

# FLIGHT SUMMARY REPORT

**Flight #:** 91-173  
**Date:** 18 September 1991  
**Sensor Package:** Wild-Heerbrug RC-10  
Dual Hycon HR-732  
**Area(s) Covered:** Sierra Nevada Mountains, California

**Investigator(s):** Weber, USDA

**Aircraft #:** 706

**Flight Request:** 91R104

**Julian Date:** 261

## SENSOR DATA

<b>Accession #:</b>	04309	04310	04311
<b>Sensor ID #:</b>	034	038	039
<b>Sensor Type:</b>	RC-10	HR-732	HR-732
<b>Focal Length:</b>	12" 304.66 mm	24" 609.6 mm	24" 609.6 mm
<b>Film Type:</b>	High Definition Aerochrome IR SO131	High Definition Aerochrome IR SO131	High Definition Aerochrome IR SO131
<b>Filtration:</b>	cc.10B	cc.10B	cc.10B
<b>Spectral Band:</b>	510-900 nm	510-900 nm	510-900 nm
<b>f Stop:</b>	4	8	8
<b>Shutter Speed:</b>	1/125	1/75	1/75
<b># of Frames:</b>	374	405	310
<b>% Overlap:</b>	60	60	60
<b>Quality:</b>	Excellent	Excellent	Excellent
<b>Remarks:</b>			

## 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 descriptions of the camera systems flown onboard the ER-2s.

### 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. 91-173**

Accession # 04309

Sensor # 034

Check Points	Frame Numbers	Time (GMT-hr, min, sec)		Altitude, MSL feet/meters	Cloud Cover/Remarks
		START	END		
A - B	5046-5052	17:28:20	17:31:08	65000/19800	Clear
C - D	5053-5068	17:37:35	17:44:35	"	Clear
E - F	5069-5081	17:50:55	17:56:31	"	Clear
G - H	5082-5105	18:01:20	18:12:04	"	Clear
I - J	5106-5130	18:19:58	18:31:10	"	10% minor cirrus (frames 5111-5112, 5121)
K - L	5131-5161	18:35:29	18:49:29	"	10% minor cirrus (frames 5131, 5140)
M - N	5162-5185	18:57:29	19:08:13	"	Clear
O - P	5186-5208	19:12:20	19:22:36	"	Clear
Q - R	5209-5233	19:29:54	19:41:06	"	Clear
S - T	5234-5256	19:46:55	19:57:11	"	Clear

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Accession # 04309

Sensor # 034

Check Points	Frame Numbers	Time (GMT-hr, min, sec)		Altitude, MSL feet/meters	Cloud Cover/Remarks
		START	END		
U - V	5257-5290	20:06:25	20:21:57	65000/19800	Clear
W - X	5291-5316	20:29:28	20:41:20	"	20% smoke obscuration (frame 5291)
Y - Z	5317-5326	20:50:20	20:54:41	"	10% minor smoke (frame 5326)
a	5327	20:57:10	-----	"	Clear; single frame over Lower Yosemite Valley
b - c	5328-5333	21:04:40	21:07:05	"	Clear
d - e	5334-5356	21:13:35	21:24:13	"	Clear
f - g	5357-5382	21:31:40	21:43:45	"	Clear
h - i	5383-5394	21:50:37	21:55:56	"	Clear
j - a	5395-5404	22:00:40	22:05:01	"	Clear
k - l	5405-5414	22:10:33	22:14:54	"	Clear
m - n	5415-5419	22:20:15	22:22:11	"	Clear

**CAMERA FLIGHT LINE DATA  
FLIGHT NO. 91-173**

Accession # 04310

Sensor # 038

Check Points	Frame Numbers	Time (GMT-hr, min, sec)		Altitude, MSL feet/meters	Cloud Cover/Remarks
		START	END		
A - B	0001-0013	17:26:45	17:29:43	65000/19800	Clear
C - D	0014-0043	17:36:12	17:43:18	"	Very thin cirrus (frames 0014-0034)
E - F	0044-0068	17:49:25	17:55:17	"	Very thin cirrus (frames 0044-0068)
G - H	0069-0115	17:59:55	18:11:08	"	Very thin cirrus (frames 0069-0086); 10% smoke obstruction (frames 0078-0079)
I - J	0116-0162	18:18:34	18:29:45	"	Very thin cirrus (frames 0125-0127, 0152) 10% smoke obstruction (frames 0145-0146)
K - L	0163-0222	18:34:00	18:48:19	"	Minor-10% smoke obstruction (frames 0163-0166); very thin cirrus (frames 0163-0177); 10% cirrus (frame 0181)
M - N	0223-0268	18:56:05	19:07:00	"	Thin cirrus (frames 0235-0252, 260-268)
O - P	0269-0312	19:10:52	19:21:17	"	Clear

