FLIGHT SUMMARY REPORT

Flight Number: 93-028

Calendar/Julian Date: 03 December 1992 • 338

Sensor Package: Wild-Heerbrug RC-10
Dual Hycon HR-732
Large Area Collectors (LACs)

Area(s) Covered: South Florida

Investigator(s): Meyer, NPS; Zolensky, NASA-JSC **Aircraft #:** 708

SENSOR DATA

Accession #:	04527	04528	04529
Sensor ID #:	026	038	039
Sensor Type:	RC-10	HR-732	HR-732
Focal Length:	12" 304.97 mm	24" 609.6 mm	24" 609.6 mm
Film Type:	High Definition Aerochrome IR SO-131	High Definition Aerochrome IR SO-131	High Definition Aerochrome IR SO-131
Filtration:	cc.10B	cc.10B	cc.10B
Spectral Band:	510-900 nm	510-900 nm	510-900 nm
f Stop:	4	8	8
Shutter Speed:	1/200	1/75	1/75
# of Frames:	403	368	382
% Overlap:	60	60	60
Quality:	Excellent	Excellent	Excellent
Remarks:	17.8 sec. offset between camera and navigation data	32.7 sec. offset between camera and navigation data	1.3 sec. offset between camera and navigation data

93-028

SENSOR DATA continued

Accession #:	-----
Sensor ID #:	100
Sensor Type:	LACs
Focal Length:	-----
Film Type:	-----
Filtration:	-----
Spectral Band:	-----
f Stop:	-----
Shutter Speed:	-----
# of Frames:	-----
% Overlap:	-----
Quality:	-----
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 camera system(s) used for data collection during this flight.

Large Area Collectors

The Large Area Collectors (LACs) are flown on NASA high altitude ER-2s in support of the NASA-Johnson Space Center Cosmic Dust Program. The LACs are used to collect comparatively unaltered cosmic dust from the stratosphere at ER-2 flight altitudes of 65,000 feet or higher. Sufficient quantities of extraterrestrial materials are collected to allow chemical and mineralogical compositions of individual particles to be determined. Study of these materials whose sources may be comets, asteroid collisions, planetary impacts, and meteorite ablation provide valuable information about the origin and history of the solar system.

Additional information regarding the Large Area Collectors may be obtained from Michael E. Zolensky, NASA-Johnson Space Center, SN2, Houston, Texas 77058 (Telephone (713) 483-5128).

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-Heerbrug RC-10 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).

Additional information regarding ER-2 acquired photographic and digital data is available through the Aircraft Data Facility at Ames Research Center. For specific information regarding flight documentation, sensor parameters, and areas of coverage contact the Aircraft Data Facility, NASA-Ames Research Center, Mail Stop 240-6, Moffett Field, California 94035-1000 (Telephone: (415) 604-6252).

CAMERA FLIGHT LINE DATA
FLIGHT NO. 93-028

Accession # 04527

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	6192-6229	15:47:45	16:04:56	65000/19800	Smoke obstruction (frames 6217-6221)
C - D	6230-6269	16:07:10	16:25:21	"	Thin cirrus (frames 6239-6246)
E - F	6270-6306	16:27:56	16:44:44	"	Clear
G - H	6307-6342	16:47:05	17:03:26	"	Thin cirrus (frames 6316-6317)
I - J	6343-6372	17:07:34	17:21:06	"	Clear
K - L	6373-6403	17:23:42	17:37:43	"	Clear
M - N	6404-6432	17:39:51	17:52:55	"	Clear
O - P	6433-6462	17:55:18	18:08:51	"	Minor cumulus (frame 6433)
Q - R	6463-6490	18:11:07	18:23:43	"	20% scattered cumulus (frame 6490)
S - T	6491-6508	18:31:22	18:39:17	"	Clear

CAMERA FLIGHT LINE DATA
FLIGHT NO. 93-028

Accession # 04527

Sensor # 026

Check Points	Frame Numbers	Time (GMT-hr, min, sec)		Altitude, MSL feet/meters	Cloud Cover/Remarks
		START	END		
U - V	6509-6523	18:41:38	18:48:10	65000/19800	Clear
W - X	6524-6536	18:51:17	18:56:52	"	Clear
Y - Z	6537-6549	19:05:23	19:10:57	"	Clear; oblique (frame 6549)
Z - 1	6550-6567	19:11:15	19:18:52	"	Clear
2 - 3	6568-6586	19:29:34	19:37:55	"	Clear
4 - 5	6587-6591	19:42:47	19:44:38	"	Clear; oblique (frame 6591)
5 - 6	6592-6594	19:45:06	19:46:02	"	Clear

