

FLIGHT SUMMARY REPORT

Flight Number: 00-003-02
Calendar/Julian Date: 30 July 2000 • 212
Sensor Package: Wild Heerbrugg RC-30
MSS 1268
Area(s) Covered: Skagit Bay, WA (Site #014)

Investigator(s): Mace, EPA

Aircraft #: 799
Department of Energy
Cessna Citation

SENSOR DATA

Accession #:	05527	-----
Sensor ID #:	126	268
Sensor Type:	RC-30	MSS
Focal Length:	6" 153.21mm	-----
Film Type:	Aerochrome IR SO-134	-----
Filtration:	Wratten 12 + 2.2 AV	-----
Spectral Band:	510-900nm	-----
f Stop:	4	-----
Shutter Speed:	Variable	-----
# of Frames:	154	-----
% Overlap:	60%	-----
Quality:	Excellent	Good
Remarks:		BB temps incorrectly signed in channel 1

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.

Department of Energy Remote Sensing Laboratory

The NASA Airborne Science and Applications Program at Ames Research Center contracted with the Department of Energy Remote Sensing Laboratory (RSL) in Las Vegas, Nevada to fly the RSL Multispectral Scanner (MSS) and the NASA Thermal Infrared Multispectral Scanner (TIMS) over the desert southwest. The scanners were flown on the DOE Cessna Citation.

The Cessna Citation is a low and medium altitude, moderate speed aircraft. It can operate from 4,000 to 35,000 feet above sea level at speeds between 135 and 225 knots. There are two instrument ports in the aircraft. The RSL 1268 Multispectral Scanner was mounted over the aft port and the NASA Thermal Infrared Multispectral Scanner was mounted over the forward port.

RSL Daedalus 1268 MSS

The DOE Multispectral Scanner simulates the spectral characteristics the Thematic Mapper (TM) multispectral scanners orbiting on Landsat 4 and Landsat 5. The seven TM bands are replicated with the MSS and four additional bands of discrete wavelengths are acquired. THE MSS acquires TM band six (thermal data) as two bands in low and high gain settings. The scanner is configured as follows:

<u>Daedalus Channel</u>	<u>TM Band</u>	<u>Wavelength, mm</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	0.75 - 0.90

8	D	0.91 - 1.05
9	5	1.55 - 1.75
10	7	2.08 - 2.35
11	6	8.5 - 12.5 low gain
12	6	8.5 - 12.5 high gain

Sensor/aircraft parameters are as follows:

IFOV:	2.5 mrad
Total Scan Angle:	86°
Pixels/Scan Line:	716
Scan Rate:	12.5/25/50/100 scans/second

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/RC-30 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).

Information on data tape format, logical record format, and scanner calibration data may be obtained from the Aircraft Data Facility, NASA-Ames Research Center, Mail Stop 240-6, Moffett Field, California 94035-1000 (Telephone: 650-604-6252).

