FLIGHT SUMMARY REPORT

Flight Number: 97-004-01

Calendar/Julian Date: 05 March 1997 • 64

Sensor Package: Wild-Heerbrugg RC-30
Thematic Mapper Simulator (TMS)

Area(s) Covered: Scottsdale, AZ (Site 736)

Investigator(s): Orr, City of Scottsdale

Aircraft #: 799
Department of Energy
Cessna Citation

SENSOR DATA

Accession #:	05166	-----
Sensor ID #:	017	1268
Sensor Type:	RC-30	TMS
Focal Length:	6” 152.75 mm	-----
Film Type:	Aerochrome IR SO-134	-----
Filtration:	Wratten 12 + 2.2 AV	-----
Spectral Band:	510-900 nm	-----
f Stop:	Variable	-----
Shutter Speed:	Variable	-----
# of Frames:	202	-----
% Overlap:	80	-----
Quality:	Excellent	Fair

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(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:

Daedalus Channel	TM Band	Wavelength, mm
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:	86º
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/RC30 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).

DoE DAEDALUS TMS FLIGHT DATA
FLIGHT NUMBER: 97-004-01

	Site	Line	Run	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
1.	736	10	1	18:03:14.0	18:05:21.4	47462	50647	10500/ 3200	25.00	3185	1	0
2.	736	12	1	18:08:42.2	18:10:49.3	55666	58845	10500/ 3200	25.00	3180	0	0
3.	736	9	1	18:14:17.6	18:16:22.7	64051	67180	10500/ 3200	25.00	3130	0	0
4.	736	11	1	18:19:50.0	18:21:58.0	72363	75562	10500/ 3200	25.00	3200	0	0
5.	736	8	1	18:25:00.1	18:27:04.7	80115	83229	10500/ 3200	25.00	3115	0	0
6.	736	7	1	18:33:32.2	18:39:42.4	92917	102171	10500/ 3200	25.00	9255	0	0
7.	736	5	1	18:43:34.1	18:51:23.9	107964	119709	10500/ 3200	25.00	11745	1	0
8.	736	6	1	18:55:30.8	19:03:00.7	125881	137130	10500/ 3200	25.00	11250	0	0
9.	736	3	1	19:07:01.6	19:12:08.0	143153	150812	10500/ 3200	25.00	7660	0	0
10.	736	1	1	19:15:39.2	19:20:41.0	156091	163636	10500/ 3200	25.00	7545	1	0
11.	736	4	1	19:24:20.3	19:29:28.9	169120	176834	10500/ 3200	25.00	7715	0	0
12.	736	2	1	19:33:00.2	19:38:02.4	182116	189671	10500/ 3200	25.00	7555	1	0