CAMERA FLIGHT LINE DATA
FLIGHT NO. 93-028

Accession # 04528

Sensor # 038

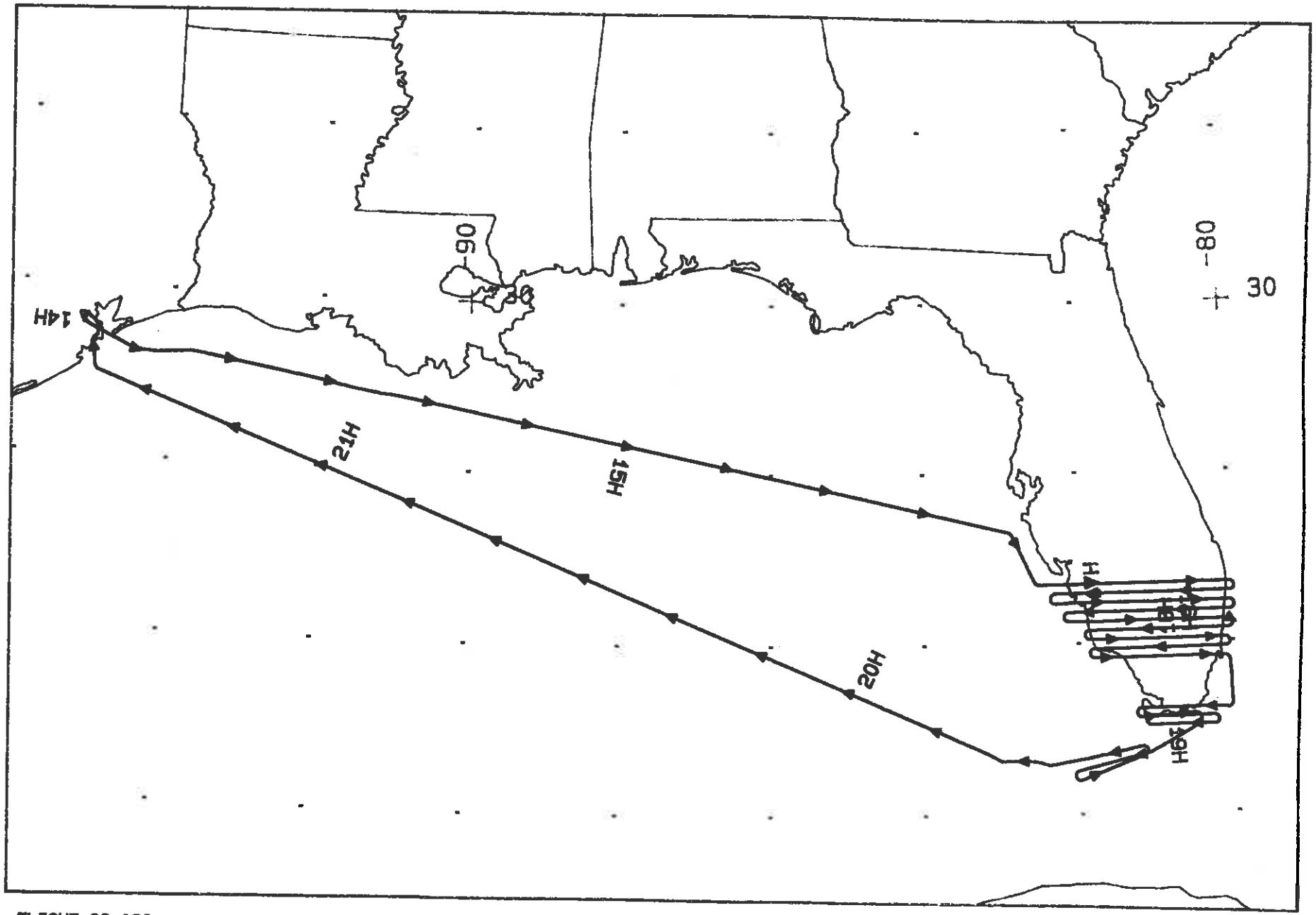
Check Points	Frame Numbers	Time (GMT-hr, min, sec)		Altitude, MSL feet/meters	Cloud Cover/Remarks
		START	END		
A - B	0001-0078	15:46:59	16:04:15	65000/19800	Smoke obstruction (frames 0047-0050, 0058-0060, and 0062-0065)
C - D	0079-0161	16:06:21	16:24:47	"	10% cirrus (frames 0097-0102 and 0105-0107); 10-20% cirrus (frames 0109-0112)
E - F	0162-0236	16:27:09	16:43:49	"	Clear
G - H	0237-0311	16:46:16	17:02:56	"	Thin cirrus (frames 0257-0259); smoke obstruction (frames 0268-0269)
I - J	0312-0368	17:06:46	17:19:22	"	Clear; stepwedge overprint (frames 0367-0368)

