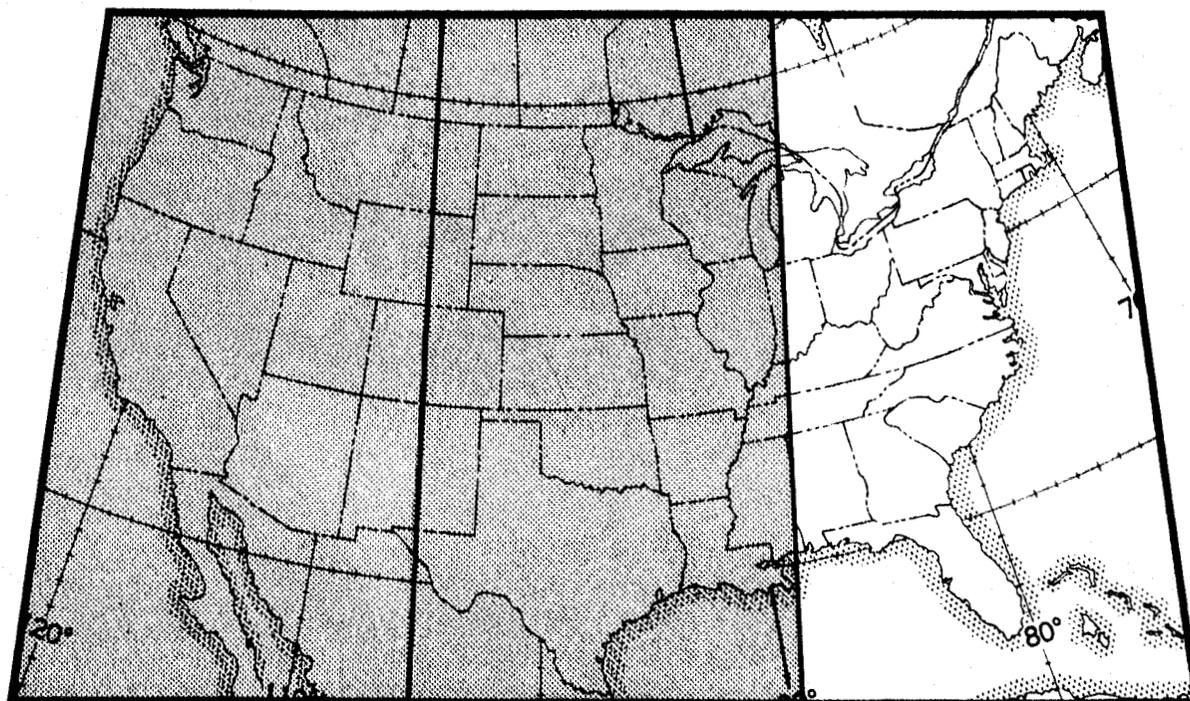


U. S. DEPARTMENT OF COMMERCE
ENVIRONMENTAL SCIENCE SERVICES ADMINISTRATION
NATIONAL ENVIRONMENTAL SATELLITE CENTER

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1967

TIROS CLOUD FREE ATLAS

NORTH AMERICA
EASTERN UNITED STATES
SPRING SEASON



WASHINGTON, D. C.
JANUARY 1967



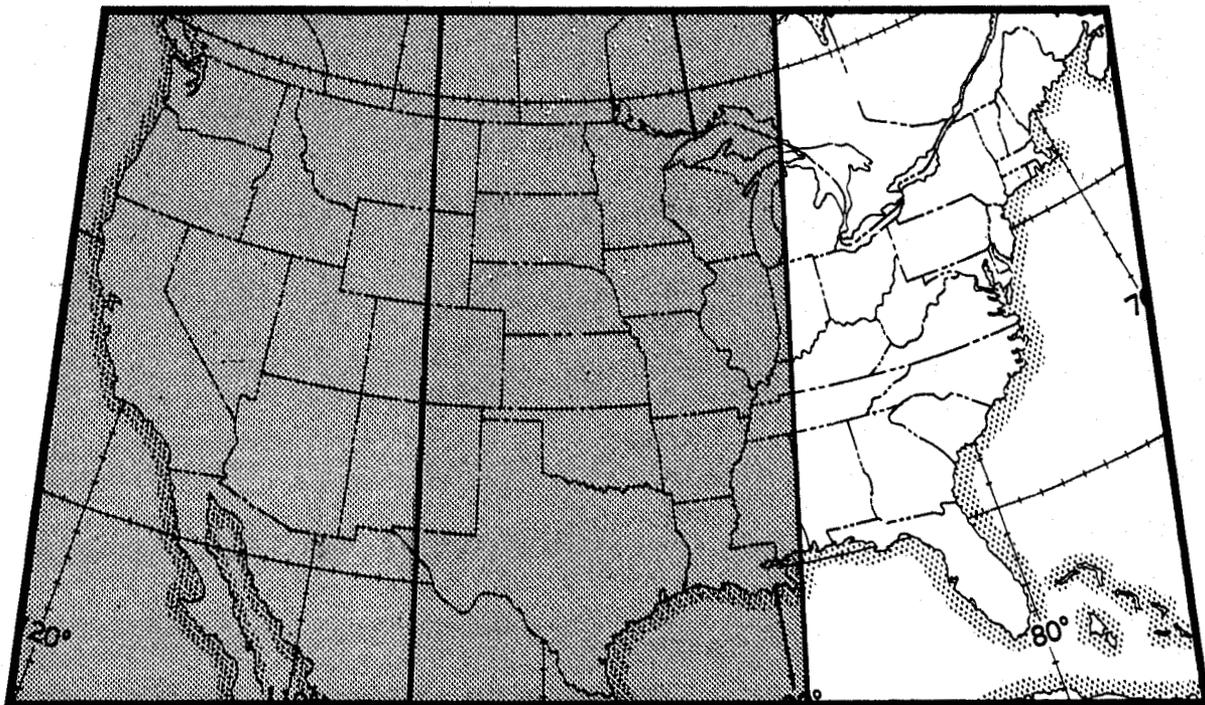
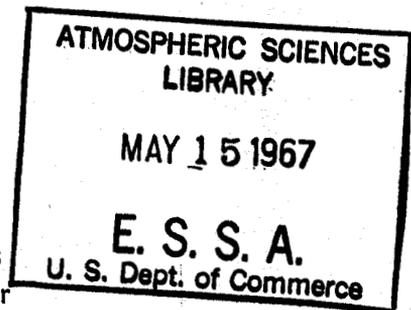
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NORTH AMERICA
EASTERN UNITED STATES
SPRING SEASON

TIROS CLOUD FREE ATLAS

By

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



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

M. Popham
M. Baliles
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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.