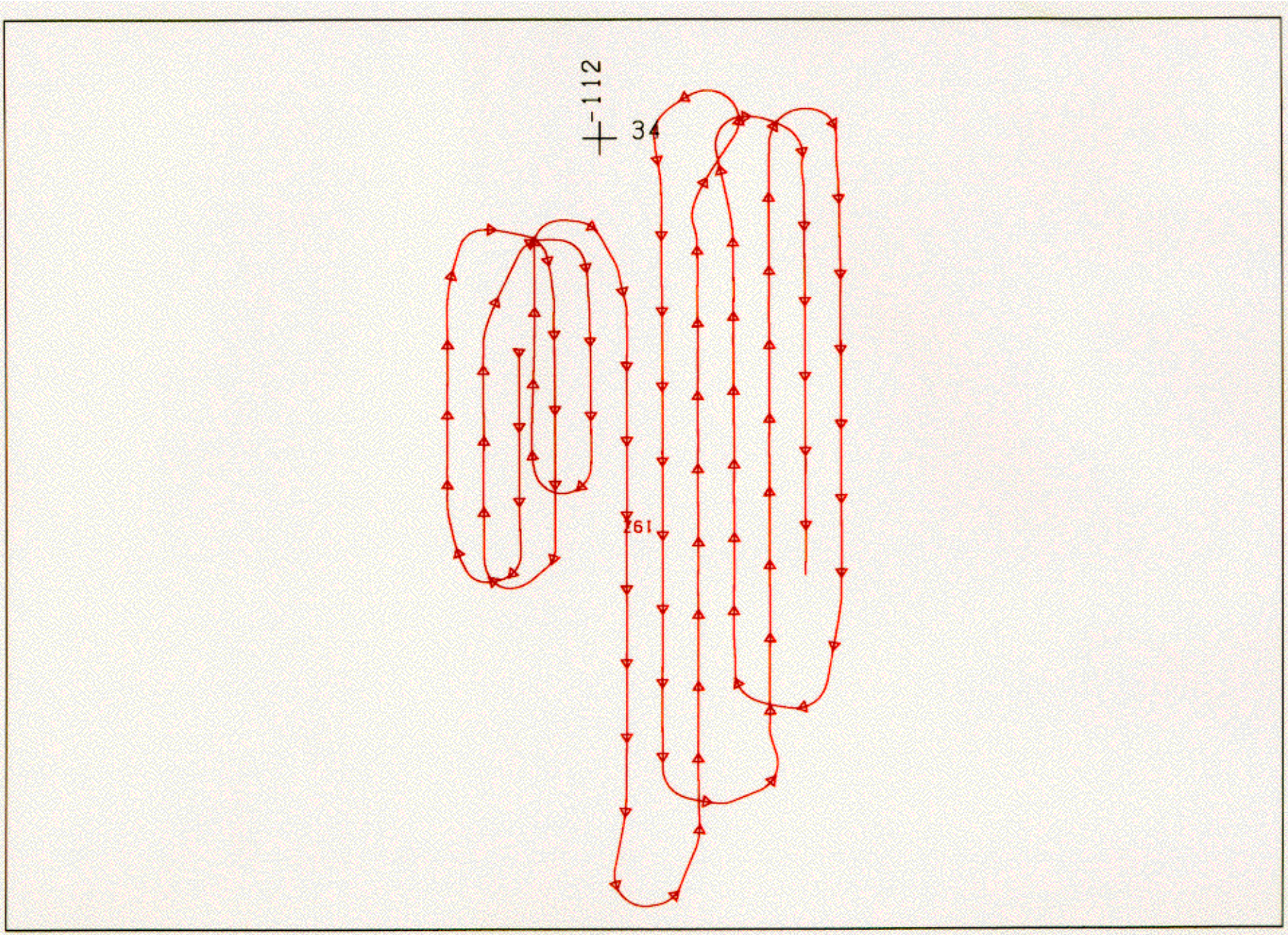
Notes: Site 736 Scottsdale / McDowell Mtns Arizona
Time Code generator inoperable, information generated from camera data sheet

CAMERA FLIGHT LINE DATA
FLIGHT NO. 97-004-01

Accession # 05166

Sensor # 017

Site #	Line #	Run #	Frame #	Time (GMT-hr, min, sec) START	Time (GMT-hr, min, sec) END	Altitude, MGL feet/meters	Cloud Cover/Remarks
736	10	1	0001-0009	18:04:02	18:05:21	10500/3200	Clear
736	12	1	0010-0015	18:09:25	18:10:50	10500/3200	Clear
736	9	1	0016-0024	18:15:05	18:16:24	10500/3200	Clear
736	11	1	0025-0030	18:20:36	18:22:02	10500/3200	Clear
736	8	1	0031-0037	18:25:48	18:27:09	10500/3200	Clear
736	7	1	0038-0058	18:34:20	18:39:43	10500/3200	Clear
736	5	1	0059-0085	18:44:22	18:51:16	10500/3200	Clear
736	6	1	0086-0112	18:56:20	19:03:04	10500/3200	Clear
736	3	1	0113-0135	19:07:50	19:12:07	10500/3200	Clear
736	1	1	0136-0155	19:16:29	19:20:46	10500/3200	Clear
736	4	1	0156-0176	19:25:10	19:29:30	10500/3200	Clear
736	2	1	0177-0202	19:33:50	19:38:07	10500/3200	Clear