**CAMERA FLIGHT LINE DATA**  
**FLIGHT NO. 91-173**

Accession # 04310

Sensor # 038

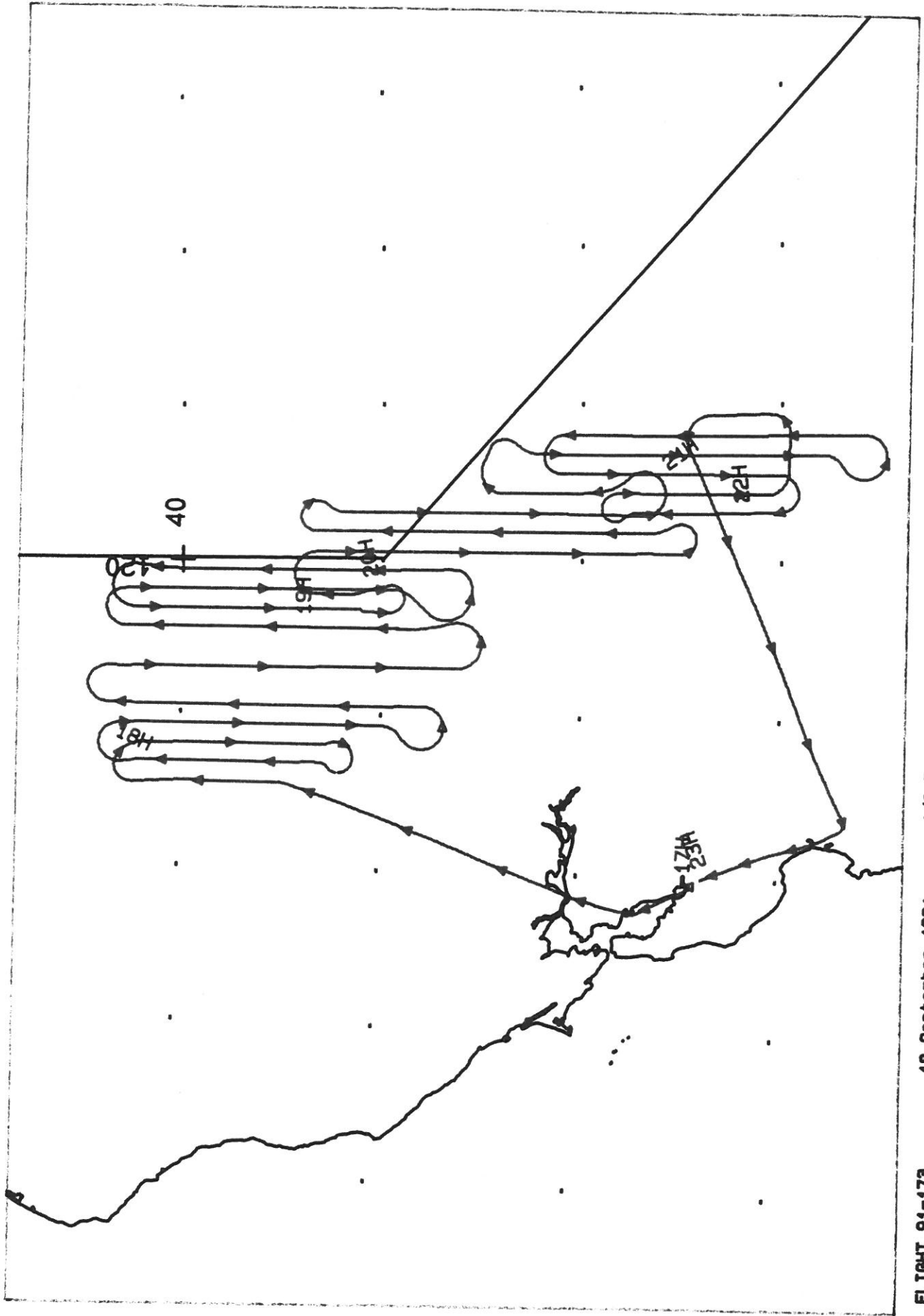
Check Points	Frame Numbers	Time (GMT-hr, min, sec)		Altitude, MSL feet/meters	Cloud Cover/Remarks
		START	END		
Q - R	0313-0360	19:28:30	19:39:53	65000/19800	Very thin cirrus (frames 0343-0350)
S - T	0361-0405	19:45:31	19:56:10	"	Very thin cirrus (frames 0372-0390)