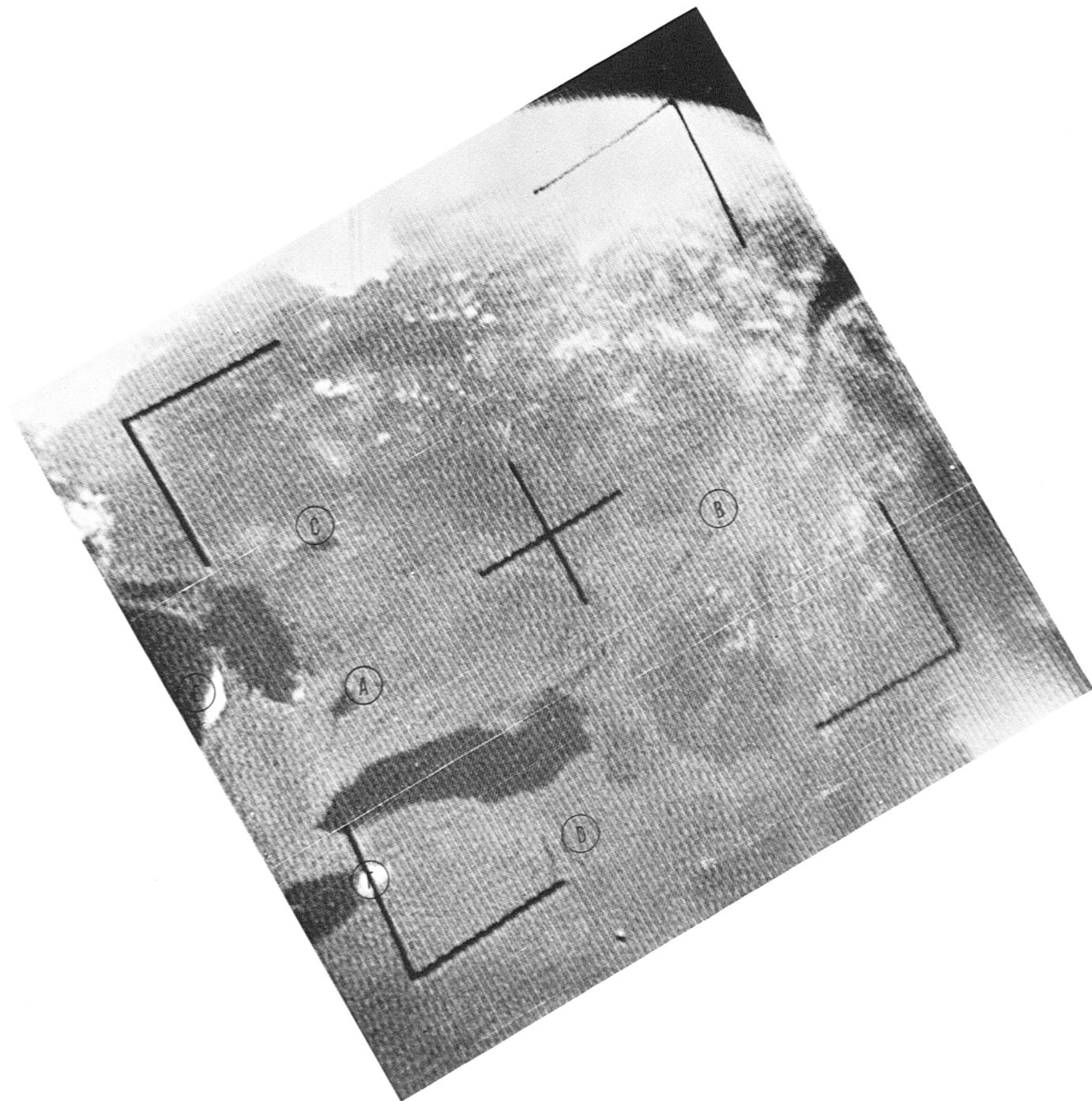
All photographs contained in these atlases were received from TIROS satellites employing 78° or 104° lens systems, from altitudes of from 360-600 statute miles. The pictures were acquired over a period of several years, but all show the earth as it appears during spring in the Northern Hemisphere (March 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 28, 1963
1321 GMT Direct Mode
TIROS VI Pass 3241
Camera 1 Frame 4

- A. Lake Simcoe
- B. St. Lawrence River
- C. Lake Nipissing
- D. Cayuga Lake
- E. Ice on Lake Huron
- F. Ice on Lake Erie





April 4, 1964
1438 GMT Direct Mode
TIROS VII Pass 4290
Camera 2 Frame 14

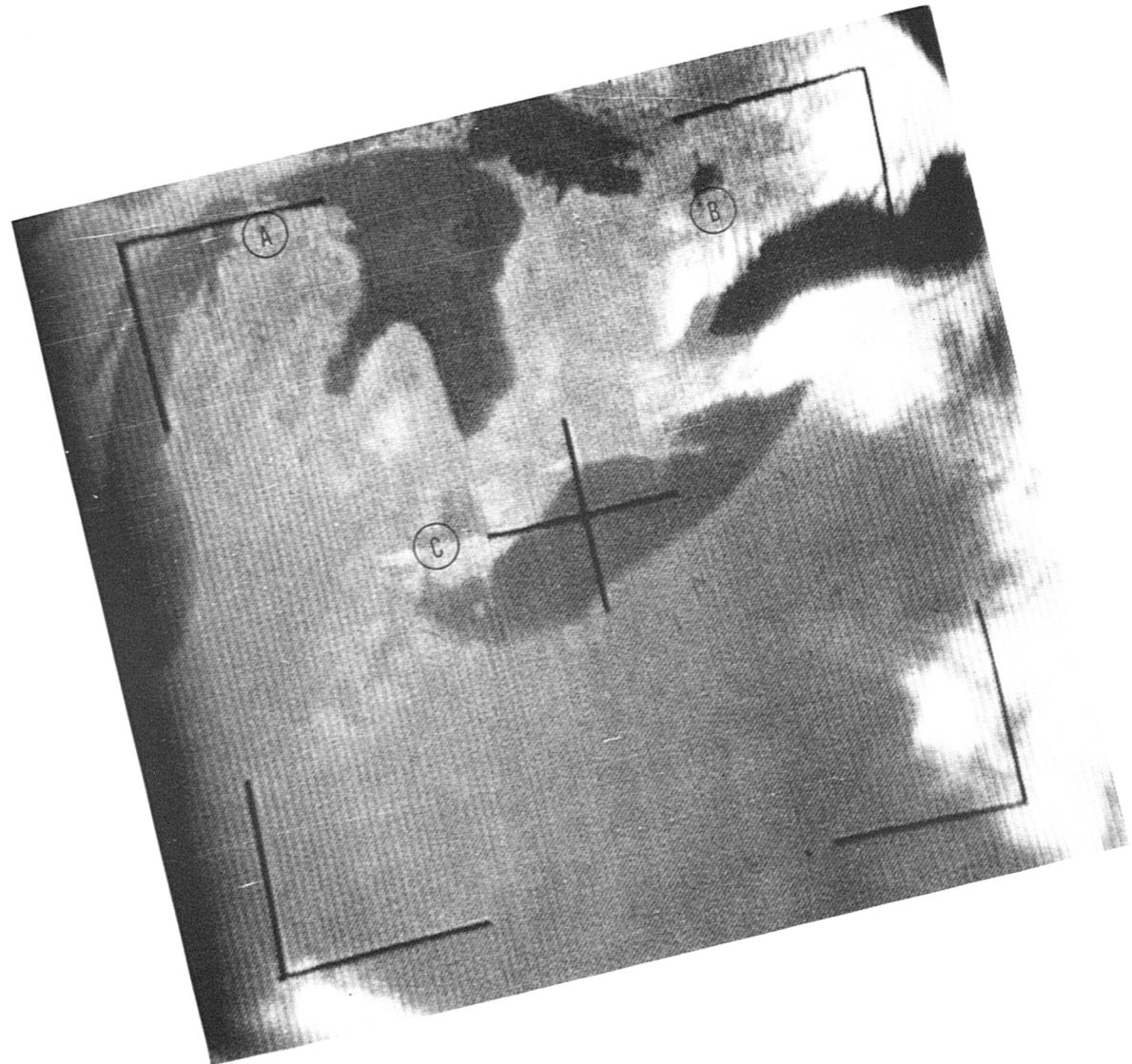
- A. Georgian Bay
- B. St. Lawrence River
- C. Lake Champlain
- D. Ice on Lake Erie
- E. Snow cover





