

FLIGHT SUMMARY REPORT

Flight #: 90-140
Date: 01 September 1990
Sensor Package: Wild-Heerbrug RC-10
Dual Hycon HR-732
Area(s) Covered: Indiana/Ohio
Wallops Island

Investigator(s): Weber, USDA
Flight Request: 90R258

Aircraft #: 706
Julian Date: 244

SENSOR DATA

Accession #:	04104	04105	04106
Sensor ID #:	076	018	019
Sensor Type:	RC-10	HR-732	HR-732
Focal Length:	12" 304.89 mm	24" 609.6 mm	24" 609.6 mm
Film Type:	High Definition Aerochrome IR SO-131	High Definition Aerochrome IR SO-131	Aerial Color SO-242
Filtration:	cc.30B	cc.40B	None
Spectral Band:	510-900 nm	510-900 nm	400-700 nm
f Stop:	4	8	8
Shutter Speed:	1/200	1/75	1/75
# of Frames:	74	130	142
% Overlap:	60	60	60
Quality:	Excellent	Excellent	Excellent
Remarks:		Clock inoperative	

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. 90-140**

Accession # 04104

Sensor # 076

Check Points	Frame Numbers	Time (GMT-hr, min, sec)		Altitude, MSL feet/meters	Cloud Cover/Remarks
		START	END		
A - B	6965-6968	15:53:03	15:54:48	65000/19800	10% strato cumulus (frames 6965-6967)
C - D	6969-6973	15:57:19	15:59:42	"	10% strato cumulus (frames 6972-6973)
E - F	6974-6979	16:02:21	16:05:22	"	10% minor strato cumulus (frames 6977-6978)
G - H	6980-6985	16:07:58	16:10:59	"	10% minor strato cumulus (frames 6981-6983)
I - J	6986-6991	16:13:33	16:16:34	"	10% minor strato cumulus (frames 6986-6991)
K - L	6992-6996	16:19:05	16:21:12	"	10% minor strato cumulus (frames 6992-6996)
M - N	6997-7005	16:47:52	16:52:44	"	10-20% cumulus (frames 6997-7005)
O - P	7006-7013	16:55:25	16:59:20	"	10-20% cumulus (frames 7006-7013)

**CAMERA FLIGHT LINE DATA
FLIGHT NO. 90-140**

Accession # 04104

Sensor # 076

Check Points	Frame Numbers	Time (GMT-hr, min, sec)		Altitude, MSL feet/meters	Cloud Cover/Remarks
		START	END		
Q - R	7014-7022	17:01:49	17:06:41	65000/19800	10-30% cumulus (frames 7014-7022)
S - T	7023-7033	18:25:18	18:30:46	"	Clear; clearing frames over Wallops Island; oblique (frames 7029-7033)
U - V	7034-7038	18:31:24	18:33:55	"	Clear

**CAMERA FLIGHT LINE DATA
FLIGHT NO. 90-140**

Accession # 04105

Sensor # 018

Check Points	Frame Numbers	Time (GMT-hr, min, sec)		Altitude, MSL feet/meters	Cloud Cover/Remarks
		START	END		
A - B	0001-0008	15:52:24	15:54:07	65000/19800	10-20% scattered cumulus (frames 0002-0005)
C - D	0009-0018	15:56:40	15:58:52	"	10% minor strato cumulus (frames 0017-0018)
E - F	0019-0031	16:01:42	16:04:38	"	10% minor strato cumulus (frames 0028-0029)
G - H	0032-0044	16:07:19	16:10:15	"	10% scattered cumulus (frames 0035-0039)
I - J	0045-0057	16:12:54	16:15:50	"	10% minor cumulus (frames 0047-0057)
K - L	0058-0066	16:18:26	16:20:24	"	10-20% cumulus (frames 0058-0066)
M - N	0067-0086	16:47:13	16:51:51	"	10-30% cumulus (frames 0067-0086)
O - P	0087-0104	16:54:45	16:58:54	"	10-40% cumulus (frames 0087-0104)

**CAMERA FLIGHT LINE DATA
FLIGHT NO. 90-140**

Accession # 04105

Sensor # 018

Check Points	Frame Numbers	Time (GMT-hr, min, sec)		Altitude, MSL feet/meters	Cloud Cover/Remarks
		START	END		
Q - R	0105-0125	17:01:10	17:06:03	65000/19800	10-30% cumulus (frames 0105-0117); 10% cumulus (frames 0124-0125)
S - T	0126-0130	18:24:39	18:25:37	"	Clear; clearing frame over Wallops Island
Camera's clock battery failed -- times taken from Accession #04106					

