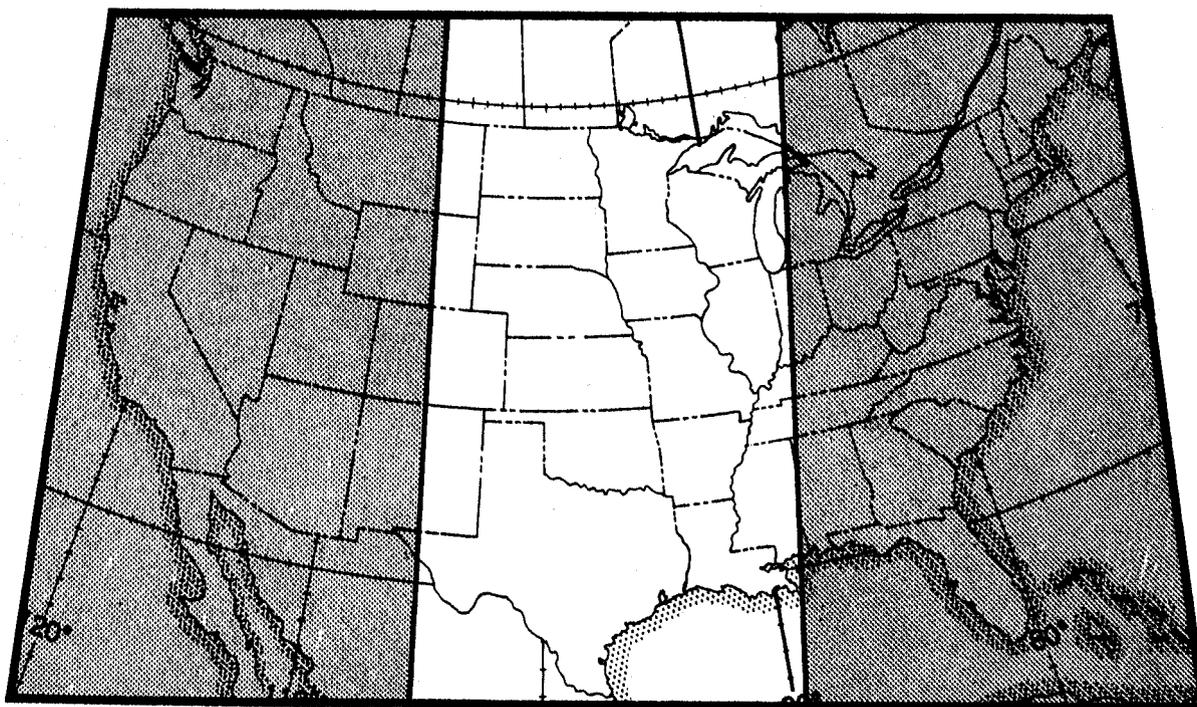


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ENVIRONMENTAL SCIENCE SERVICES ADMINISTRATION
NATIONAL ENVIRONMENTAL SATELLITE CENTER

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1967

TIROS CLOUD FREE ATLAS

NORTH AMERICA
CENTRAL UNITED STATES
SPRING SEASON



WASHINGTON, D. C.
JANUARY 1967



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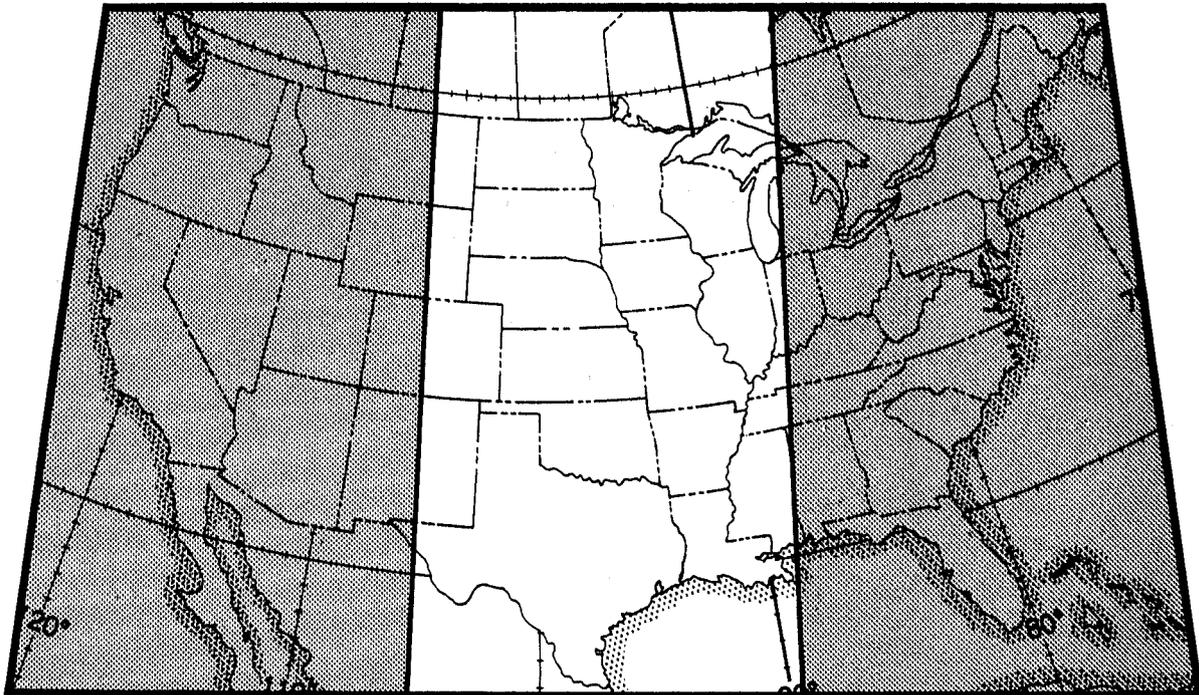
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TIROS CLOUD FREE ATLAS

By

U.S. Robert W. Popham and Maurice Baliles
National Environmental Satellite Center
Environmental Science Services Administration



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1967

Prepared by
THE WALTER A. BOHAN COMPANY
911 Busse Highway Park Ridge, Illinois

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**National Oceanic and Atmospheric Administration
TIROS Satellites and Satellite Meteorology**

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TIROS CLOUD FREE ATLAS

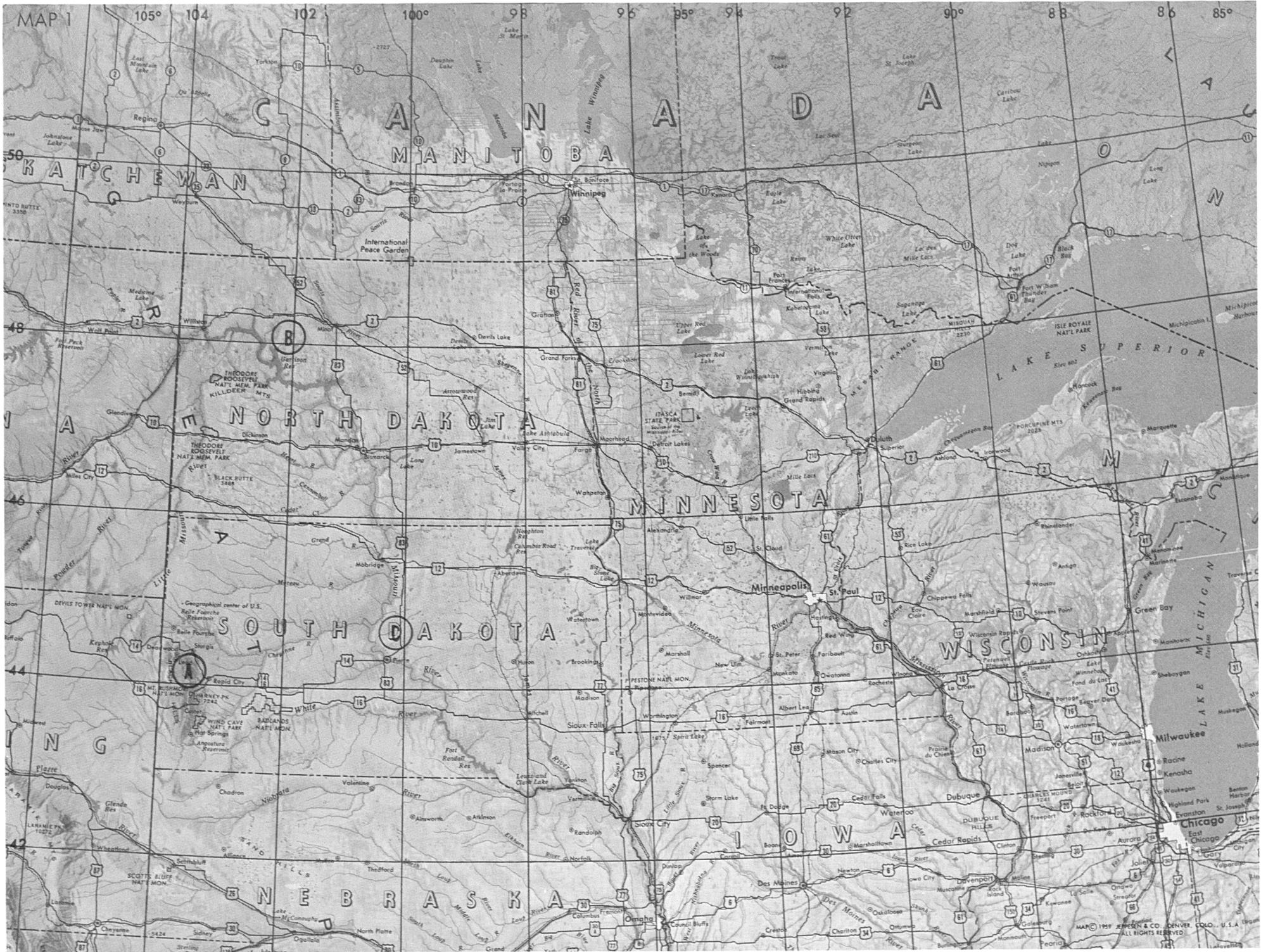
compiled and edited by
R. W. Popham and M. Baliles

Highly reflective terrestrial features seen in TV photographs from weather satellites have the same apparent brightness as many cloud features, and for this reason the two are often confused. Satellite picture interpretation requires that salt flats, sandy deserts, coral reefs, ice, snow, and other such features be properly identified. The highly reflective deserts, particularly those in New Mexico, Nevada, and Utah offer some difficulty to the unskilled interpreter. Snow cover, particularly in the central plains of the United States, is especially difficult to distinguish from clouds, even for the relatively experienced interpreter. Ice, although somewhat of a problem, is not quite as difficult to distinguish from clouds as is snow cover over the U.S., mainly because of its restriction by natural geographic boundaries. In order to properly identify highly reflective surface features one must learn to recognize their shape, appearance, and general characteristics.