April 25, 1964
1555 GMT Tape Mode
TIROS VII Pass 4602
Camera 1 Frame 21

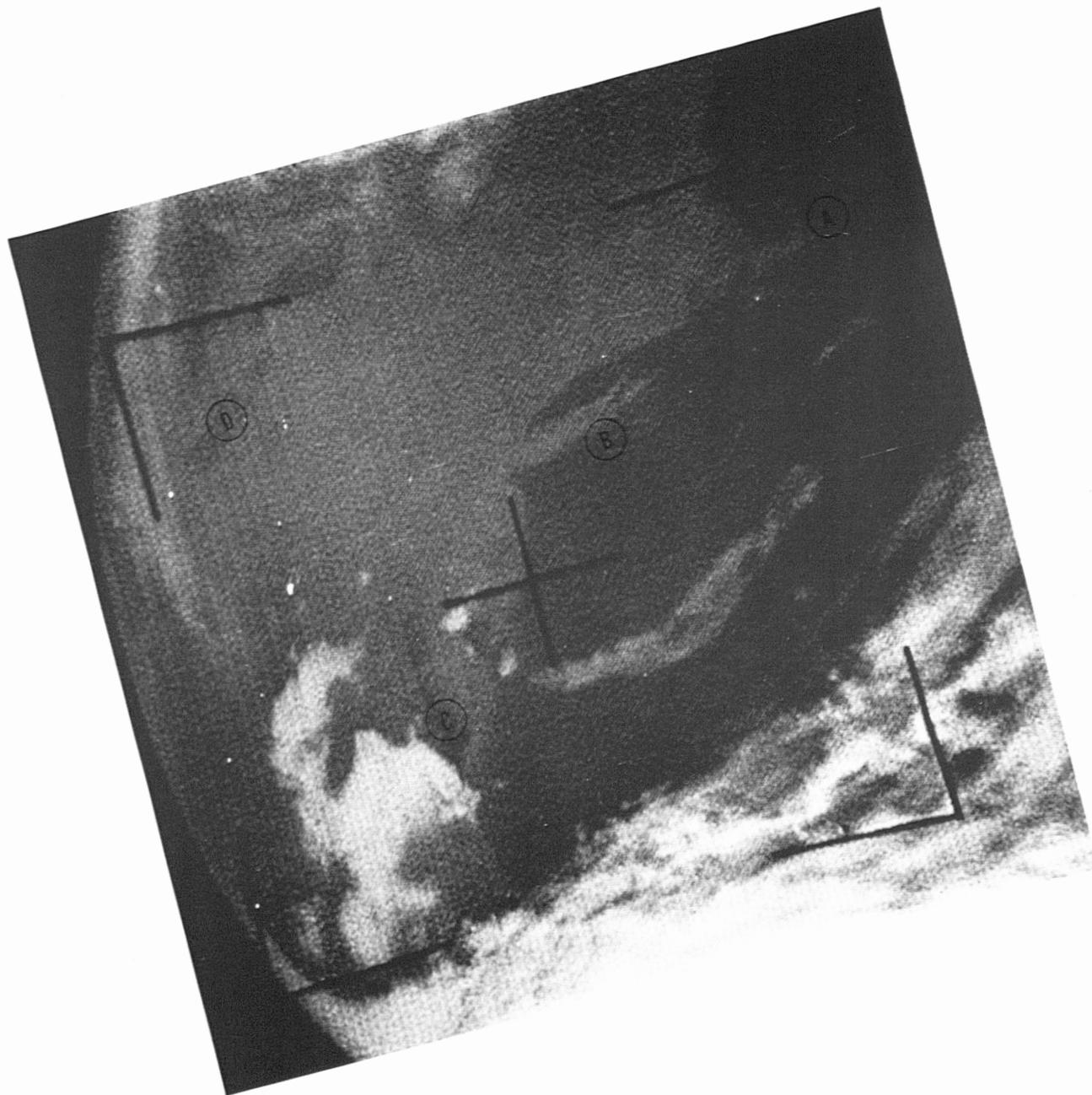
- A. Straits of Mackinac
- B. Lake Simcoe
- C. Lake St. Clair





May 4, 1964
1232 GMT Direct Mode
TIROS VII Pass 4732
Camera 2 Frame 7

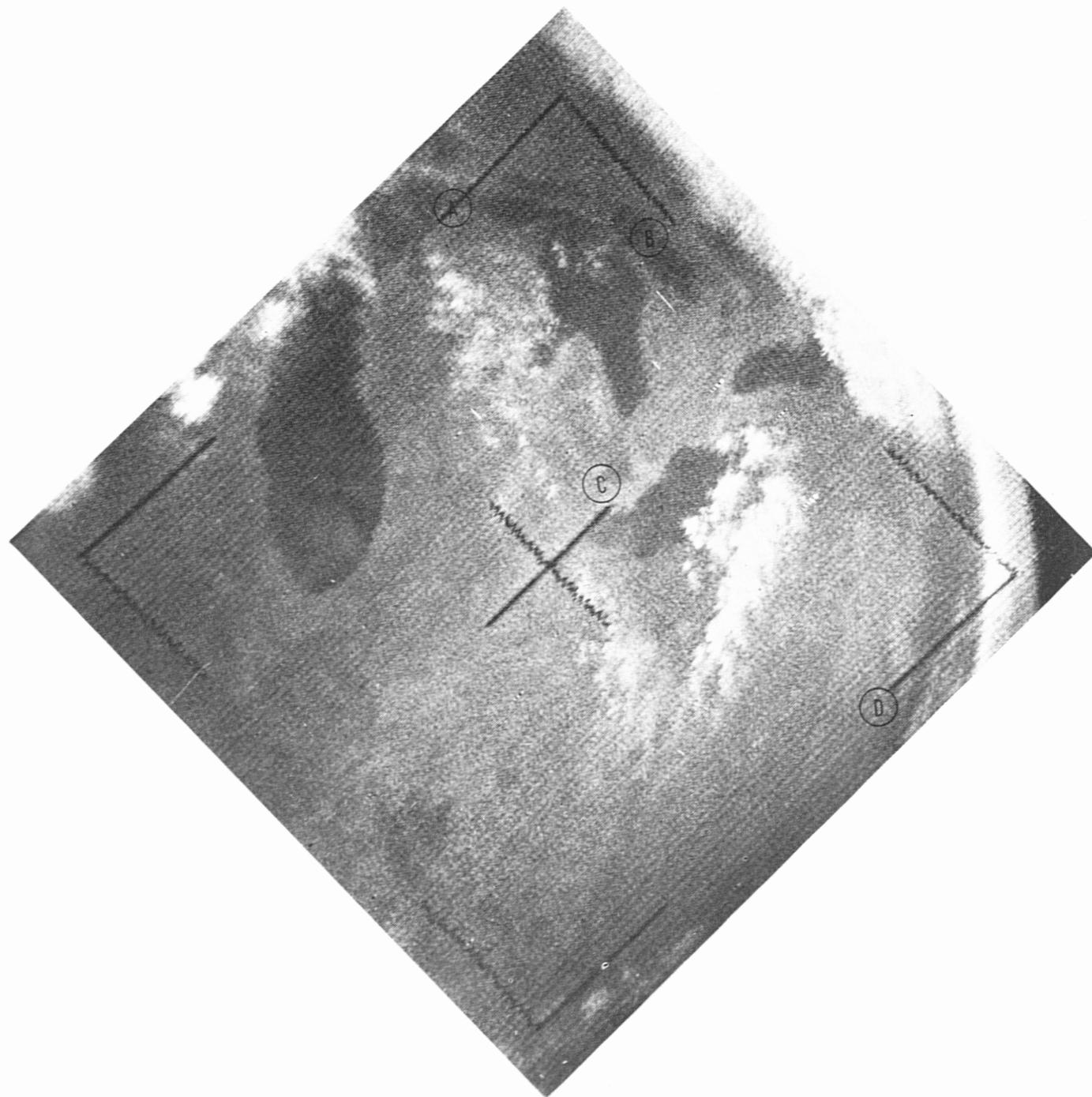
- A. Cape Cod
- B. Long Island
- C. Chesapeake Bay
- D. Lake Erie





