

FLIGHT SUMMARY REPORT

Flight Number: 94-543
Calendar/Julian Date: 28 May 1994 • 148
08 June 1994 • 159
09 June 1994 • 160
Sensor Package: Wild-Heerbrugg RC-10
Area(s) Covered: Great Lakes

Investigator(s): Handley, USFWS

Aircraft #: -----

SENSOR DATA

Accession #: 04769
Sensor ID #: 017
Sensor Type: RC-10
Focal Length: 6"
153.43 mm
Film Type: Aerochrome IR
2443
Filtration: Wratten 12
Spectral Band: 510-900 nm
f Stop: 5.6
Shutter Speed: 1/175
of Frames: 221
% Overlap: 60
Quality: Excellent
Remarks: Data acquired through outside contract (Kucera International)

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.

Program Support

Photography documented in this flight summary was acquired by Kucera International Inc., an aerial photography firm based in Willoughby, Ohio, on three dates over the Great Lakes in support of the Airborne Science and Applications Program.

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 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. 94-543**

Accession # 04769

Sensor # 017

Site #	Line #	Run #	Frame #	Time (GMT-hr, min, sec)		Altitude, MGL feet/meters	Cloud Cover/Remarks
				START	END		
Flight Data: 28 May 1994							
543	---	---	0000-0001	13:47:54	13:47:56	11800/3597	Clearing frames; light strike (frame 0000)
543	12	1	0002-0009	13:57:08	14:00:00	12000/3658	Clear
543	---	---	0010	14:01:04	---	12000/3658	Clear; oblique frame
543	10	1	0011-0017	14:03:08	14:05:27	12000/3658	Clear
543	11	1	0018-0029	14:25:31	14:34:32	11800/3597	Clear
543	6	1	0030-0042	14:39:49	14:44:11	11800/3597	Clear
543	9	1	0043-0045	14:53:13	14:53:54	11800/3597	Clear
543	9	2	0046-0047	15:01:24	15:01:46	11800/3597	Clear
543	5	1	0048-0052	15:10:25	15:10:35	11800/3597	Clear
543	5	2	0053-0061	15:14:01	15:17:28	12000/3283	Clear

NOTE: Camera set to local time, 4 hours added to obtain correct GMT

**CAMERA FLIGHT LINE DATA
FLIGHT NO. 94-543**

Accession # 04769

Sensor # 017

Site #	Line #	Run #	Frame #	Time (GMT-hr, min, sec)		Altitude, MGL feet/meters	Cloud Cover/Remarks
				START	END		
543	9	3	0062-0068	15:25:22	15:28:56	12000/3658	Clear
543	9	4	0069-0076	15:33:15	15:35:42	11800/3600	Clear
543	5	3	0077-0086	15:13:40	15:16:55	11800/3600	Clear; oblique (frame 0086)
Flight Data: 08 June 1994							
543	---	---	0087-0090	14:32:12	14:32:42	8200/2500	Clearing frames
543	4	1	0091-0095	14:46:46	14:48:23	12000/3658	Clear
543	4	2	0096-0104	14:54:56	14:57:47	12000/3658	Clear
543	3	1	0105-0113	15:13:40	15:16:55	12000/3658	Clear
543	3	2	0114-0119	15:21:46	15:23:47	12000/3658	Clear
543	3	3	0120-0132	15:28:57	15:33:38	12000/3658	Clear
543	2	1	0133-0137	16:09:27	16:10:55	12000/3658	Clear