**CAMERA FLIGHT LINE DATA
FLIGHT NO. 90-140**

Accession # 04106

Sensor # 019

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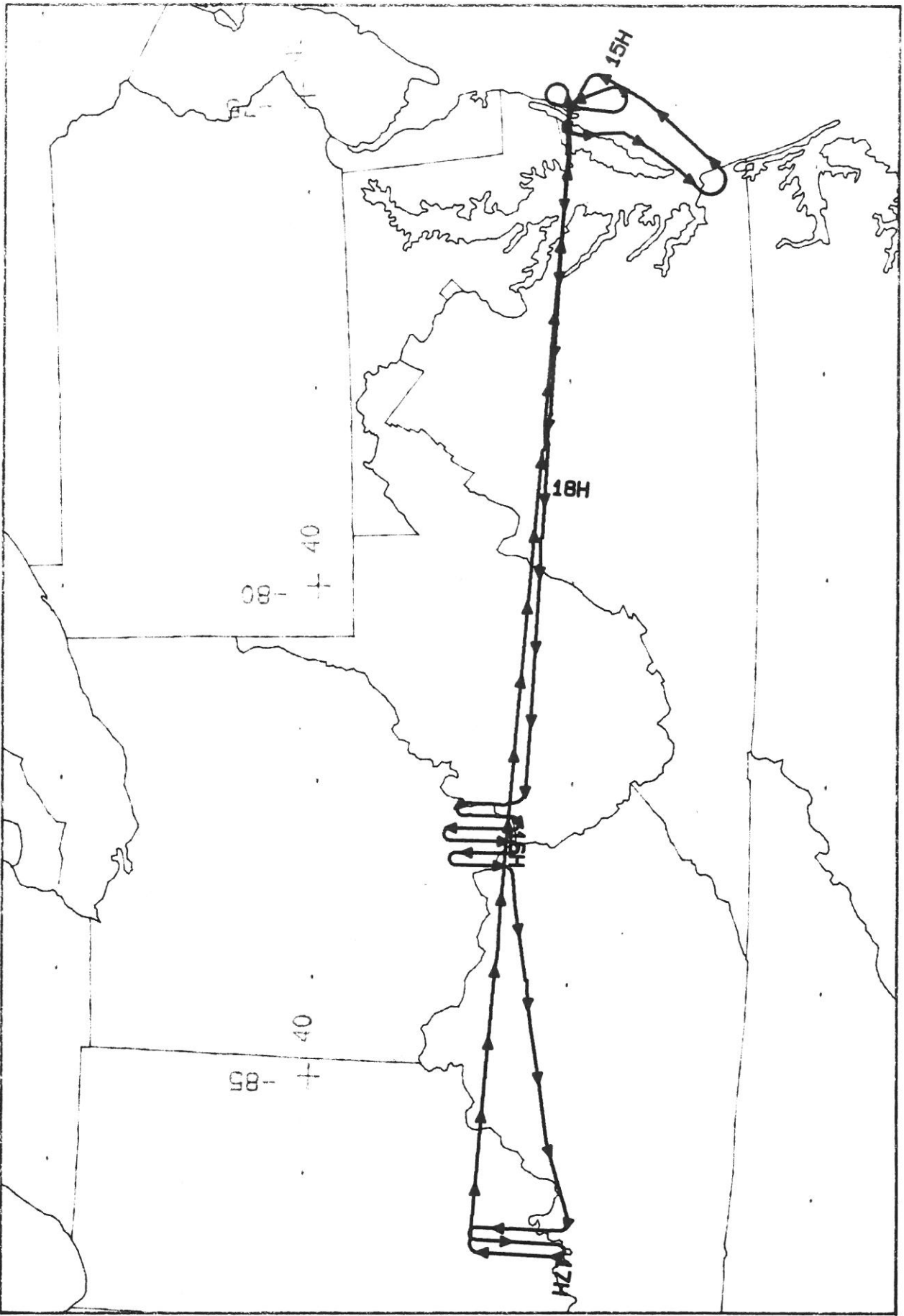
Check Points	Frame Numbers	Time (GMT-hr, min, sec)		Altitude, MSL feet/meters	Cloud Cover/Remarks
		START	END		
-----	0001-0008	15:03:41	15:05:09	65000/19800	10% scattered cumulus (frames 0004-0008); oblique (frame 0004); clearing frame over Wallops Island
A - B	0009-0016	15:52:24	15:54:07	"	10-20% strato cumulus (frames 0010-0013)
C - D	0017-0026	15:56:40	15:58:52	"	10% minor strato cumulus (frames 0025-0026)
E - F	0027-0039	16:01:42	16:04:38	"	10% minor cumulus (frames 0036-0037)
G - H	0040-0052	16:07:19	16:10:15	"	10% scattered cumulus (frames 0043-0047)
I - J	0053-0065	16:12:54	16:15:50	"	10% minor cumulus (frames 0055-0065)
K - L	0066-0074	16:18:26	16:20:24	"	10-20% cumulus (frames 0066-0074)
M - N	0075-0094	16:47:13	16:51:51	"	10-30% cumulus (frames 0075-0094)
O - P	0095-0112	16:54:45	16:58:54	"	10-40% cumulus (frames 0095-0112)