May 25, 1964
1920 GMT Tape Mode
TIROS VIII Pass 2268
Camera 1 Frame 28

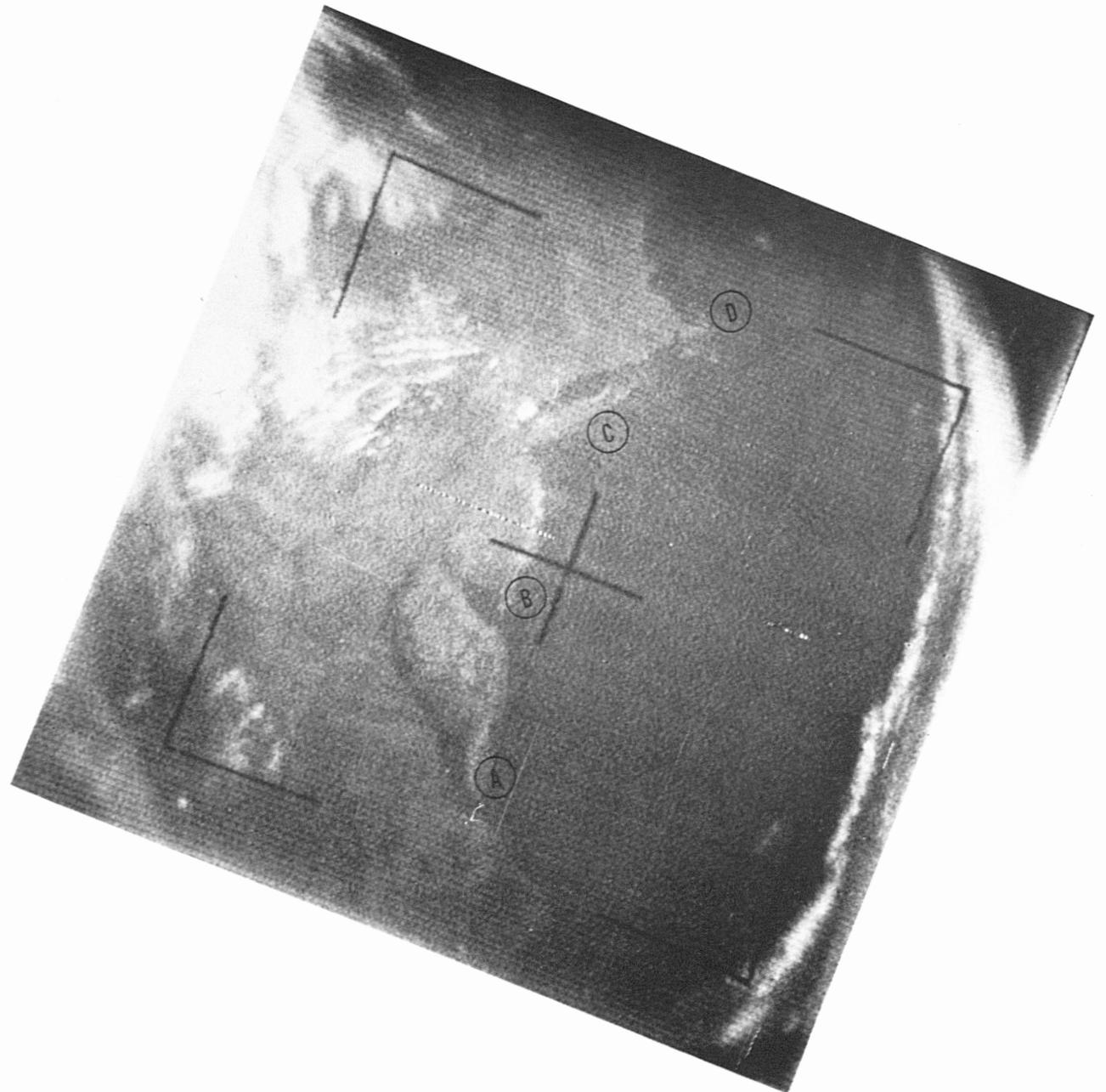
- A. Straits of Mackinac
- B. Georgian Bay
- C. Lake St. Clair
- D. Chesapeake Bay





May 26, 1964
1826 GMT Tape Mode
TIROS VIII Pass 2282
Camera 1 Frame 19

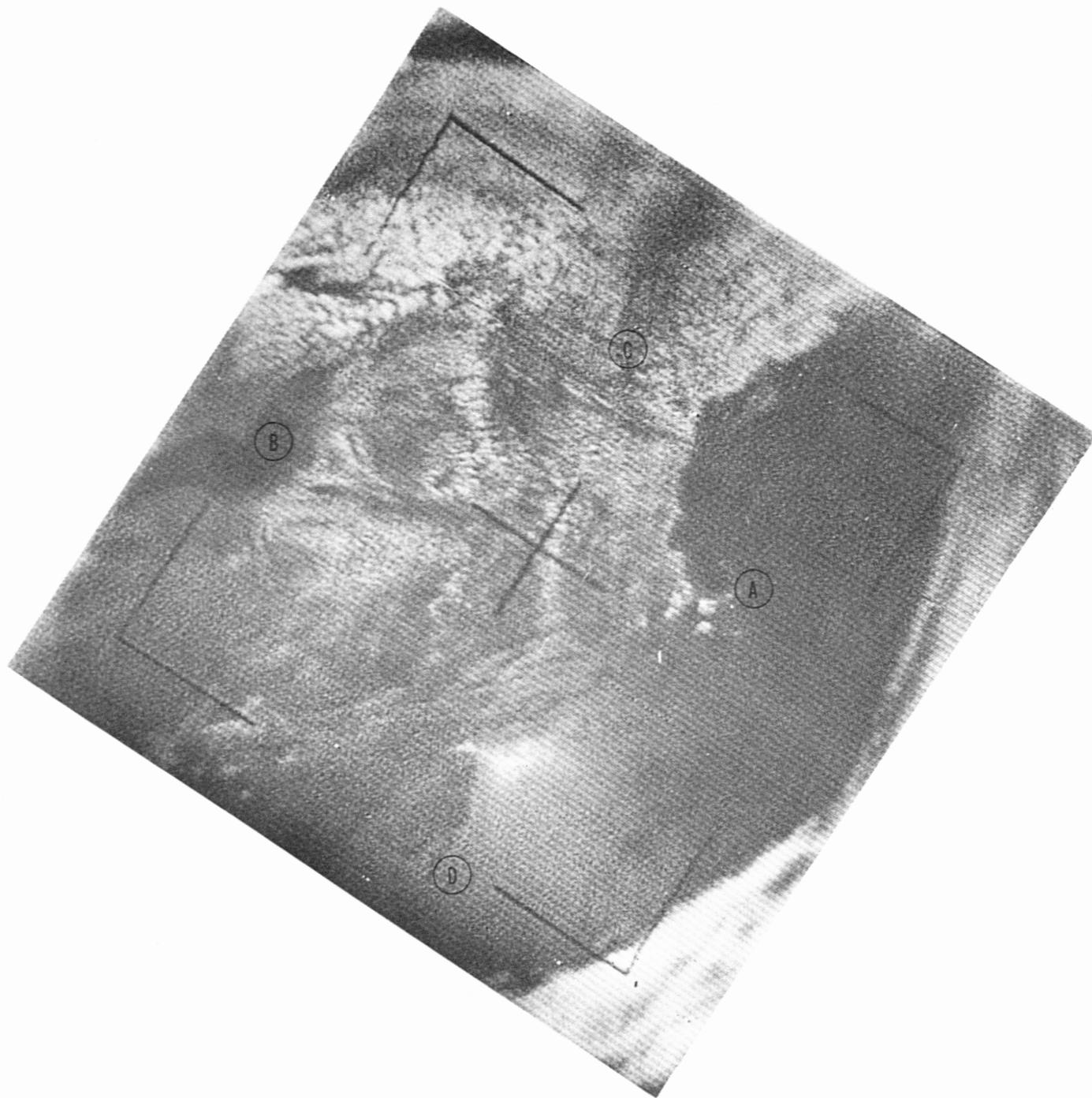
- A. Cape Charles
- B. Cape May
- C. Long Island
- D. Cape Cod





May 30, 1964
1649 GMT Tape Mode
TIROS VIII Pass 2239
Camera 1 Frame 21

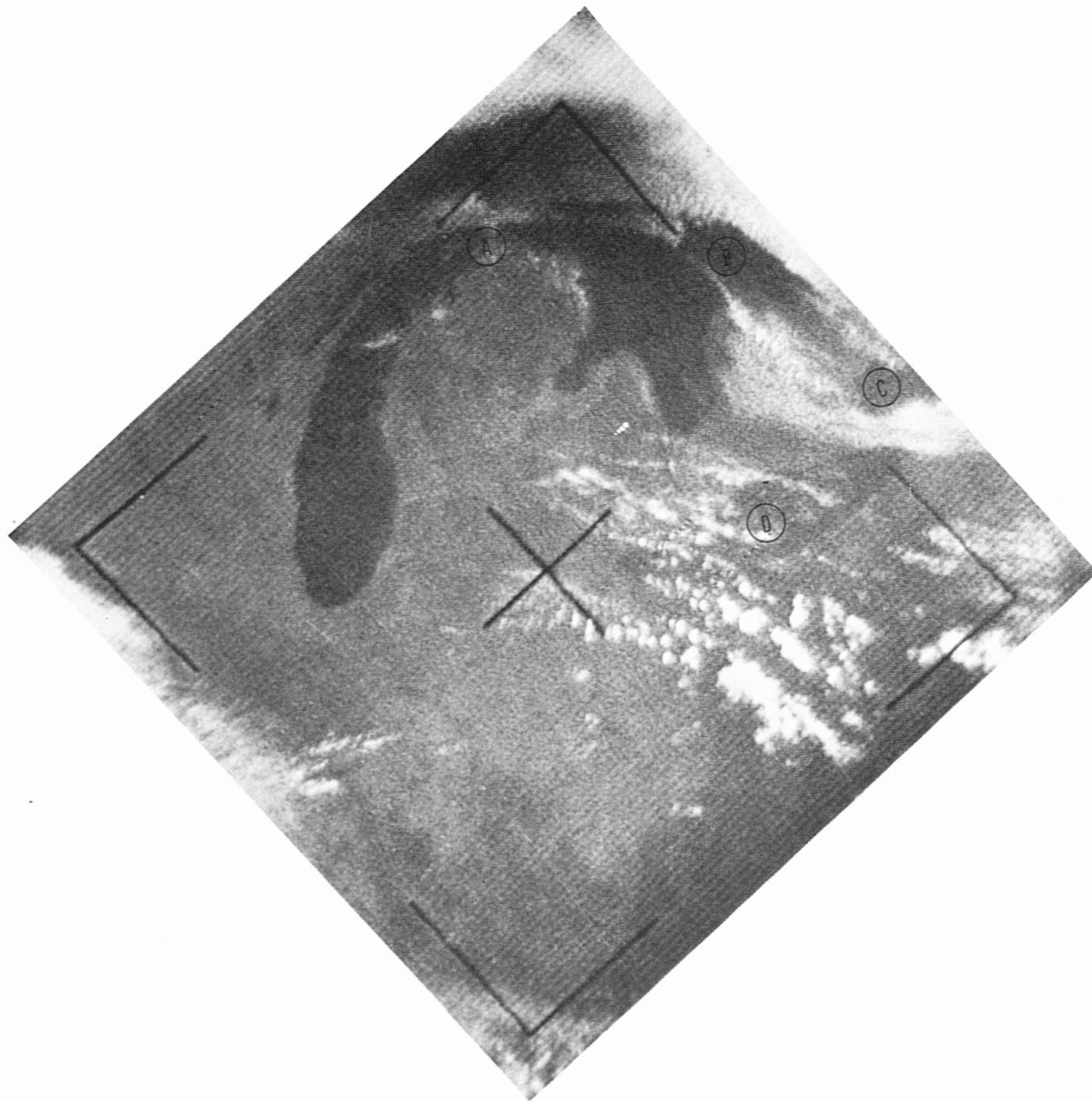
- A. Cape Cod
- B. Lake Ontario
- C. White Mountains
- D. Cape May