NOTE: Camera set to local time, 4 hours added to obtain correct GMT

CAMERA FLIGHT LINE DATA

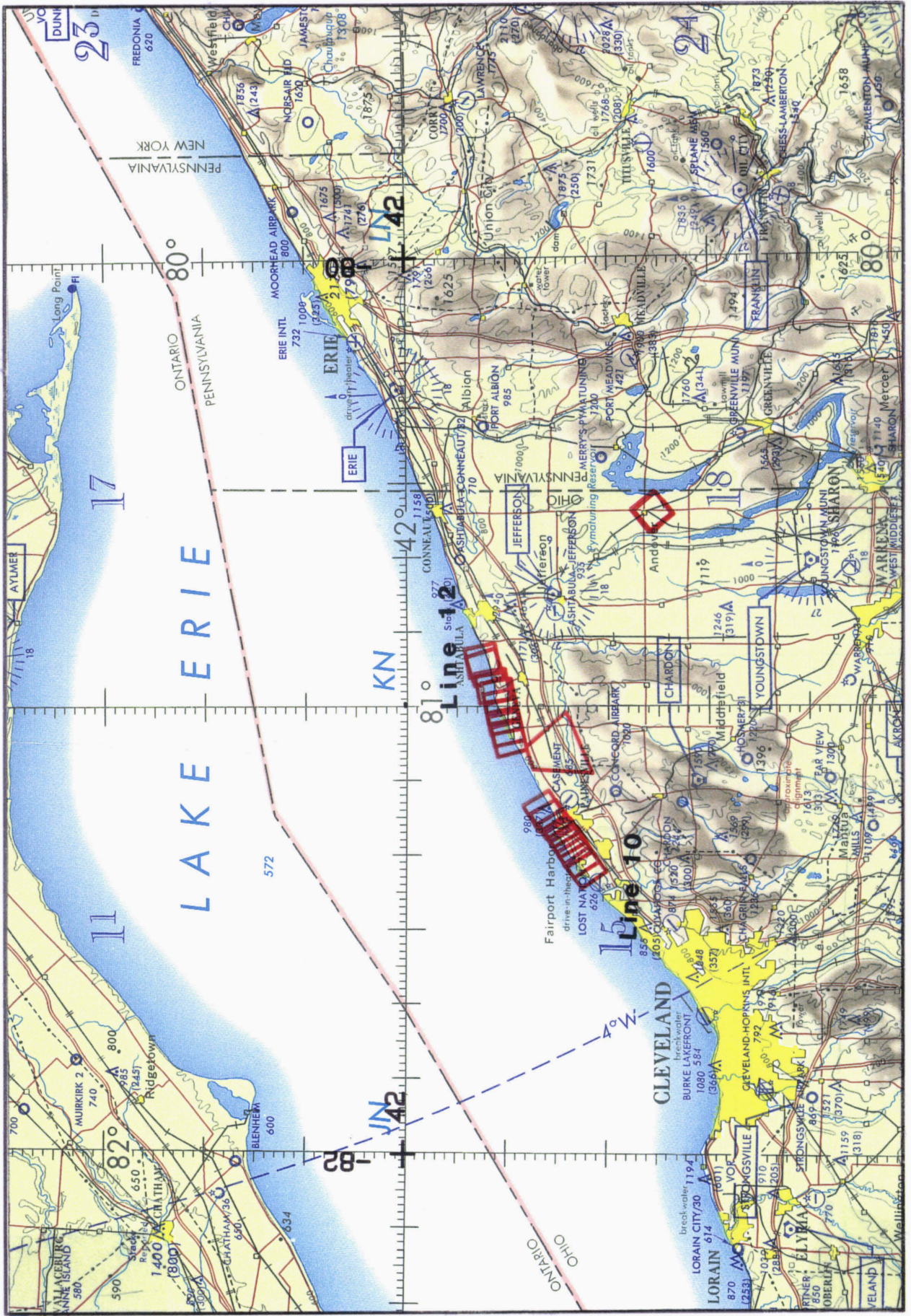
FLIGHT NO. 94-543

Accession # 04769

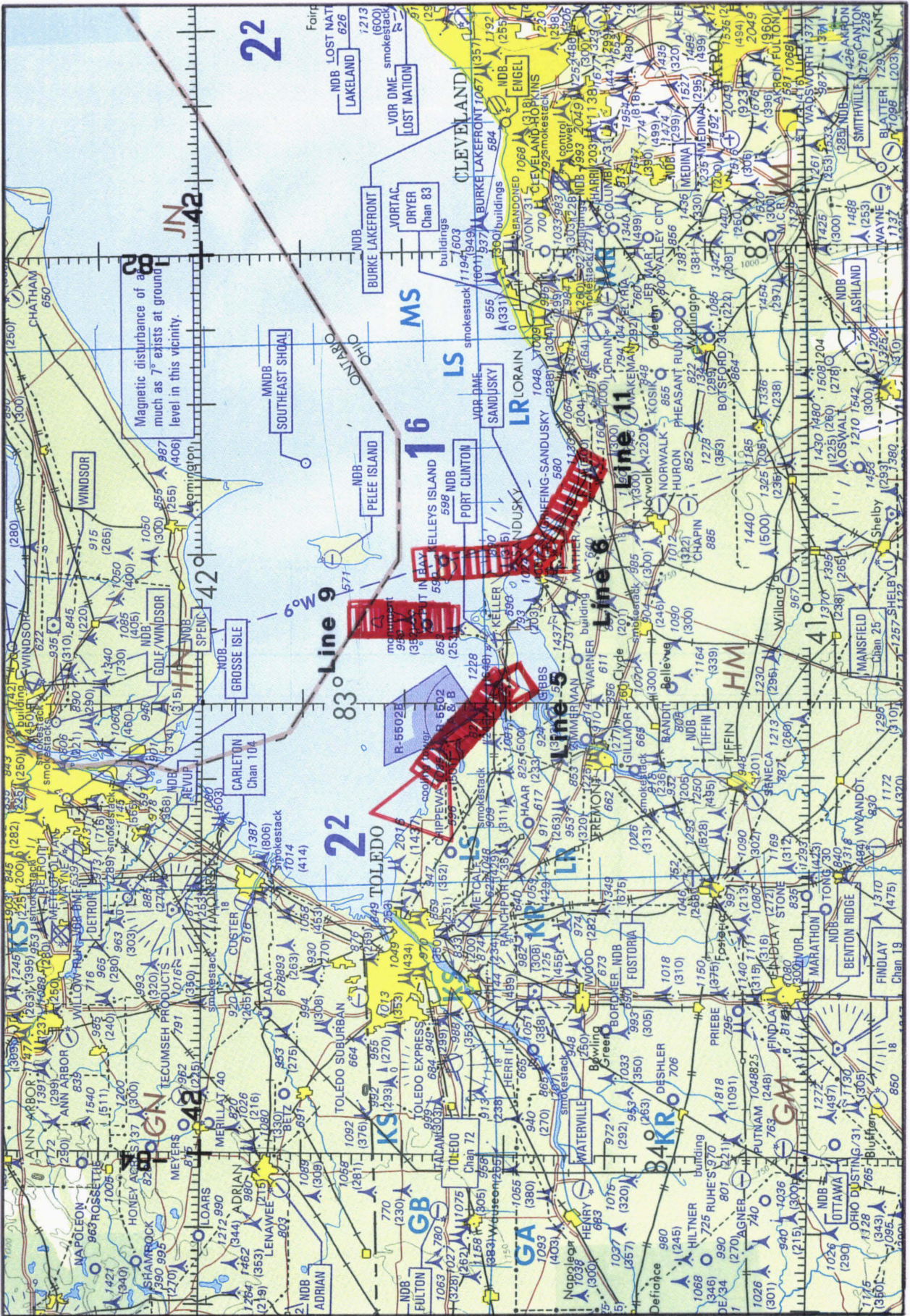
Sensor # 017

Site #	Line #	Run #	Frame #	Time (GMT-hr, min, sec)		Altitude, MGL feet/meters	Cloud Cover/Remarks
				START	END		
543	1	1	0138-0149	16:15:46	16:20:43	12000/3658	Clear
543	1	2	0150-0157	16:24:09	16:25:29	12000/3658	Clear
Flight Data: 09 June 1994							
543	13	1	0158-0163	14:03:45	14:05:32	11200/3414	Clear
543	14	1	0164-0171	14:11:51	14:15:29	11200/3414	Clear
543	---	---	0172-0176	14:17:40	14:17:43	11200/3414	Clearing frames
543	14	2	0177-0185	14:25:54	14:28:54	11200/3414	Clear
543	7	1	0186-0190	14:33:38	14:35:02	11200/3414	Clear
543	8	1	0191-0195	14:40:14	14:41:50	11200/3414	Clear
543	8	2	0196-0206	14:46:26	14:50:36	11200/3414	Clear
543	15	1	0207-0214	14:59:52	15:02:52	11200/3414	Clear
543	15	2	0215-0219	15:05:54	15:07:13	11200/3414	Clear