This TIROS CLOUD FREE ATLAS is one of a series of three atlases to be published containing essentially cloud free satellite photographs of the United States and contiguous areas of Canada and Mexico. The atlases have been compiled primarily for use at meteorological stations within the continental U.S. capable of receiving pictures from satellites equipped with automatic picture transmission (APT) systems. They are intended for use as a guide in training meteorological personnel to recognize those surface features which might otherwise be interpreted as clouds.

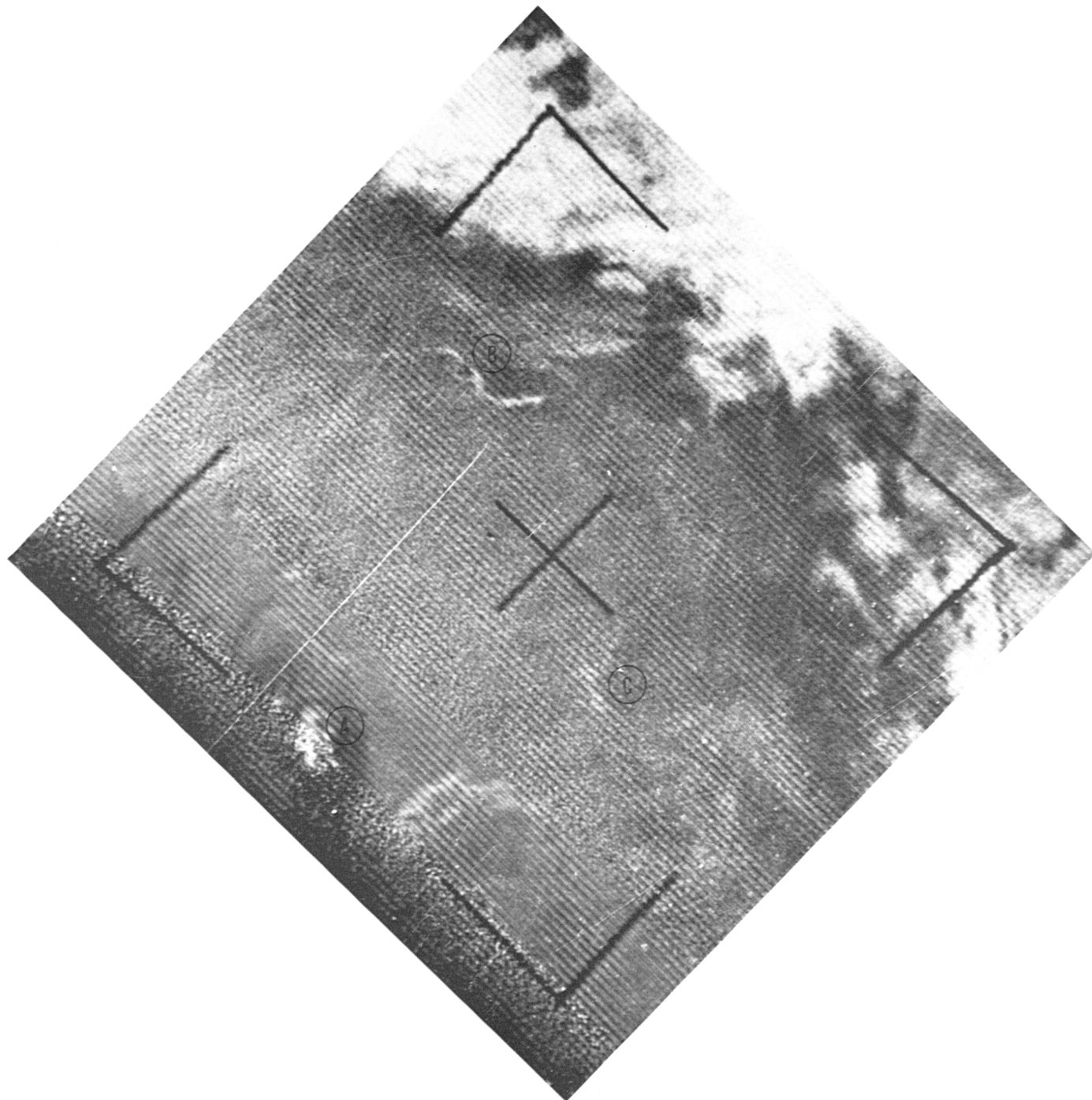
All photographs contained in these atlases were received from TIROS satellites employing 78° or 104° lens systems, from altitudes of from 360-600 statute miles. The pictures were acquired over a period of several years, but all show the earth as it appears during spring in the Northern Hemisphere (March 20-June 21). Some of the more readily recognizable surface features have been identified. Also, since it is frequently difficult to obtain completely cloud free pictures over so large an area as that photographed by the TIROS satellites, transient cloud features have been labeled.

These atlases were compiled by the Applications Group of the National Environmental Satellite Center, ESSA. The editors wish to gratefully acknowledge the assistance and cooperation of the personnel of NESC's Photographic Laboratory and Documentation Section who have helped prepare these photographs for publication.



April 4, 1962
2010 GMT Tape Mode
TIROS IV Pass 798
Camera 2 Frame 10

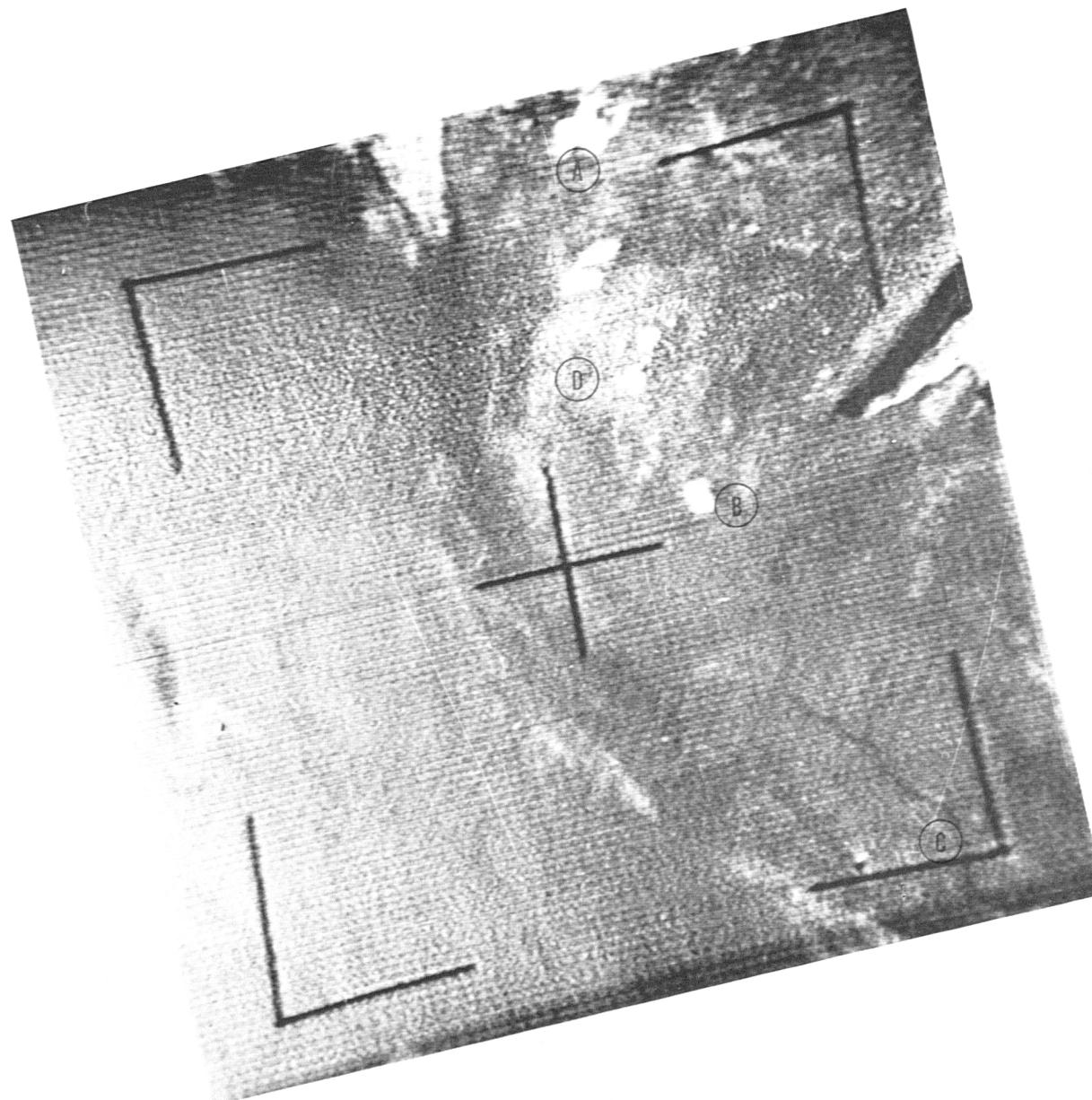
- A. Black Hills
- B. Garrison Reservoir
- C. Missouri River

