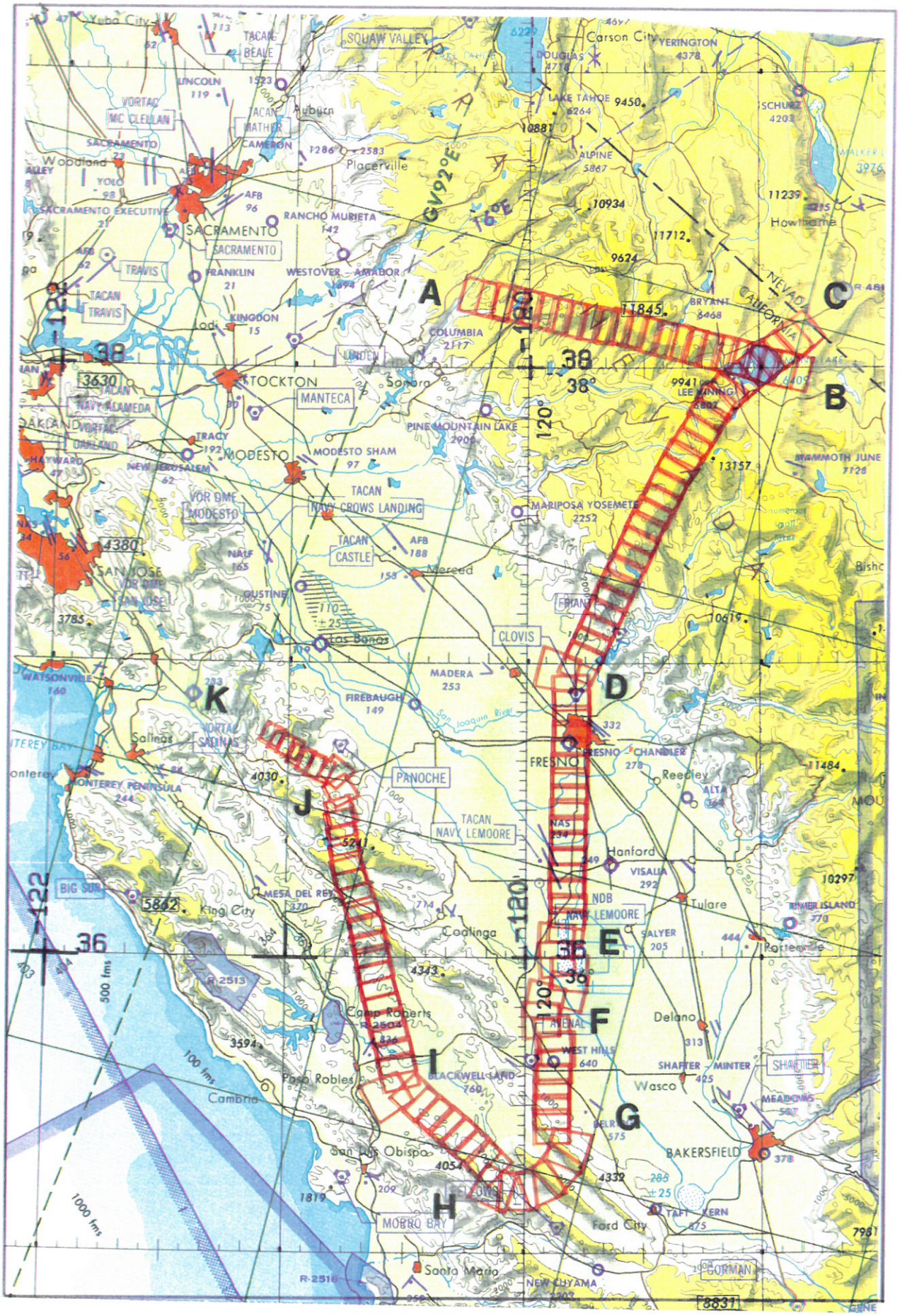


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