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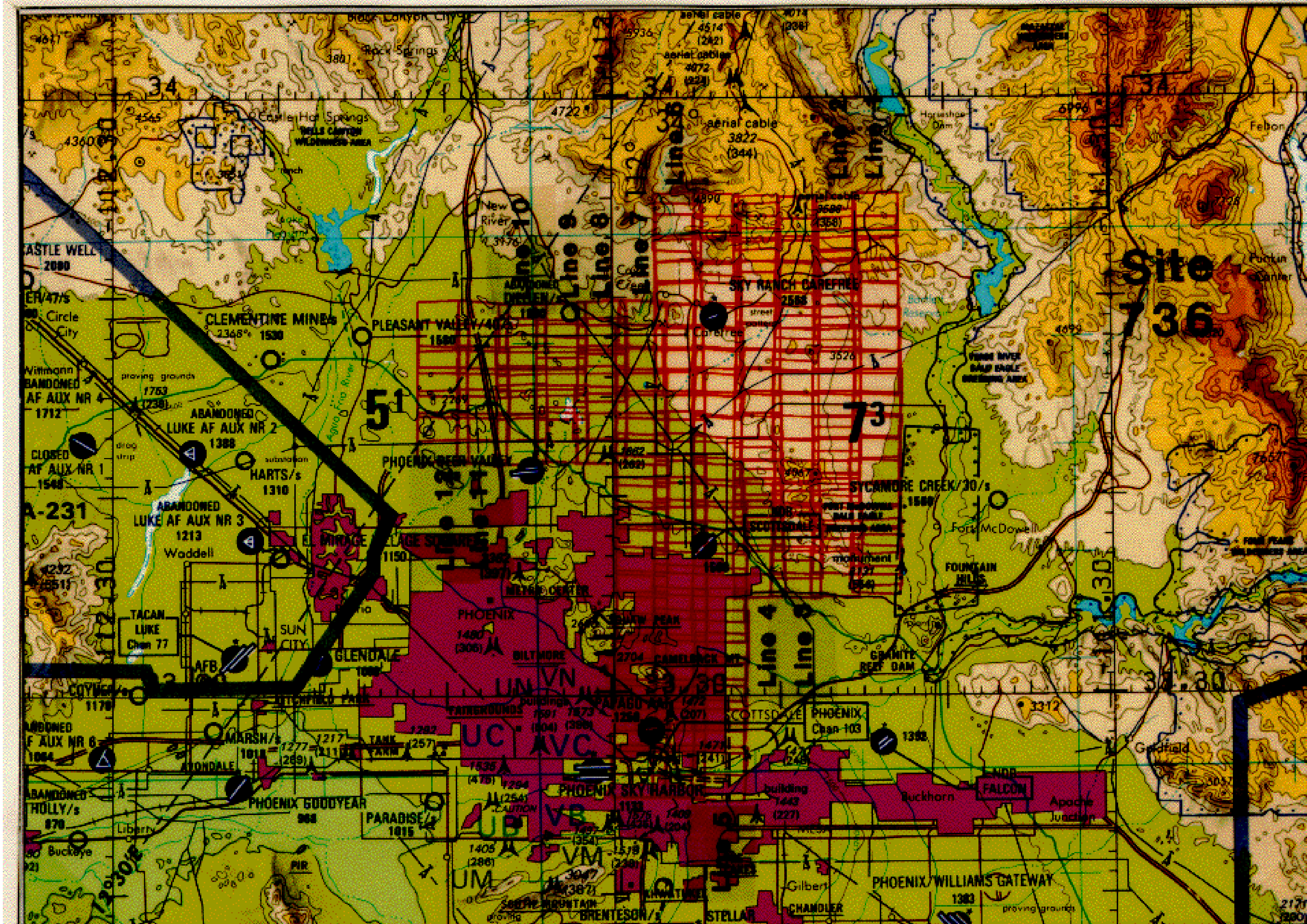

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