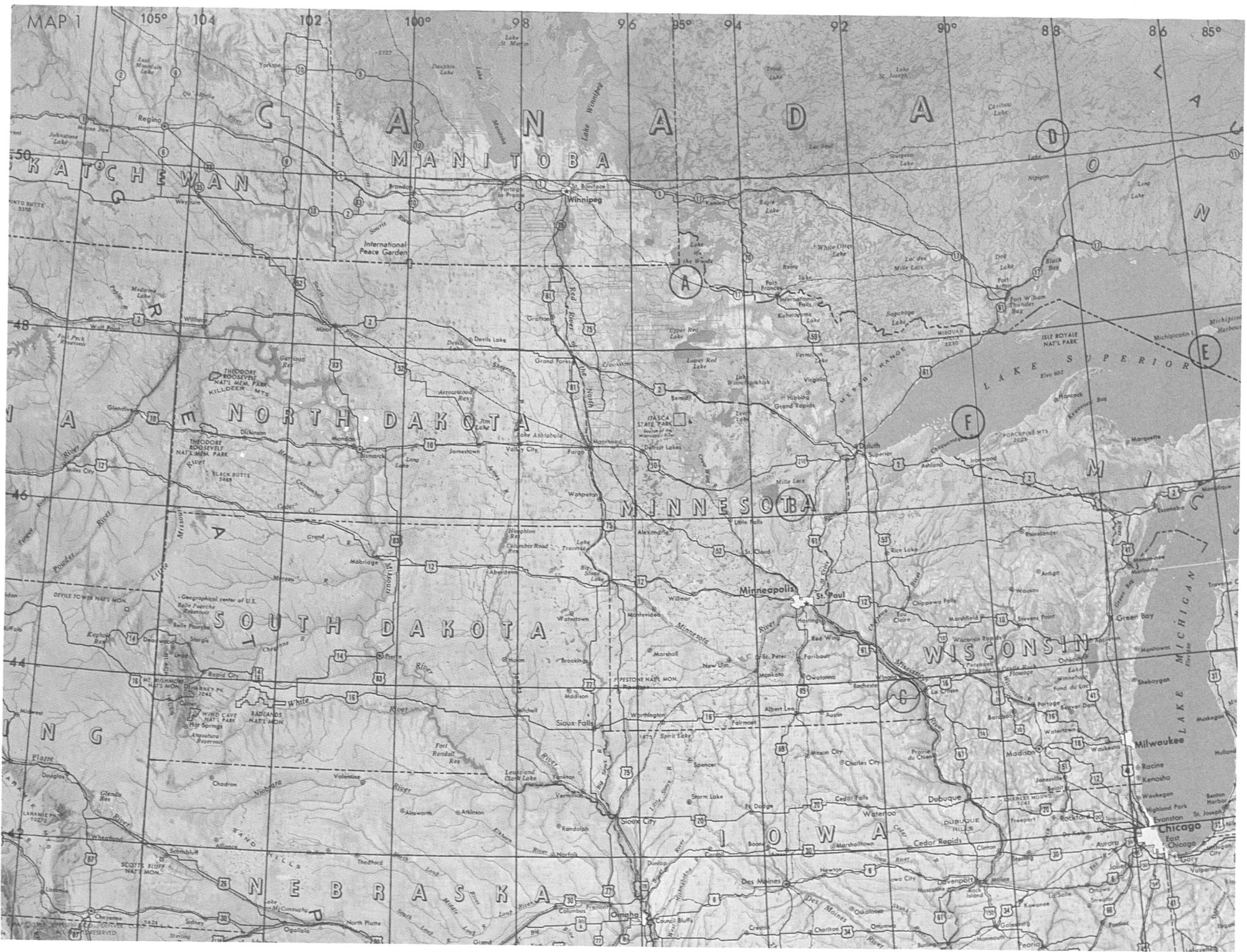




April 13, 1962
1809 GMT Direct Mode
TIROS IV Pass 992
Camera 2 Frame 3

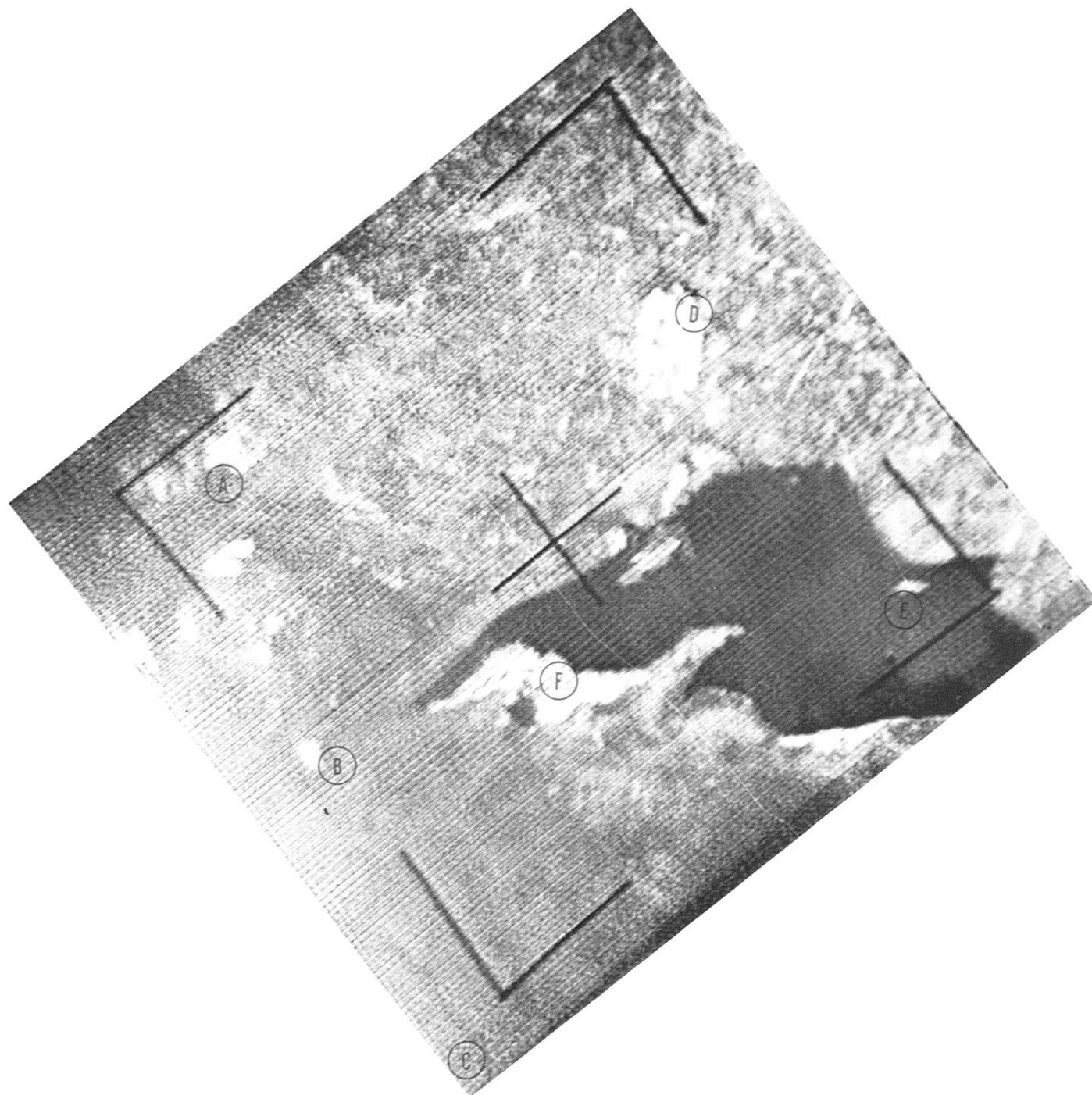
- A. Lake of the Woods (frozen)
- B. Mille Lacs (frozen)
- C. Mississippi River
- D. Snow cover