CAMERA FLIGHT LINE DATA
FLIGHT NO. 00-003-02

Accession # 05527

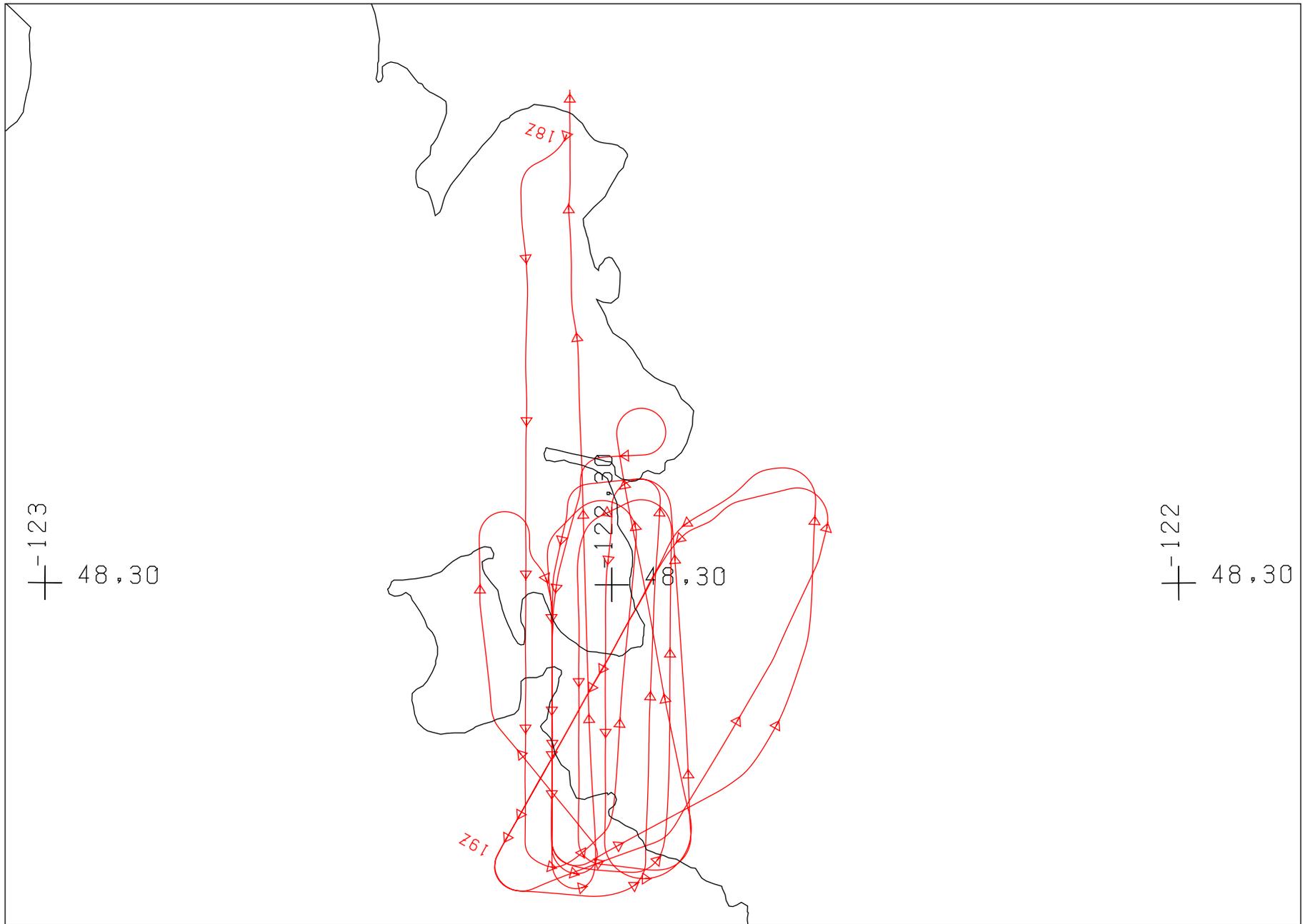
Sensor # 126

Site #	Line #	Run #	Frame #	Time (GMT-hr, min, sec)		Altitude, MGL feet/meters	Cloud Cover/Remarks
				START	END		
014	1	1	0001-0013	18:06:45	18:09:15	6100/1860	Clear
014	2	1	0014-0026	18:16:04	18:18:16	6100/1860	Clear
014	3	1	0027-0039	18:25:16	18:27:29	6100/1860	Clear
014	4	1	0040-0052	18:34:35	18:36:51	6100/1860	Clear
014	2	2	0053-0065	18:46:12	18:48:29	6100/1860	Clear
014	5	1	0066-0083	18:56:51	18:59:54	6100/1860	Clear
014	5	2	0084-0101	19:08:27	19:11:29	6100/1860	Clear
014	2	3	0102-0127	19:20:28	19:22:43	3000/920	Clear
014	2	4	0128-0154	19:29:57	19:32:22	3000/920	Clear

DoE DAEDALUS TMS FLIGHT DATA
 FLIGHT NUMBER: 00-003-02

Site	Line	Run	Actual time (GMT)		Actual scanline		Altitude feet/meter	ground s p e e d knots/mps	Scan Speed (rps)	total G o o d scanlines	total Interpolated scanlines	total Repeated scanlines
			begin	end	begin	end						
1.	014	1	18:06:10.3	18:09:24.5	26383	31239	6070/ 1850	164/ 82	25.00	4857	0	0
2.	014	2	18:15:27.5	18:18:21.8	40313	44671	6037/ 1840	199/100	25.00	4359	0	0
3.	014	3	18:24:50.6	18:27:34.7	54391	58493	6046/ 1843	193/ 97	25.00	4103	0	0
4.	014	4	18:33:57.9	18:36:56.1	68073	72529	6042/ 1842	187/ 94	25.00	4457	0	0
5.	014	2	18:45:34.1	18:48:32.4	85478	89937	6057/ 1846	180/ 90	25.00	4460	0	0
6.	014	5	18:56:16.6	18:59:56.2	101540	107032	6099/ 1859	182/ 91	25.00	5493	0	0
7.	014	5	19:07:50.9	19:11:29.8	118898	124372	6056/ 1846	185/ 93	25.00	5475	0	0
8.	014	2	19:19:59.4	19:22:49.5	149271	157778	2954/ 900	180/ 90	50.00	8508	0	0
9.	014	2	19:29:20.5	19:32:27.4	177324	186673	2987/ 910	180/ 90	50.00	9350	0	0

Site #014, Skagit Bay Washington
 Black Body Temperatures incorrectly signed in Channel 1, all other channels unaffected



FLIGHT 00-003-02

30 JULY 2000

A/C 799 (DOE CESSNA CITATION)

RC-30 / MSS