**CAMERA FLIGHT LINE DATA
FLIGHT NO. 90-140**

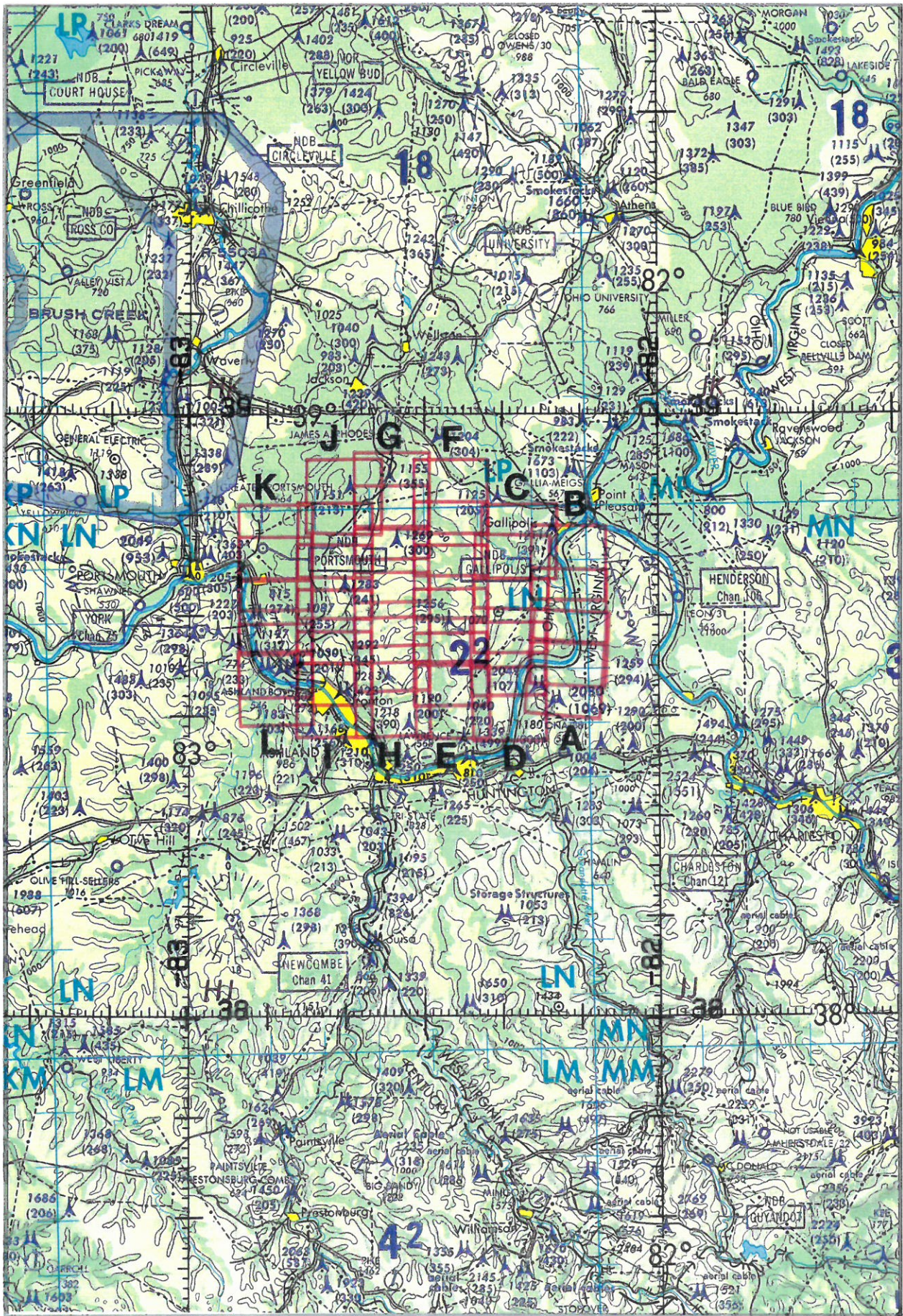
Accession # 04106

Sensor # 019

Check Points	Frame Numbers	Time (GMT-hr, min, sec)		Altitude, MSL feet/meters	Cloud Cover/Remarks
		START	END		
Q - R	0113-0133	17:01:10	17:06:03	65000/19800	10-30% cumulus (frames 0113-0125); 10% minor cumulus (frames 0132-0133)
S - T	0134-0142	18:24:39	18:26:35	"	Clear; clearing frame over Wallops Island