April 20, 1962
1548 GMT Direct Mode
TIROS IV Pass 1021
Camera 2 Frame 2

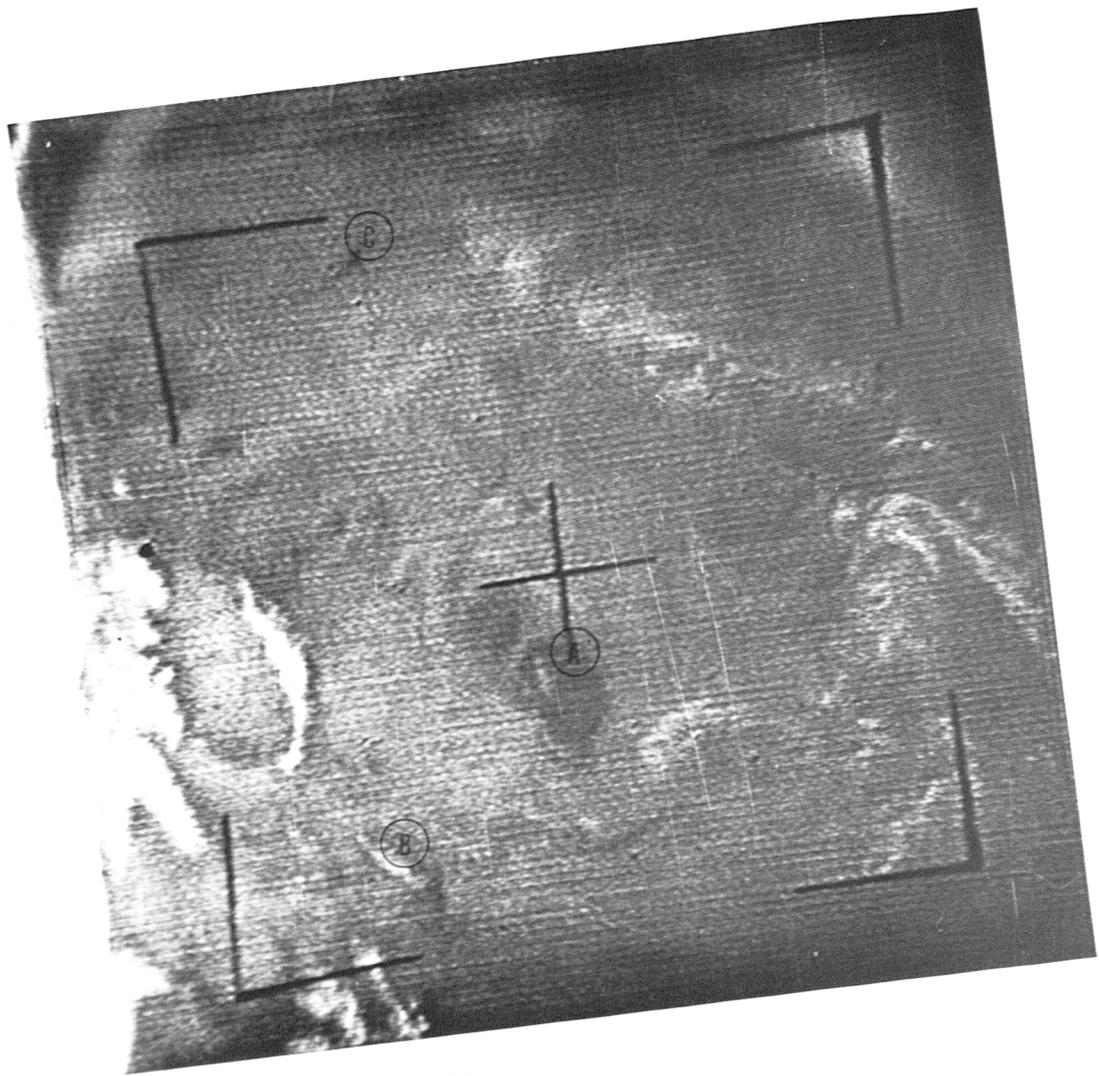
- A. Lake of the Woods (frozen)
- B. Mille Lacs (frozen)
- C. Mississippi River
- D. Lake Nipigon (frozen)
- E. Michipicotin Island
- F. Ice on Lake Superior

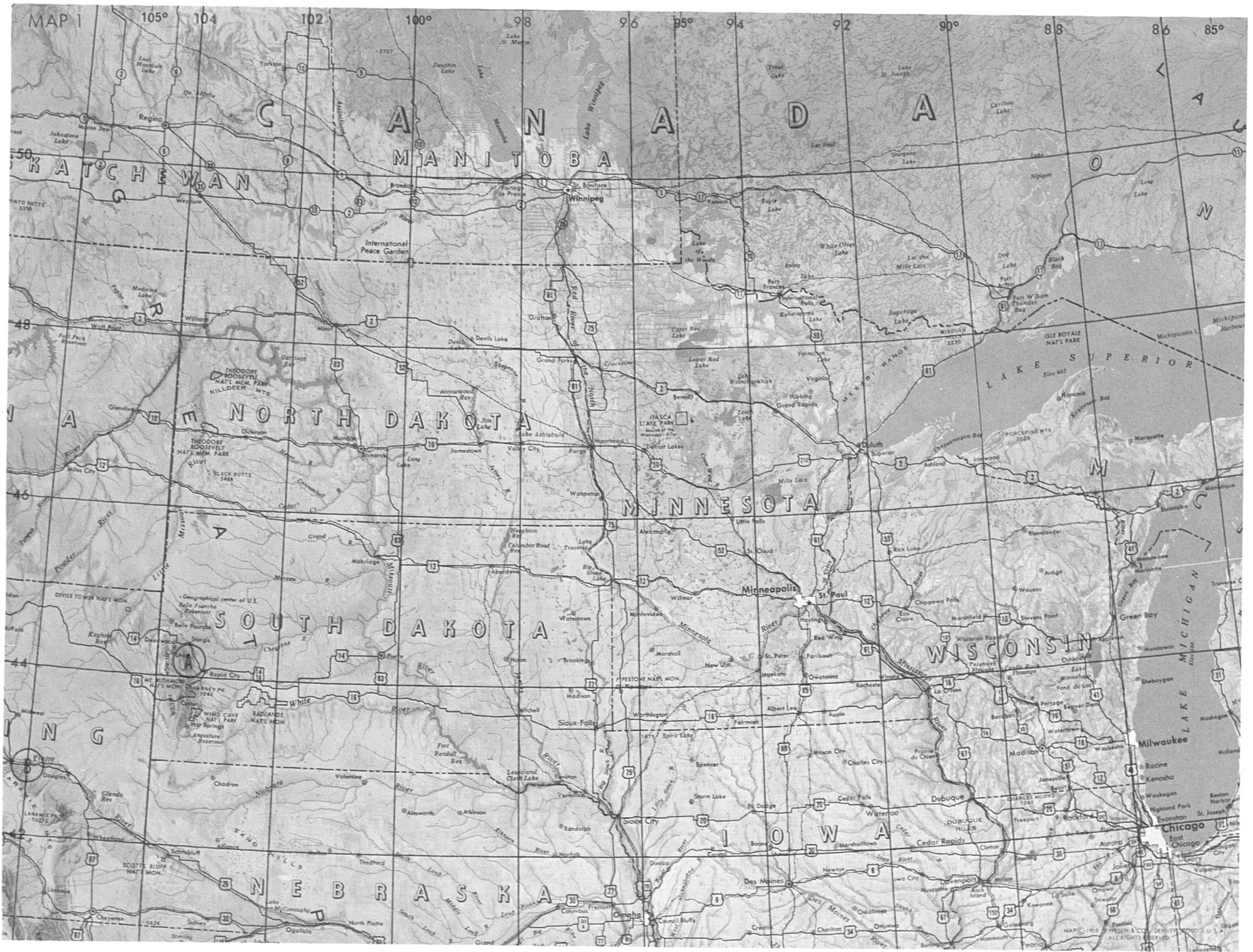




April 23, 1962
1720 GMT Tape Mode
TIROS IV Pass 1065
Camera 1 Frame 2

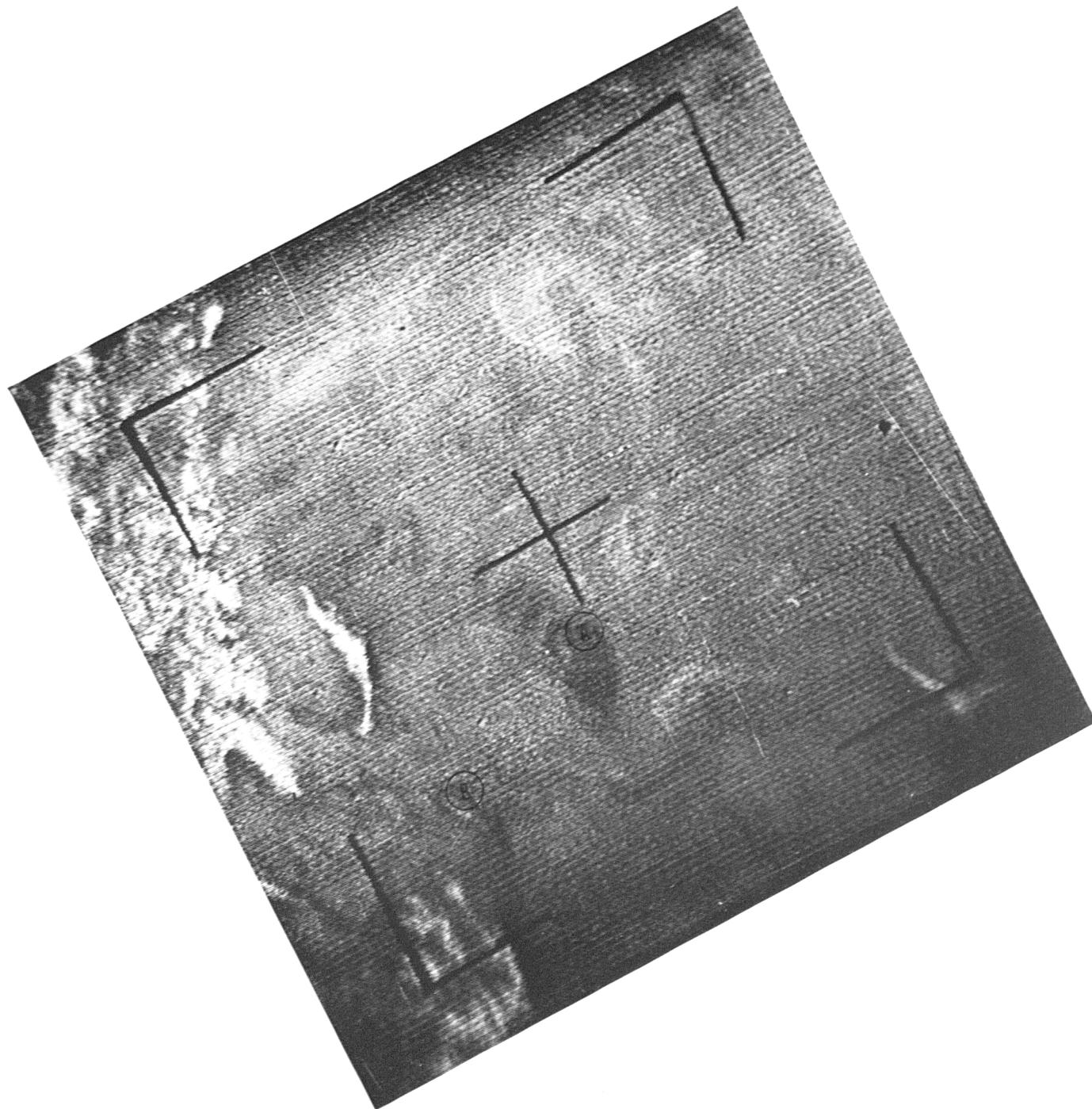
- A. Black Hills
- B. Laramie Mountains
- C. Fort Peck Reservoir