June 4, 1964
1601 GMT Tape Mode
TIROS VIII Pass 2411
Camera 1 Frame 20

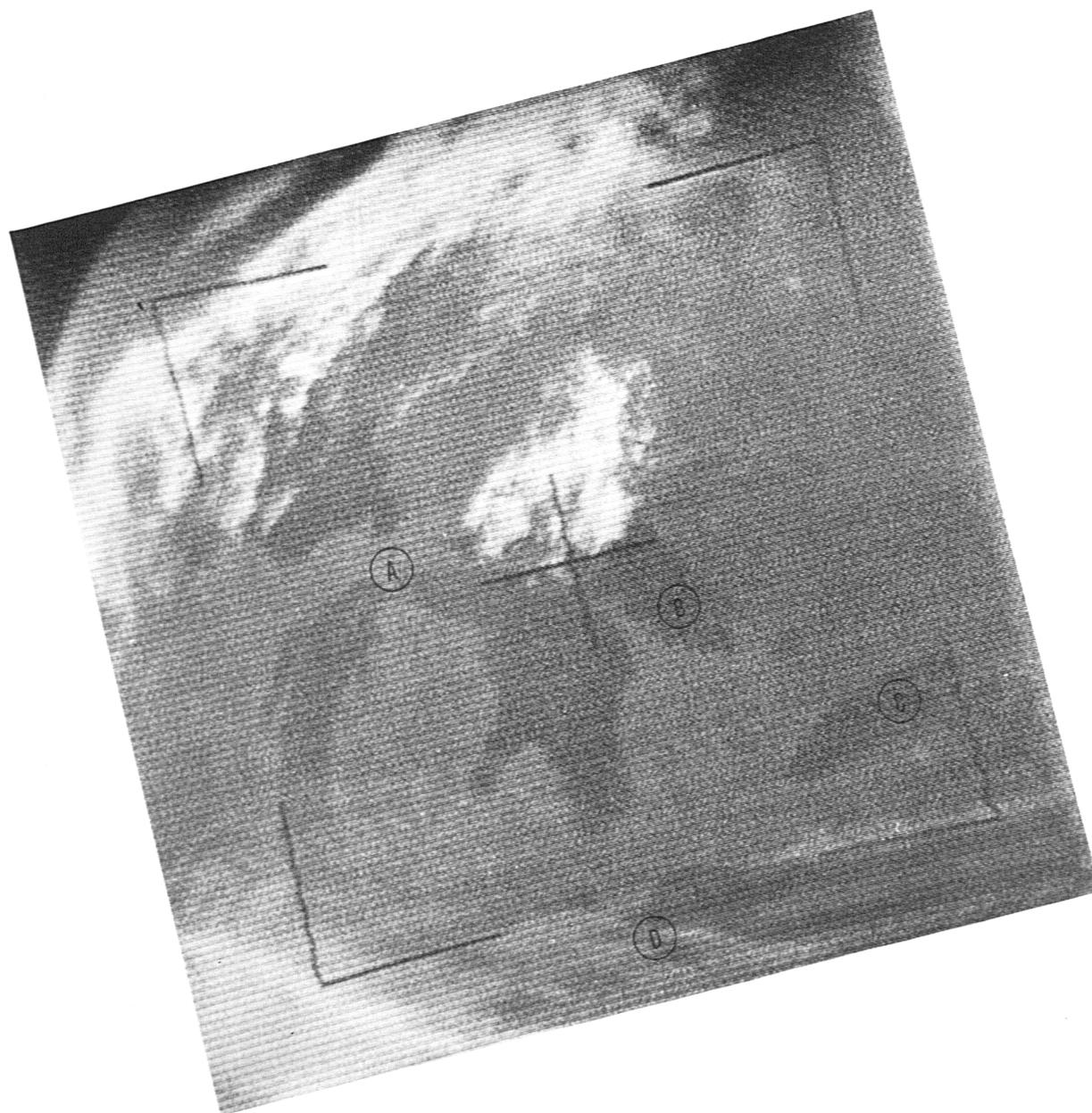
- A. Straits of Mackinac
- B. Georgian Bay
- C. Lake Ontario
- D. Lake Erie





June 5, 1964
1513 GMT Tape Mode
TIROS VIII Pass 2425
Camera 1 Frame 27

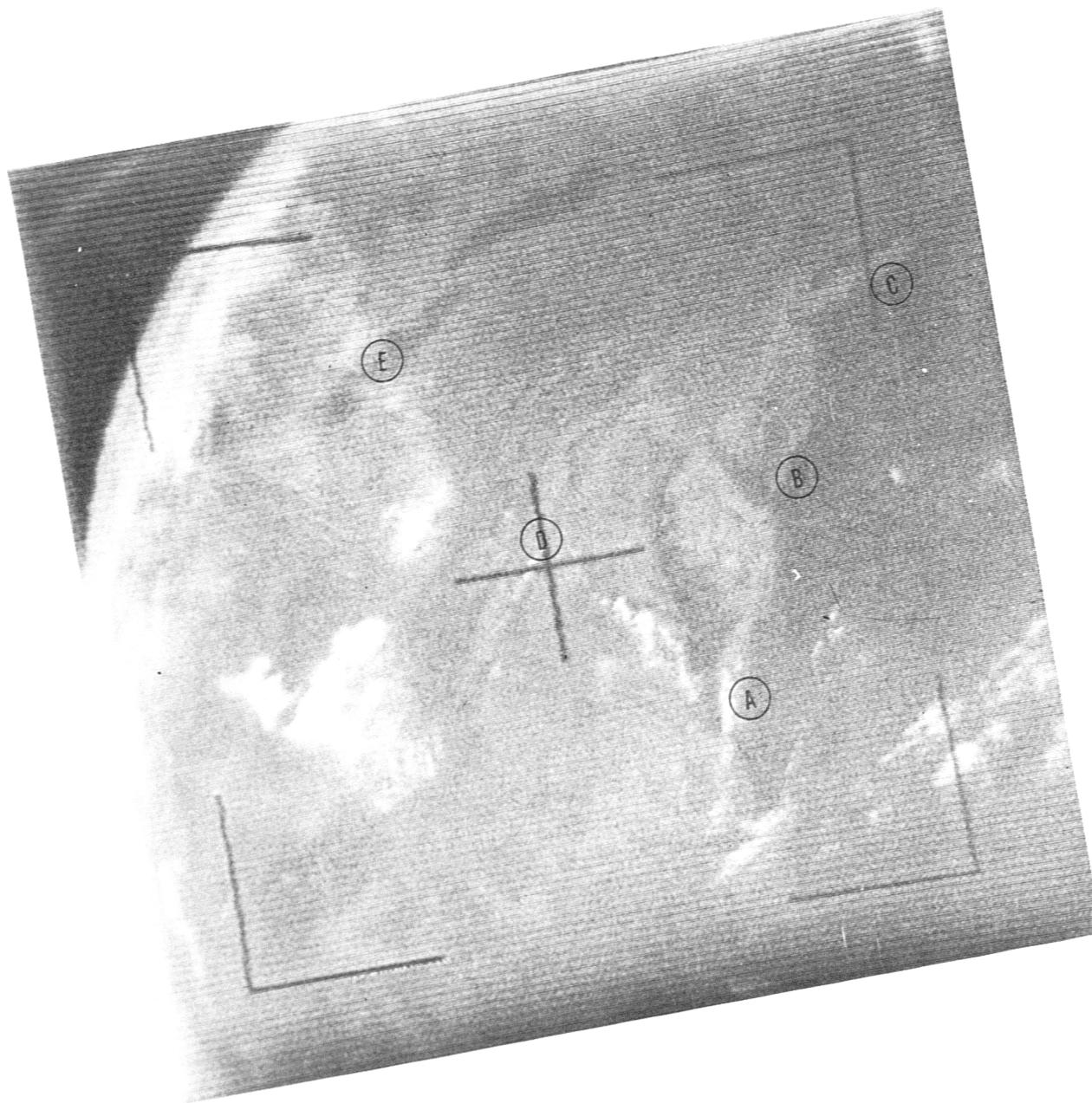
- A. Straits of Mackinac
- B. Georgian Bay
- C. Lake Ontario
- D. Lake Erie

