

FLIGHT SUMMARY REPORT

Flight #: 90-095
Date: 25 June 1990
Sensor Package: Wild-Heerbrug RC-10
Thematic Mapper Simulator (TMS)
Area(s) Covered: Central Oregon (selected sites)

Investigator(s): Spanner, TGS Technology, Inc.
Flight Request: 90L223D

Aircraft #: 706
Julian Date: 176

SENSOR DATA

| | | |
|-----------------------|--|-------|
| Accession #: | 04043 | ----- |
| Sensor ID #: | 026 | 076 |
| Sensor Type: | RC-10 | TMS |
| Focal Length: | 12" 304.97 mm | ----- |
| Film Type: | High Definition Aerochrome IR SO-131 | ----- |
| Filtration: | cc.30B | ----- |
| Spectral Band: | 510-900 nm | ----- |
| f Stop: | 5.6 | ----- |
| Shutter Speed: | 1/125 | ----- |
| # of Frames: | 37 | ----- |
| % Overlap: | 60 | ----- |
| Quality: | Excellent | Good |
| 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.

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:

| <u>Daedalus Channel</u> | <u>TM Band</u> | <u>Wavelength, μm</u> |
|-------------------------|----------------|---------------------------------------|
| 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. 90-095

Accession # 04043

Sensor # 026

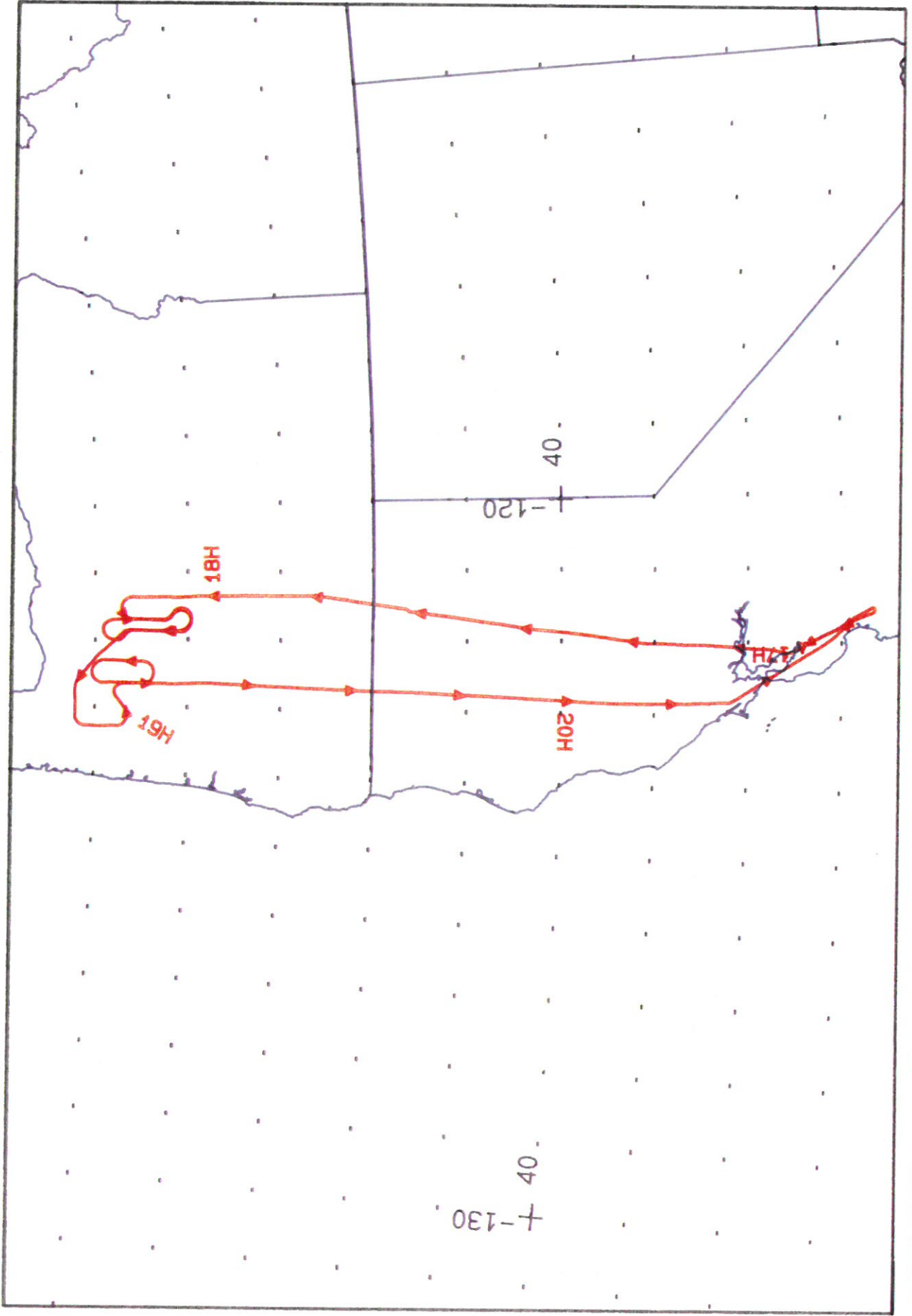
| Check Points | Frame Numbers | Time (GMT-hr, min, sec) | | Altitude, MSL feet/meters | Cloud Cover/Remarks |
|--------------|---------------|-------------------------|----------|------------------------------|---|
| | | START | END | | |
| A - B | 6027-6032 | 18:06:39 | 18:09:01 | 65000/19800 | 10-20% minor cumulus (frames 6027-6030) |
| C - D | 6033-6037 | 18:15:03 | 18:16:57 | " | 10% minor cumulus (frames 6035-6037) |
| E - F | 6038-6042 | 18:24:22 | 18:26:15 | " | 20-30% cumulus |
| C - D | 6043-6049 | 18:33:47 | 18:36:36 | " | 10% minor cumulus |
| E - F | 6050-6057 | 18:43:27 | 18:46:44 | " | 20% cumulus |
| G | 6058-6058 | 19:20:40 | 19:20:40 | " | 90% cumulus |
| H - I | 6059-6063 | 20:25:22 | 20:27:14 | " | 10% very minor coastal stratus (frames 6059-6060) |