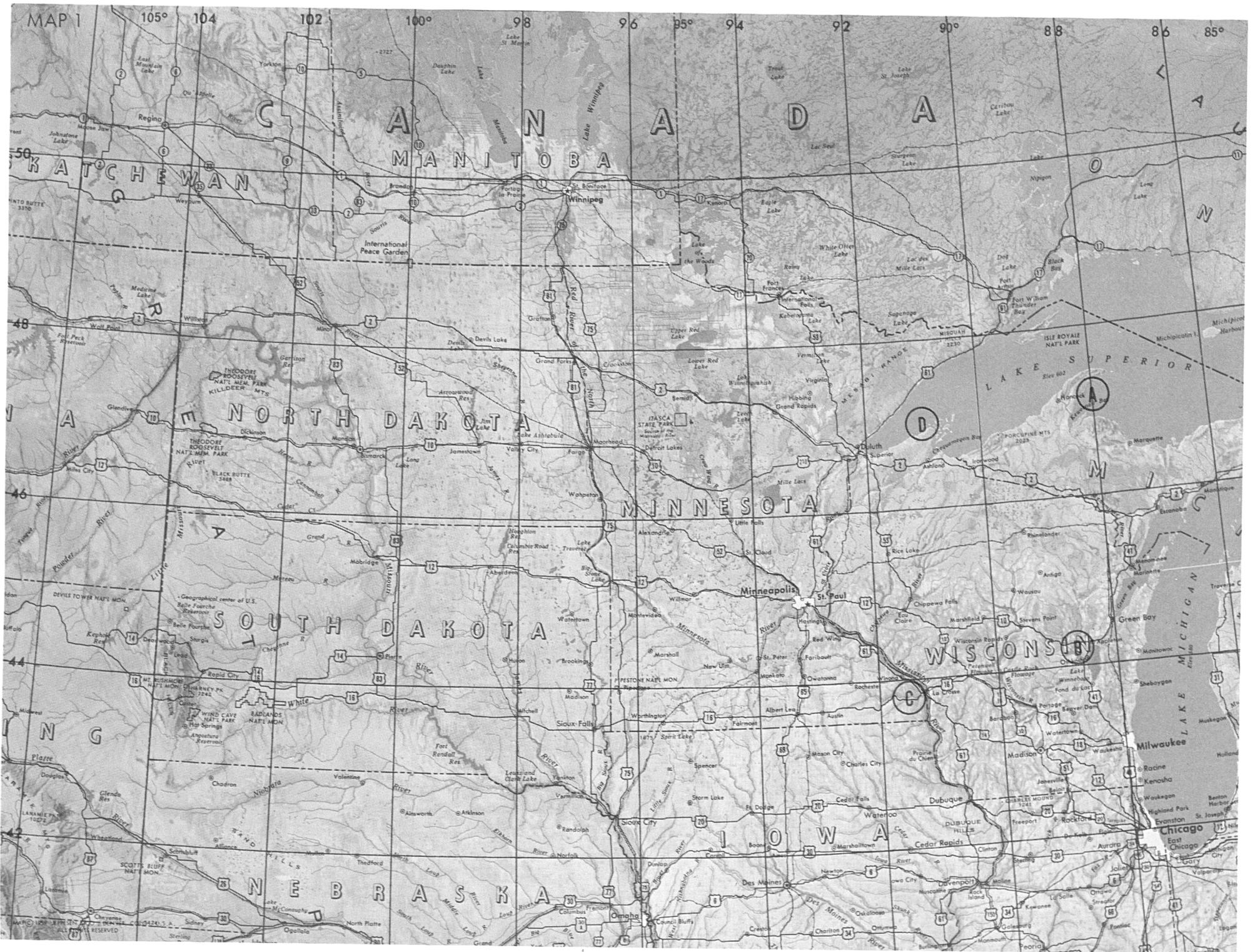




April 24, 1962
1640 GMT Tape Mode
TIROS IV Pass 1079
Camera 1 Frame 2

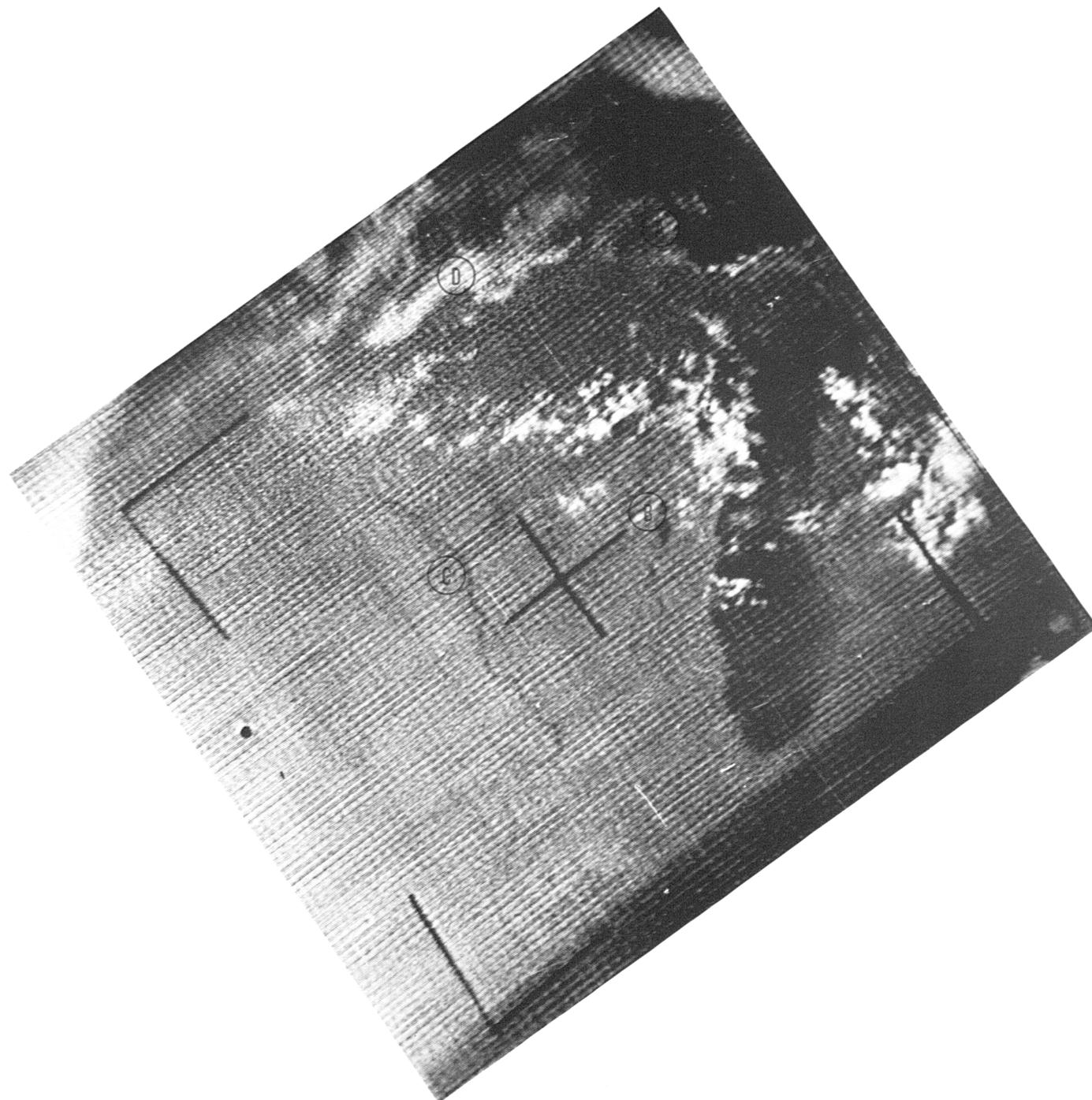
A. Black Hills
B. Laramie Mountains





April 26, 1962
1540 GMT Direct Mode
TIROS IV Pass 1107
Camera 1 Frame 8

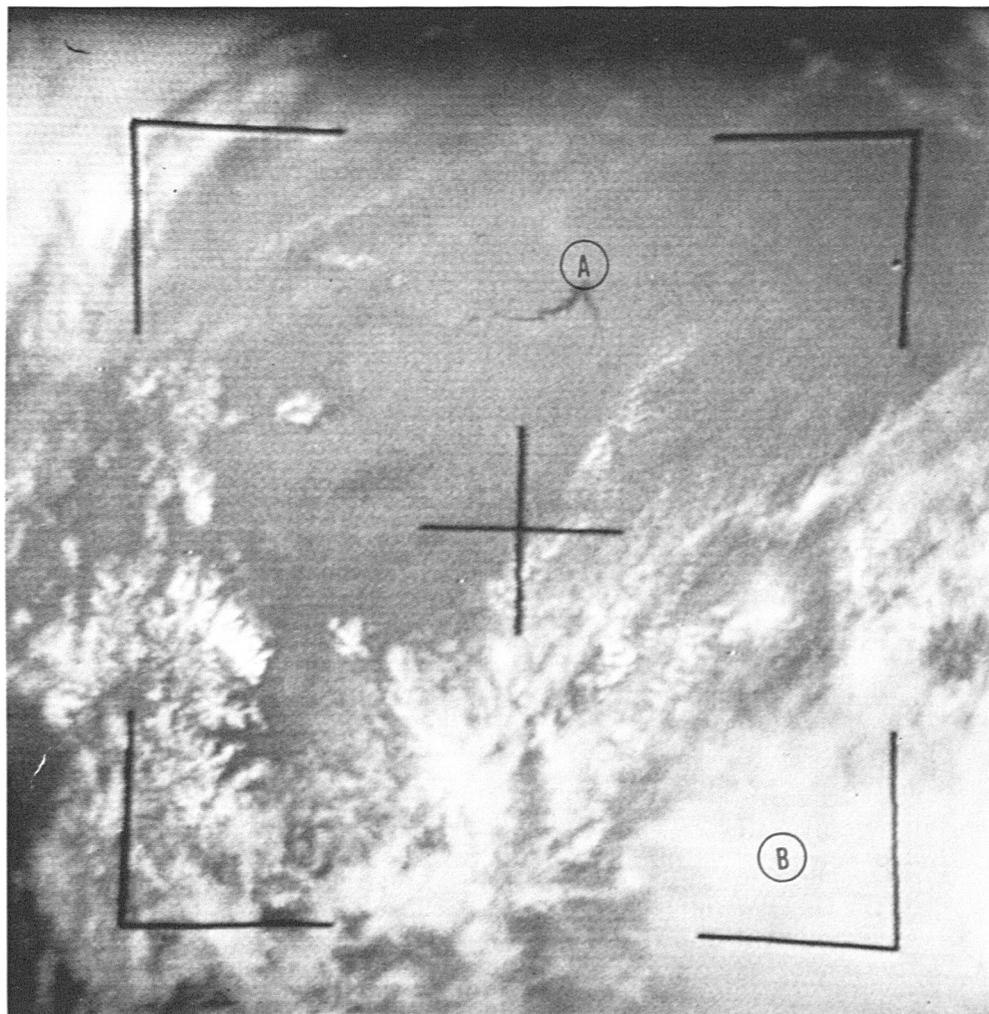
- A. Keweenaw Bay
- B. Lake Winnebago
- C. Mississippi River
- D. Ice on Lake Superior