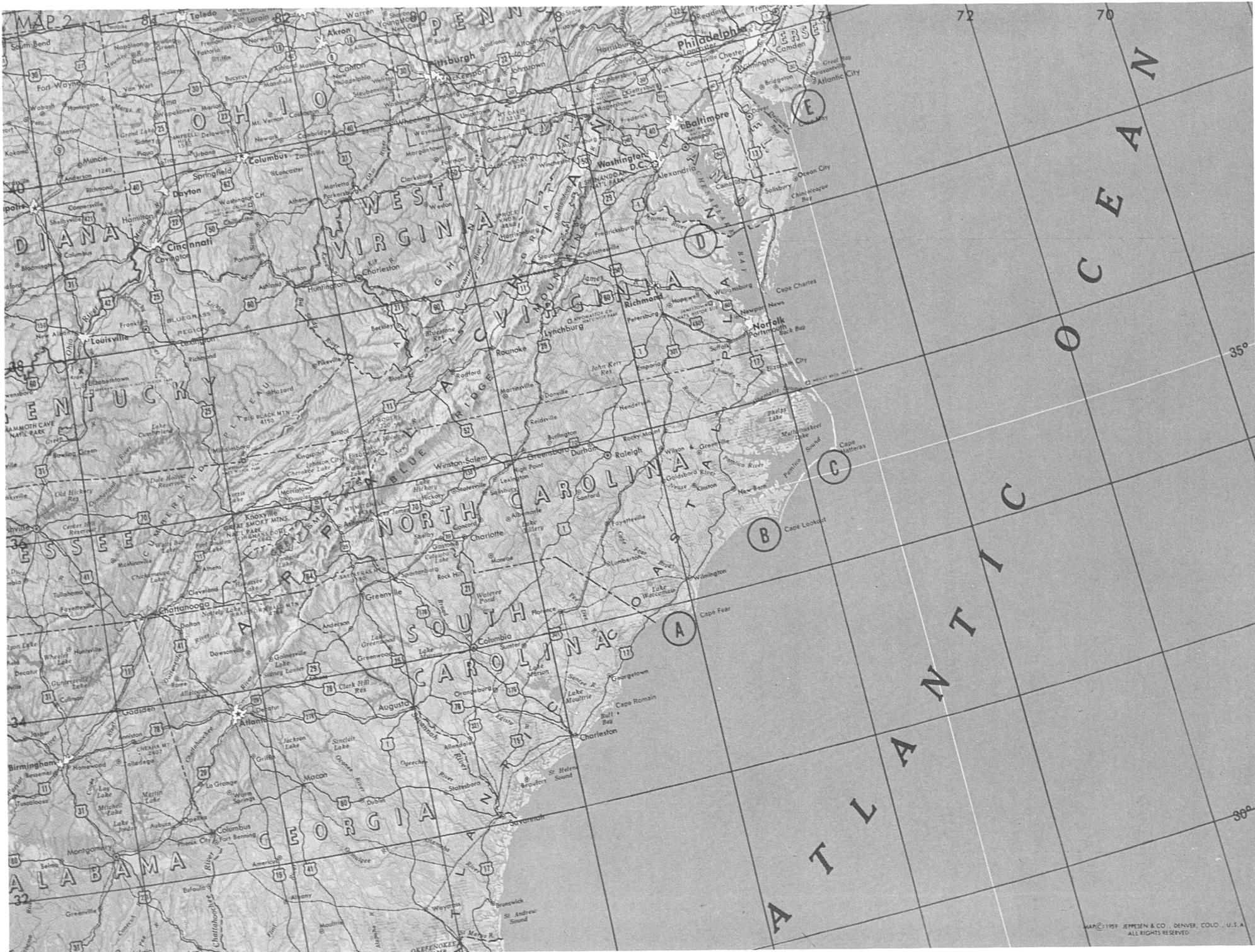




June 11, 1964
1340 GMT Tape Mode
TIROS VIII Pass 2511
Camera 1 Frame 28

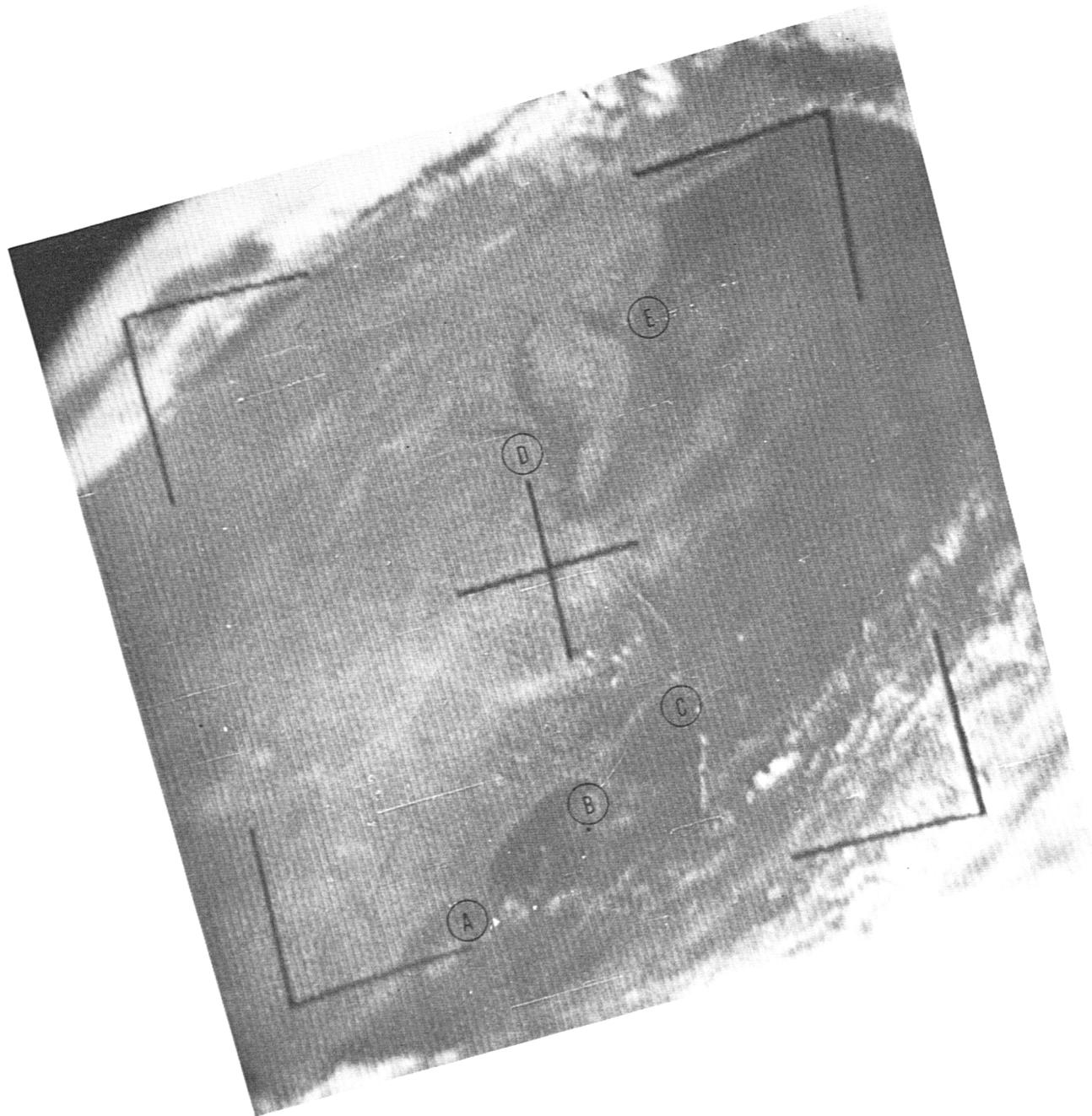
- A. Cape Charles
- B. Cape May
- C. Long Island
- D. Blue Ridge Mountains
- E. Lake Erie