SCANNER FLIGHT LINE DATA

FLIGHT NO. 90-095

DAEMALUS FLIGHT DATA
FLIGHT NUMBER: 90-095

| Check Points | Actual Time (GMT) | | Actual scanline | | Altitude Feet/acter | Scan Speed (rpm) | Total Good scanlines | | Total Interrelated scanlines | | Total Repeated scanlines | |
|--------------|-------------------|----------|-----------------|--------|---------------------|------------------|----------------------|------------------------|------------------------------|--------------------|--------------------------|---|
| | begin | end | begin | end | | | Good scanlines | Interrelated scanlines | Interrelated scanlines | Repeated scanlines | | |
| A-B | 18:04:00 | 18:08:00 | 58858 | 61311 | 65000/19812 | 12.50 | 2450 | 0 | 0 | 0 | 0 | 4 |
| C-D | 18:12:00 | 18:14:15 | 63763 | 65143 | 65000/19812 | 12.50 | 1379 | 0 | 0 | 0 | 0 | 2 |
| E-F | 18:21:30 | 18:23:45 | 69569 | 70769 | 65000/19812 | 12.50 | 1379 | 0 | 0 | 0 | 0 | 2 |
| G-H | 18:29:30 | 18:33:45 | 74495 | 77162 | 65000/19812 | 12.50 | 2605 | 0 | 0 | 0 | 0 | 2 |
| I-J | 18:39:50 | 18:44:00 | 80833 | 83389 | 65000/19812 | 12.50 | 2550 | 0 | 0 | 0 | 0 | 7 |
| K-L | 20:22:00 | 20:25:00 | 143517 | 145358 | 65000/19812 | 12.50 | 1840 | 0 | 0 | 0 | 0 | 2 |