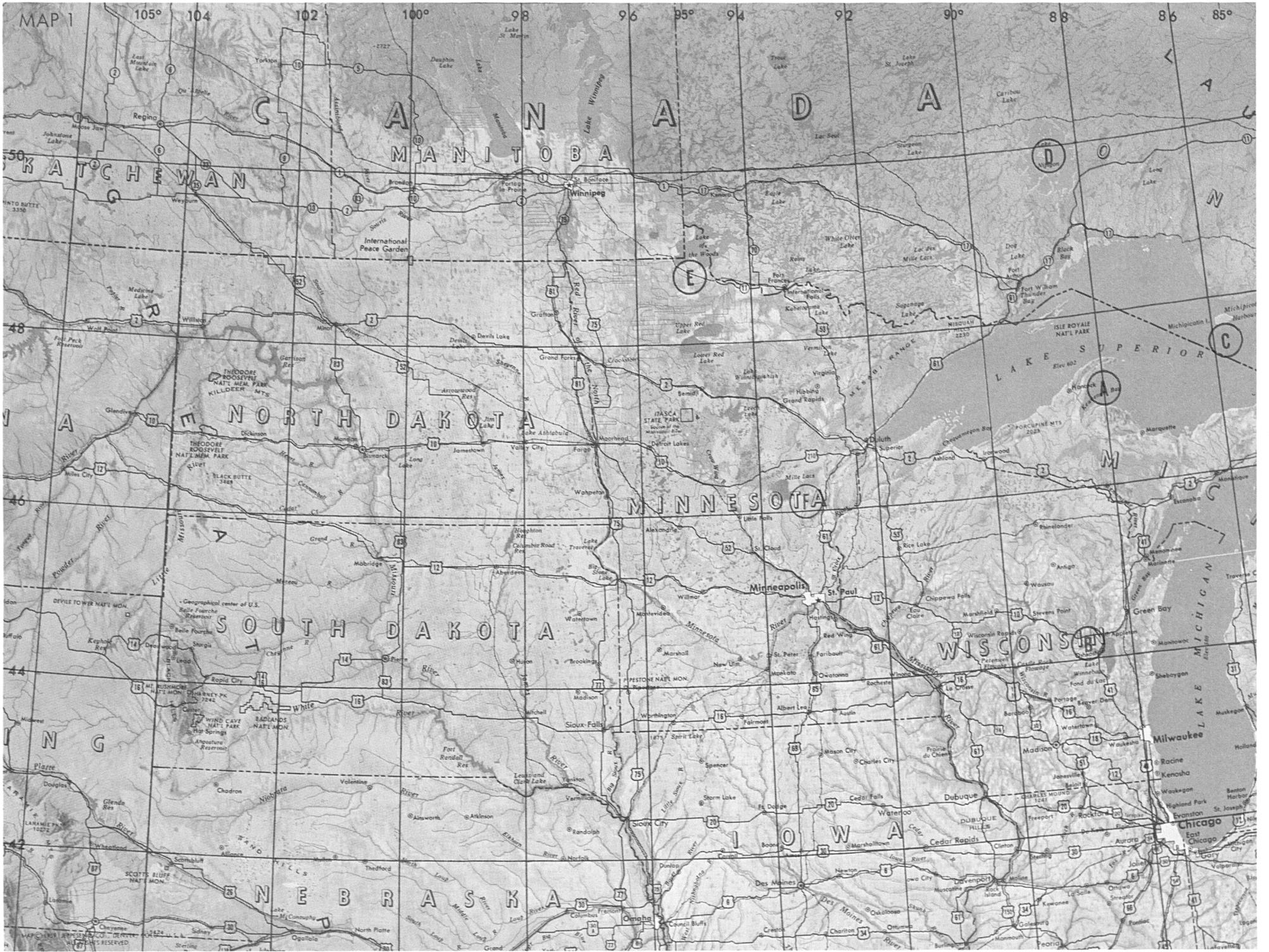


April 20, 1964
1900 GMT Tape Mode
TIROS VII Pass 4530
Camera 2 Frame 2

A. Fort Peck Reservoir
B. Cloud cover

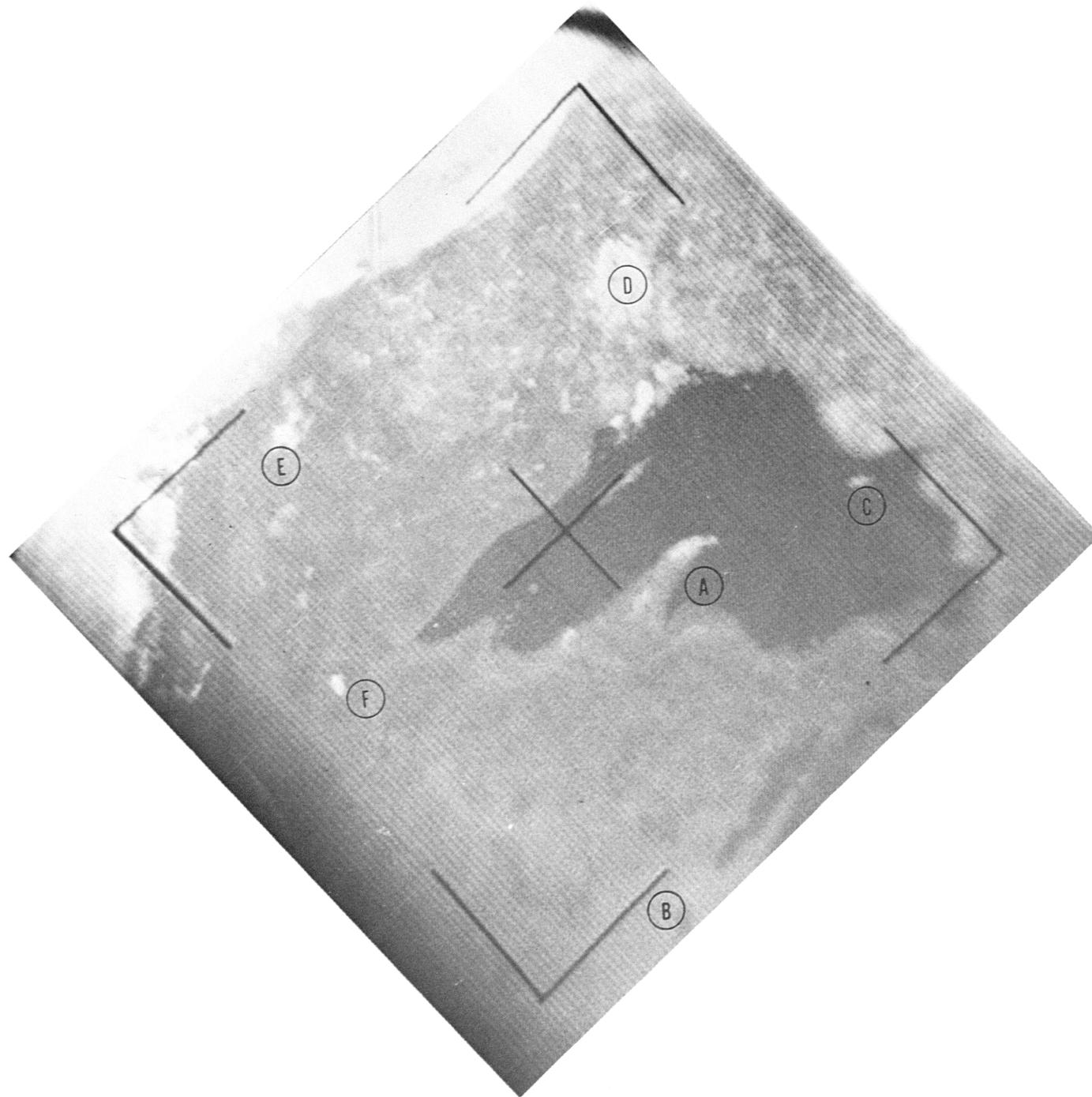






April 25, 1964
1555 GMT Tape Mode
TIROS VII Pass 4602
Camera 1 Frame 25

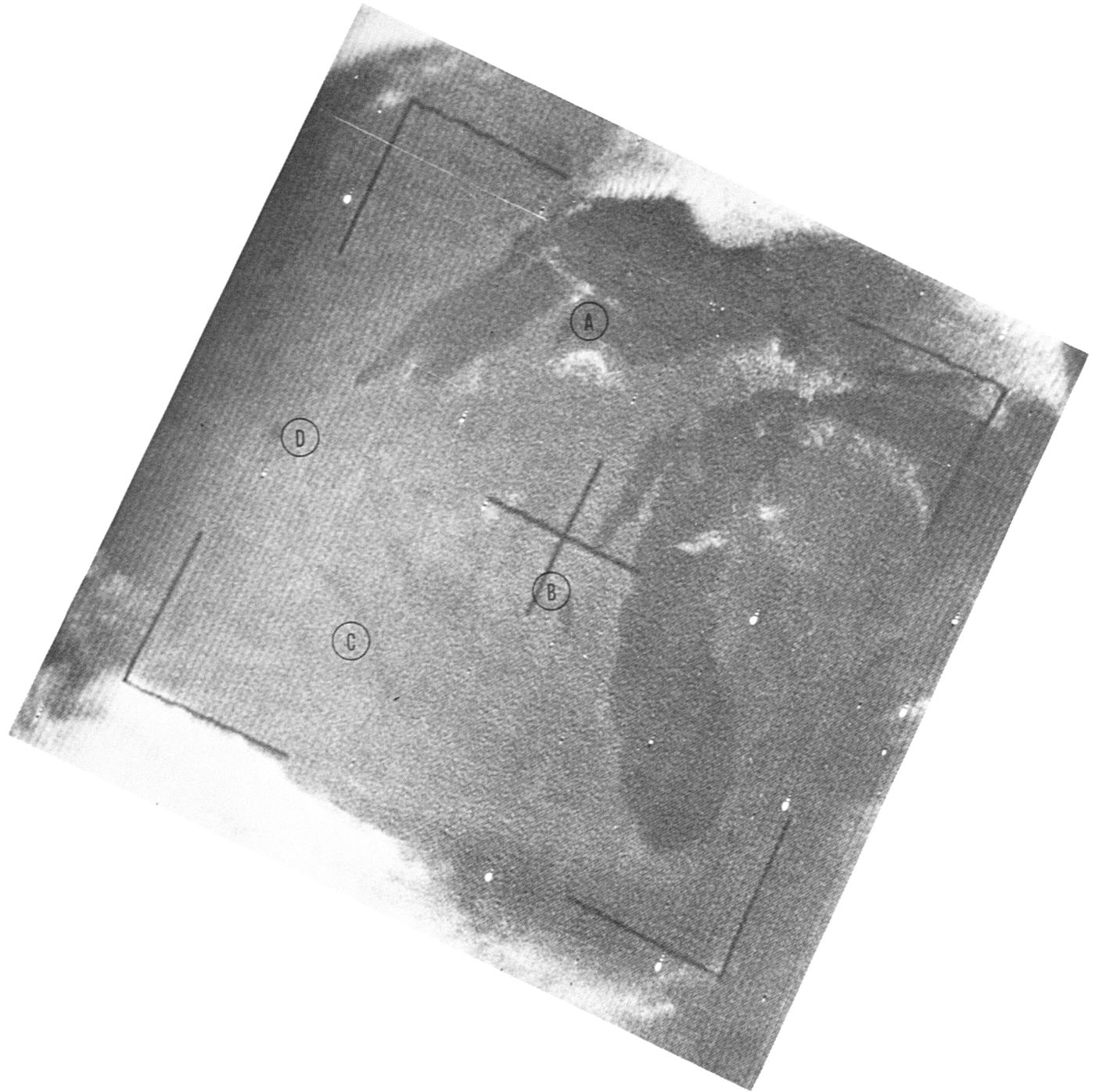
- A. Keweenaw Bay