NOTE: Camera set to local time, 4 hours added to obtain correct GMT



FLIGHT 94-543 28 MAY 1994 06 JUNE 1994 09 JUNE 1994 RC-10 6" LENS ONC F-18



FLIGHT 94-543 28 MAY 1994 08 JUNE 1994 09 JUNE 1994 RC-10 6° LENS ONC F-18



ONC F-18

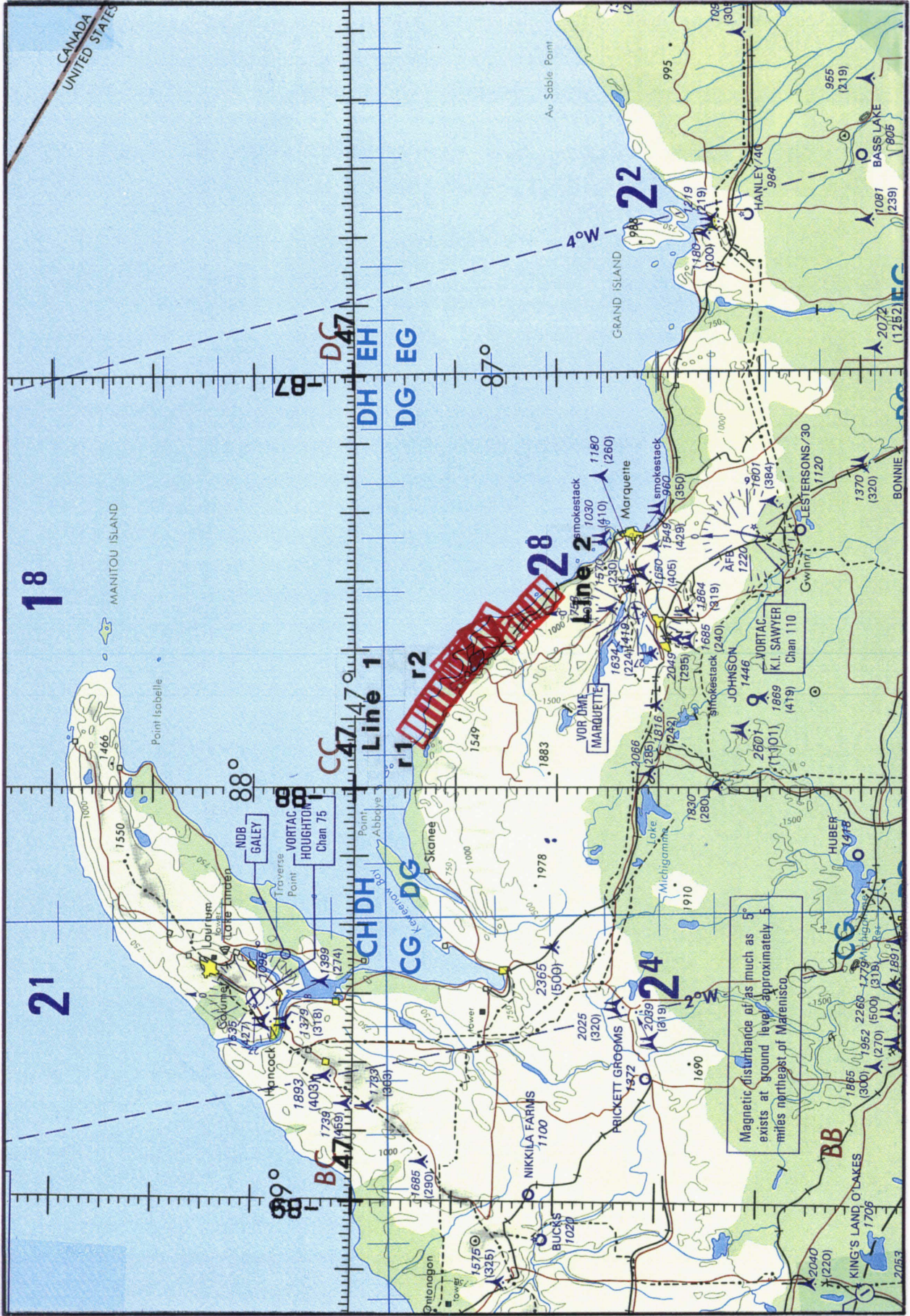
RC-10 6" LENS

09 JUNE 1994

08 JUNE 1994

28 MAY 1994

FLIGHT 94-543





FLIGHT 94-543 28 MAY 1994 08 JUNE 1994 09 JUNE 1994 RC-10 6" LENS ONC F-18