May 19, 1963
1451 GMT Direct Mode
TIROS VI Pass 3548
Camera 1 Frame 5

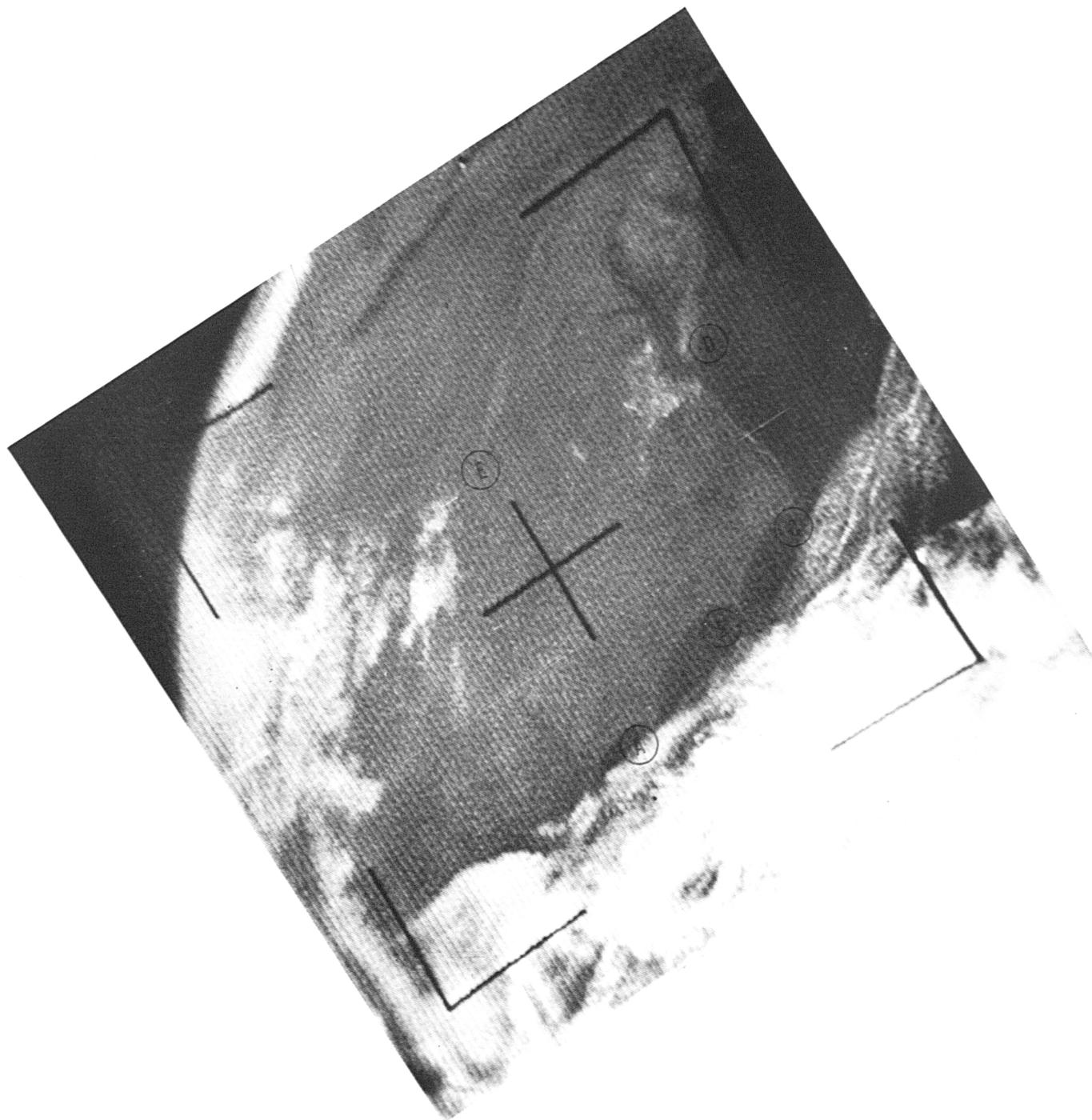
- A. Cape Fear
- B. Cape Lookout
- C. Cape Hatteras
- D. Potomac River
- E. Cape May