- B. Lake Winnebago
- C. Michipicotin Island
- D. Lake Nipigon (frozen)
- E. Lake of the Woods (frozen)
- F. Mille Lacs (frozen)





June 6, 1964
1728 GMT Tape Mode
TIROS VII Pass 7813
Camera 2 Frame 29

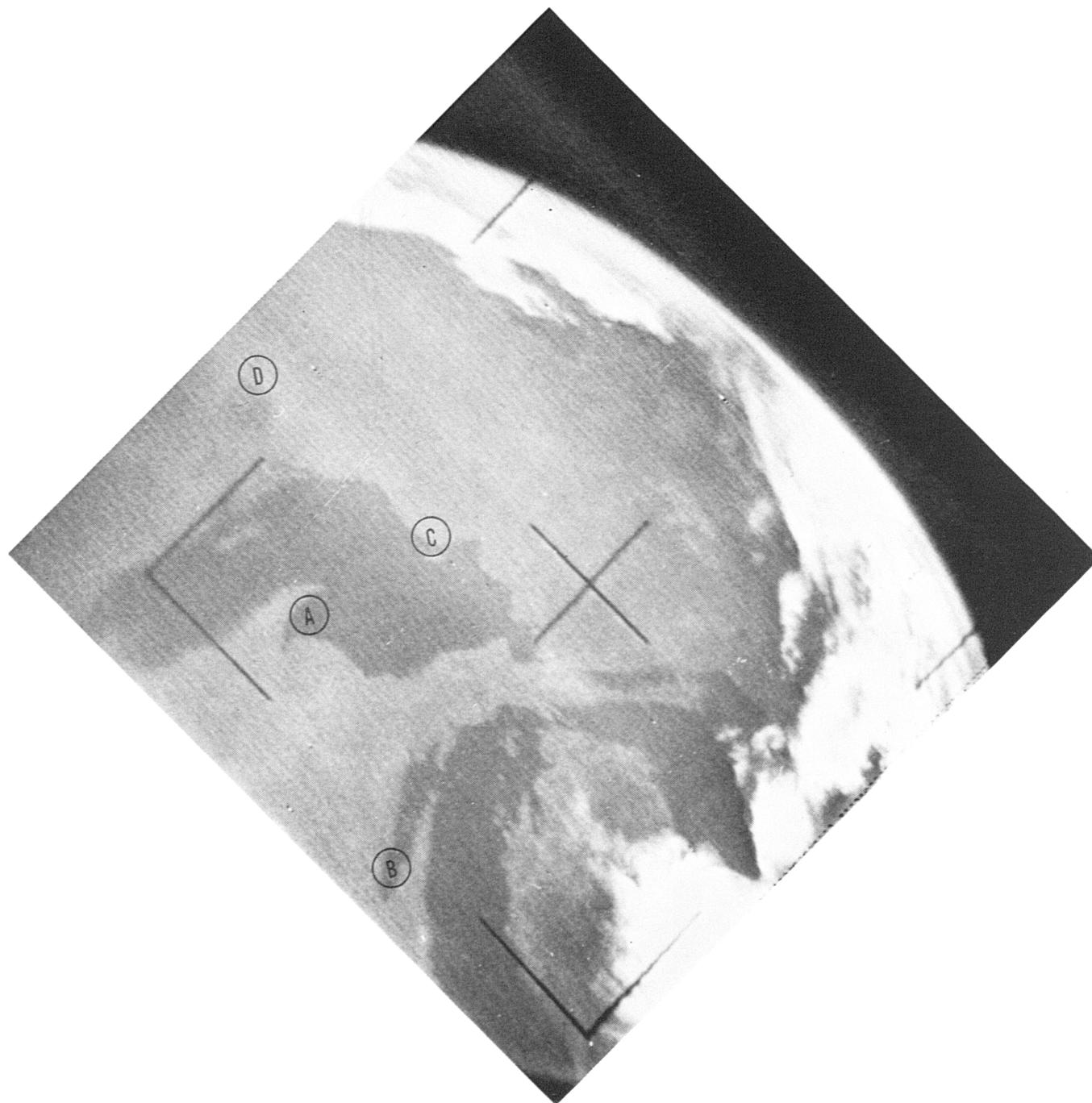
- A. Keweenaw Bay
- B. Lake Winnebago
- C. Mississippi River
- D. Mille Lacs