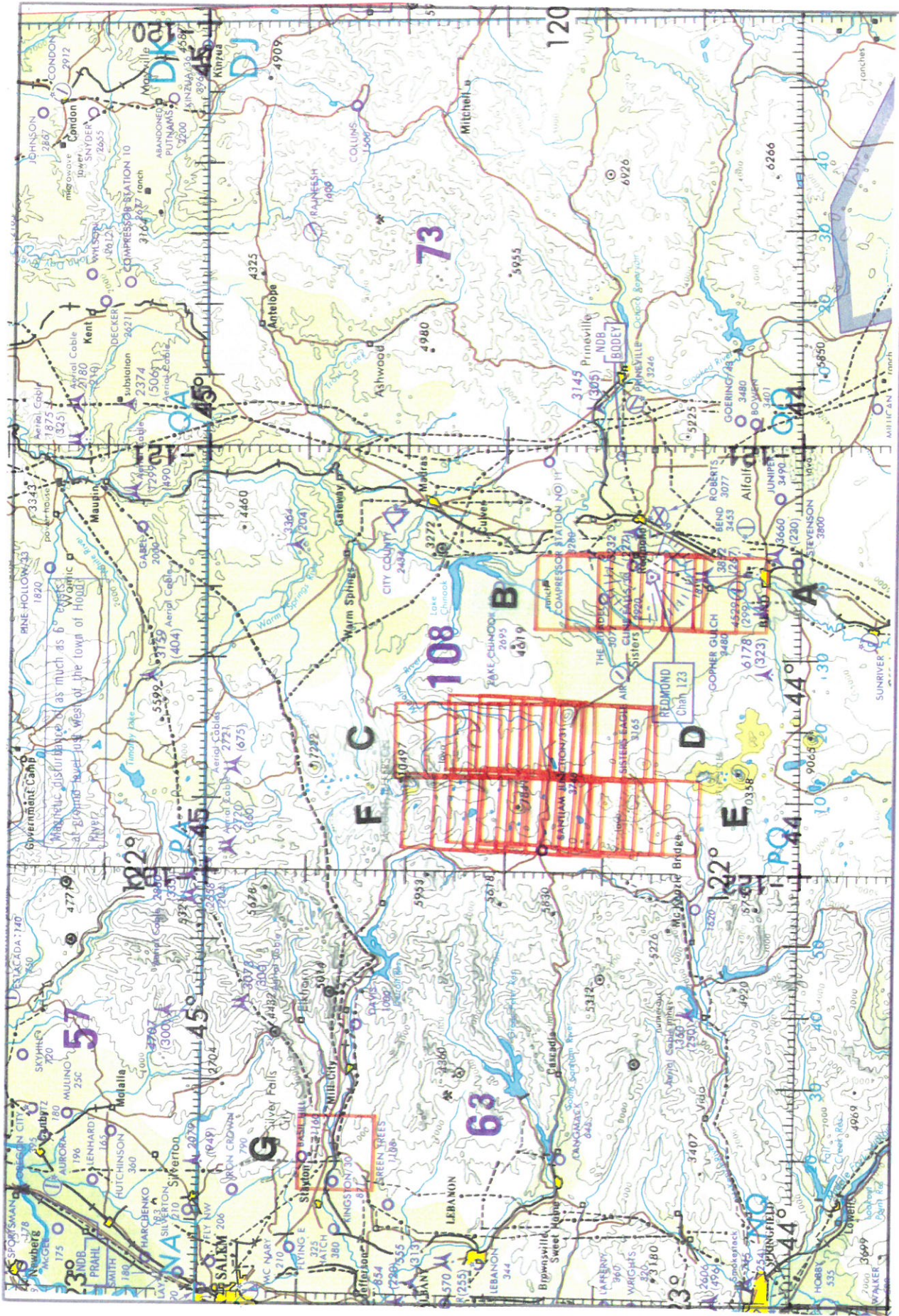


TMS / RC-10

A/C 706

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