CAMERA FLIGHT LINE DATA
FLIGHT NO. 93-028

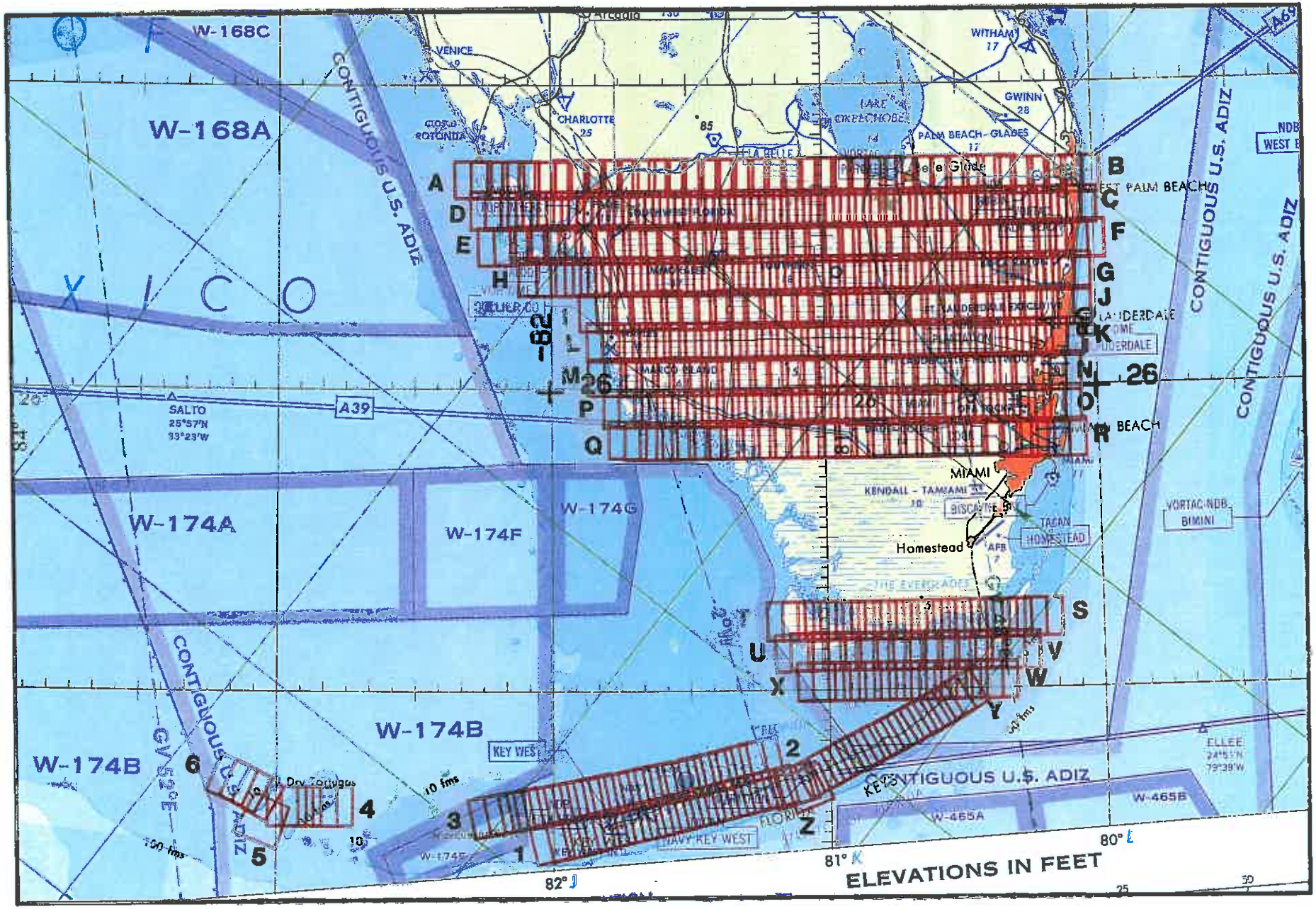
Accession # 04529

Sensor # 039

Check Points	Frame Numbers	Time (GMT-hr, min, sec) START	Time (GMT-hr, min, sec) END	Altitude, MSL feet/meters	Cloud Cover/Remarks
J	0001-0002	17:20:48	17:21:02	65000/19800	Clear; light struck (frame 0001)
K - L	0003-0066	17:23:22	17:37:33	"	Clear
M - N	0067-0126	17:39:34	17:52:52	"	Clear
O - P	0127-0188	17:55:00	18:08:46	"	Clear
Q - R	0189-0245	18:10:50	18:23:27	"	20% scattered cumulus (frame 0245)
S - T	0246-0282	18:31:05	18:39:11	"	Clear
U - V	0283-0313	18:41:21	18:48:06	"	Clear
W - Y	0314-0321	18:51:00	18:52:35	"	Clear
Y - Z	0322-0346	19:05:07	19:10:29	"	Clear; soft focus (frame 0346)
Z - 1	0347-0382	19:10:42	19:18:34	"	Clear; stepwedge overprint (frames 0381-0382)



FLIGHT 93-028 3 DECEMBER 1992 A/C 708 RC-10 / DUAL HR732



FLIGHT 93-028 3 DECEMBER 1992 A/C 708 RC-10 / DUAL HR 732 JNC 45