June 10, 1964
1835 GMT Tape Mode
TIROS VII Pass 5284
Camera 1 Frame 2

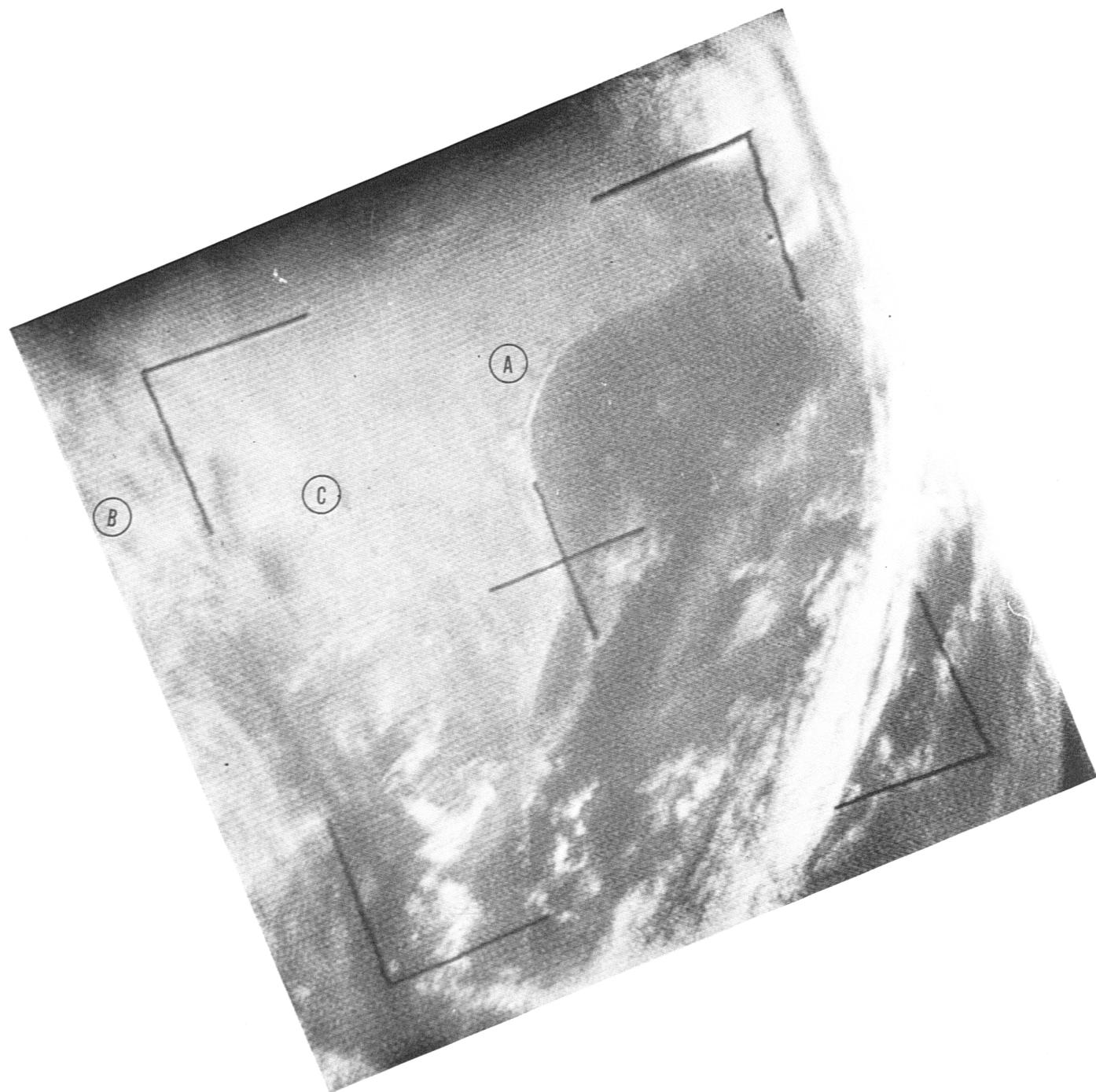
- A. Keweenaw Bay
- B. Green Bay
- C. Michipicotin Island
- D. Lake Nipigon





March 19, 1964
2011 GMT Tape Mode
TIROS VII Pass 4057
Camera 2 Frame 3

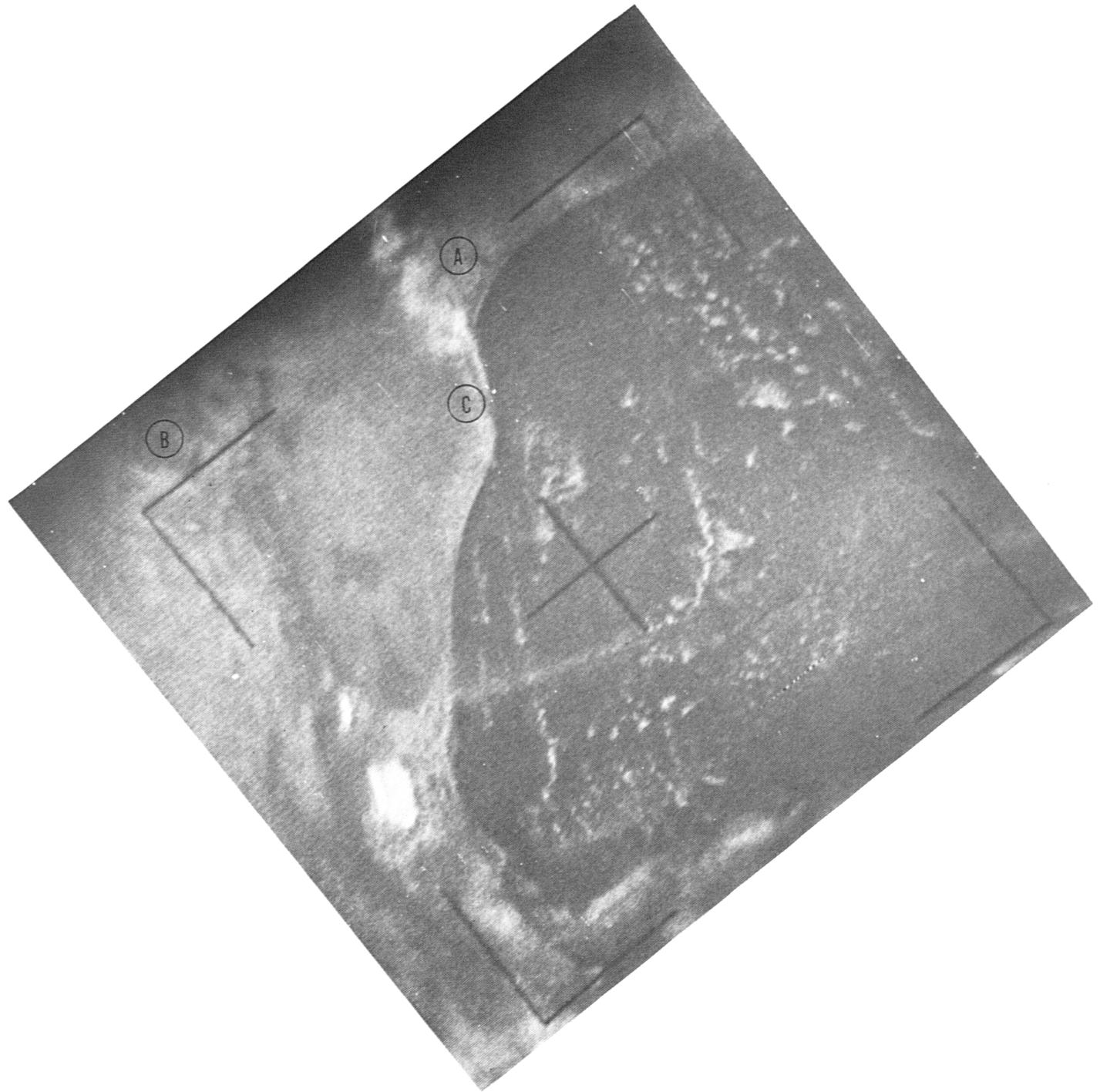
- A. Corpus Christi Bay
- B. Sa Los Alamos
- C. Falcon Reservoir





June 7, 1964
1652 GMT Tape Mode
TIROS VII Pass 2455
Camera 1 Frame 9

- A. Corpus Christi Bay
- B. Sa Los Alamos
- C. Laguna Madre





June 7, 1964
1652 GMT Tape Mode
TIROS VII Pass 2455
Camera 1 Frame 12

- A. Corpus Christi Bay
- B. Sa Los Alamos
- C. Rio Grande