FLIGHT 90-140 1 September 1990 A/C 706 Dual HR-732 / RC-10



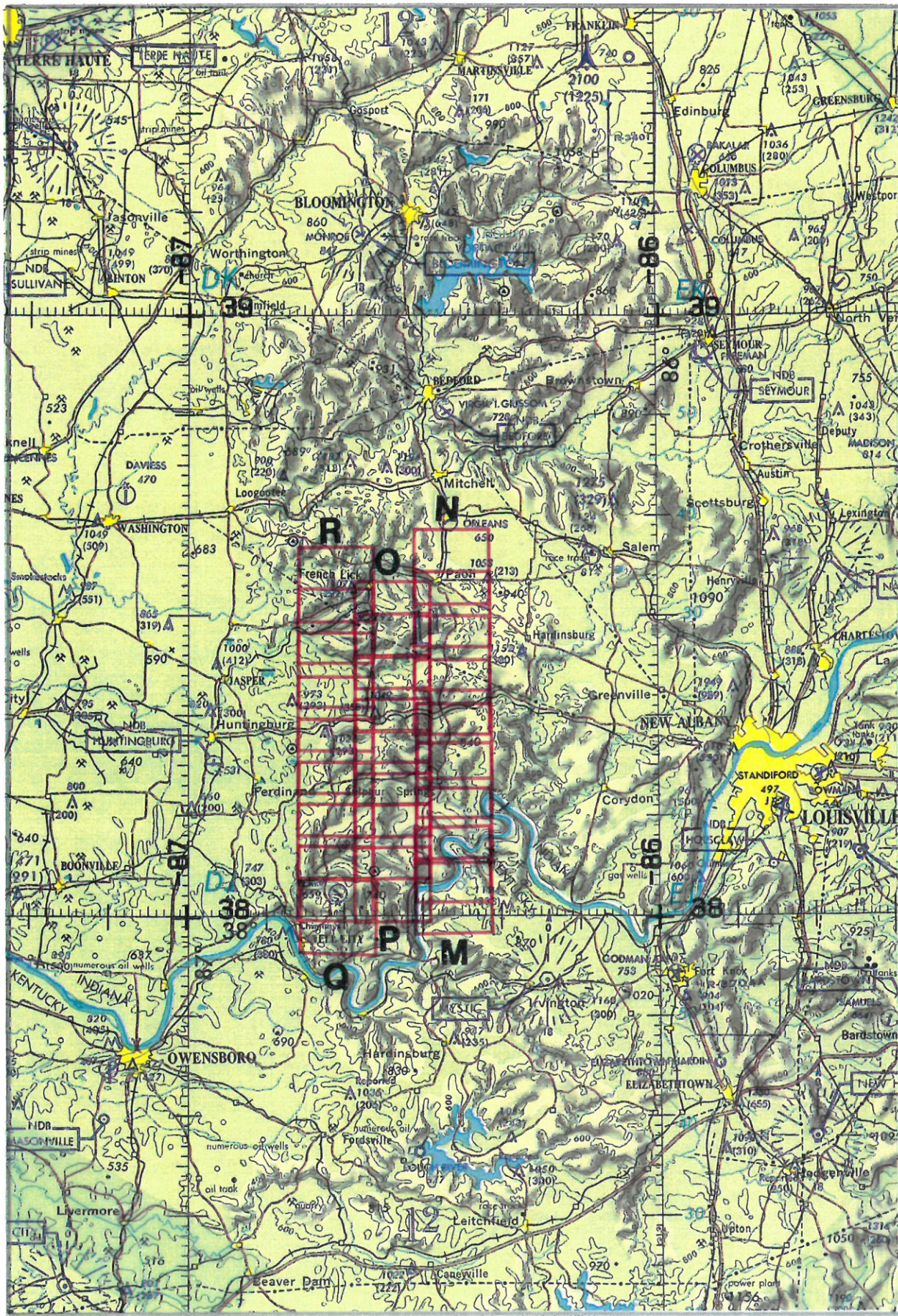
ONC 6-21

Accession # 04104

Dual NR-792 / RC-10

1 September 1990

FLIGHT 90-140



ONC 6-20

Accession # 04104

Dual NR-792 / RC-10

1 September 1990

FLIGHT 90-140