**CAMERA FLIGHT LINE DATA**  
**FLIGHT NO. 91-173**

Accession # 04311

Sensor # 039

Check Points	Frame Numbers	Time (GMT-hr, min, sec)		Altitude, MSL feet/meters	Cloud Cover/Remarks
		START	END		
U - V	0001-0066	20:05:38	20:21:23	65000/19800	Light strike (frame 0001); minor smoke obstruction (frames 0050-0052)
W - X	0067-0116	20:28:26	20:40:18	"	20% smoke obstruction (frame 0067)
Y - Z	0117-0134	20:49:37	20:53:43	"	Clear
a	135	20:56:52	-----	"	Clear
b - c	0136-0146	21:04:09	21:06:34	"	Clear
d - e	0147-0191	21:12:56	21:23:35	"	Clear
f - g	0192-0241	21:30:58	21:42:50	"	Clear
h - i	0242-0264	21:49:55	21:55:15	"	Clear
j - a	0265-0282	22:00:06	22:04:13	"	Clear
k - l	0283-0301	22:09:48	22:14:09	"	Clear
m - n	0302-0310	22:19:43	22:21:39	"	Clear



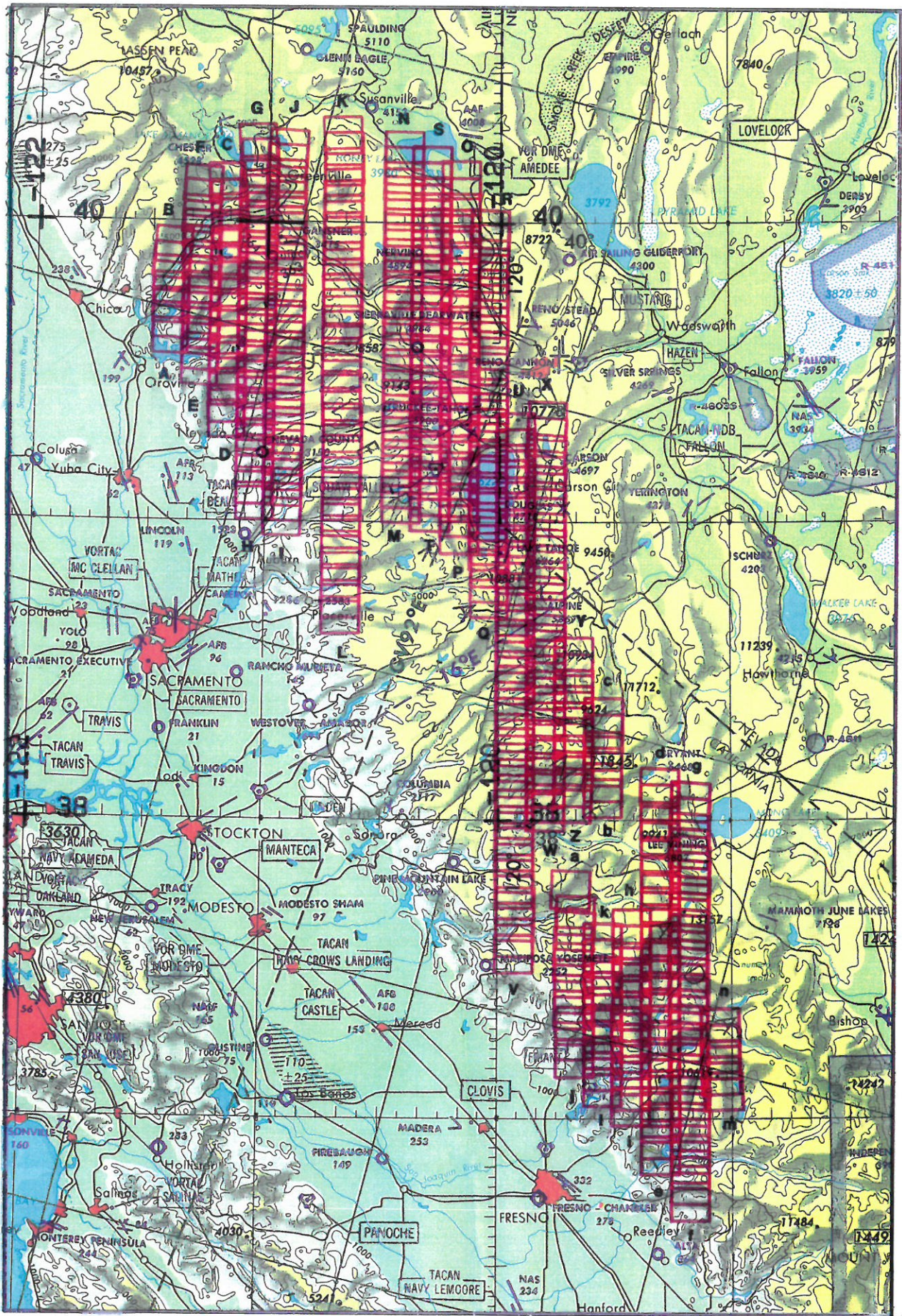
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18 September 1991

A/C 706

Dual HR-732 / RC-10





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 A/C 706  
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