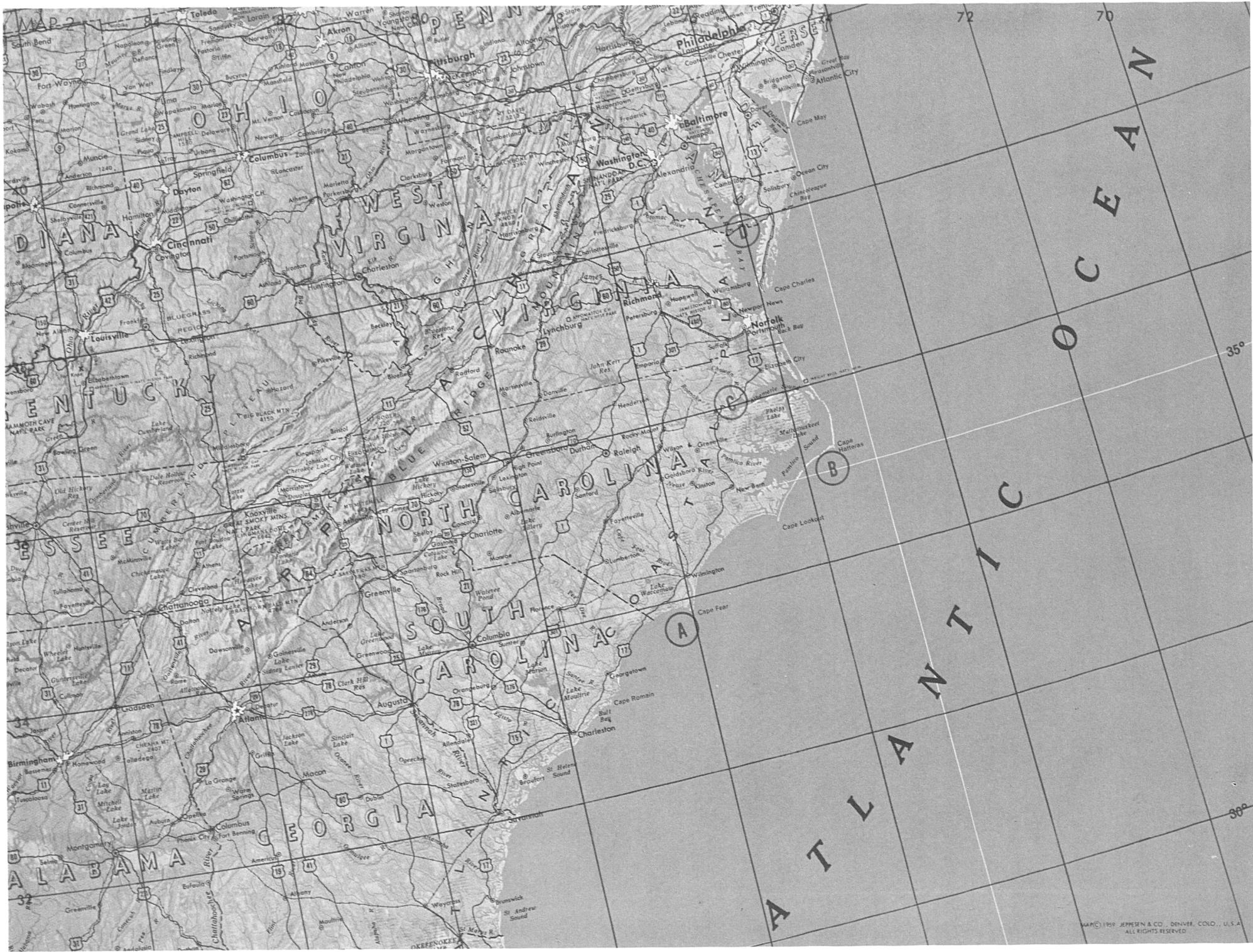




May 24, 1963
1317 GMT Direct Mode
TIROS VI Pass 3620
Camera 1 Frame 4

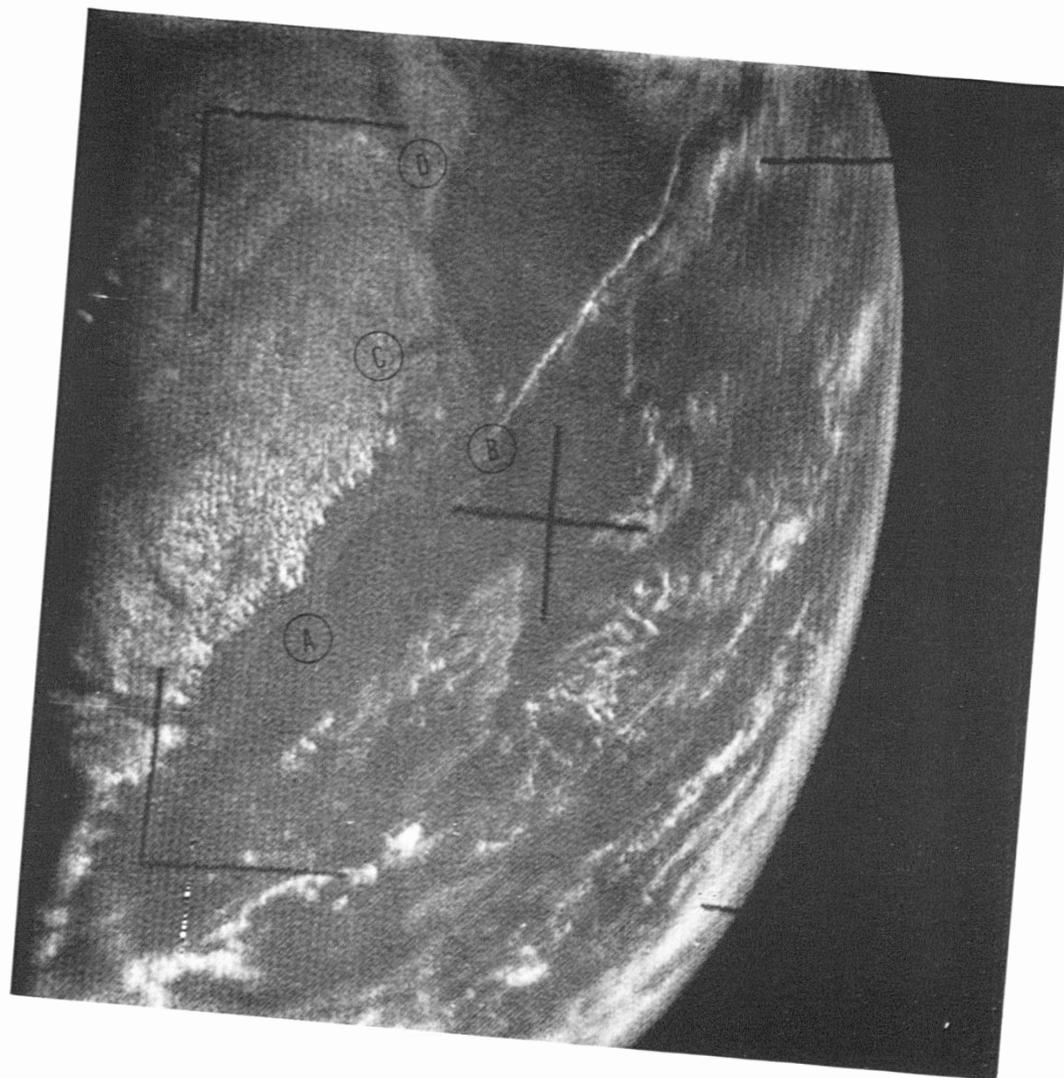
- A. Cape Fear
- B. Cape Lookout
- C. Cape Hatteras
- D. Cape Charles
- E. Blue Ridge Mountains

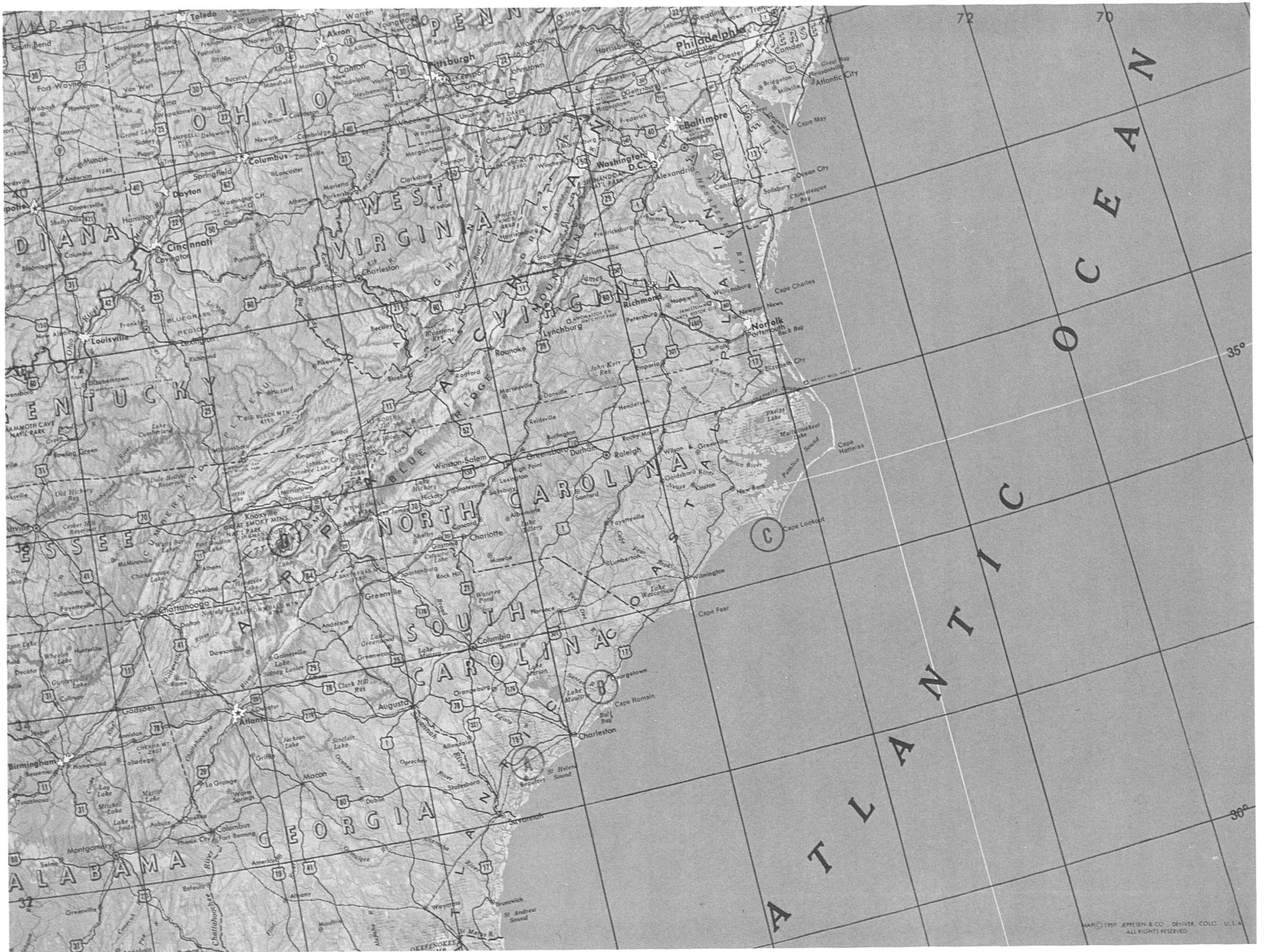




May 22, 1964
2002 GMT Tape Mode
TIROS VIII Pass 2225
Camera 1 Frame 17

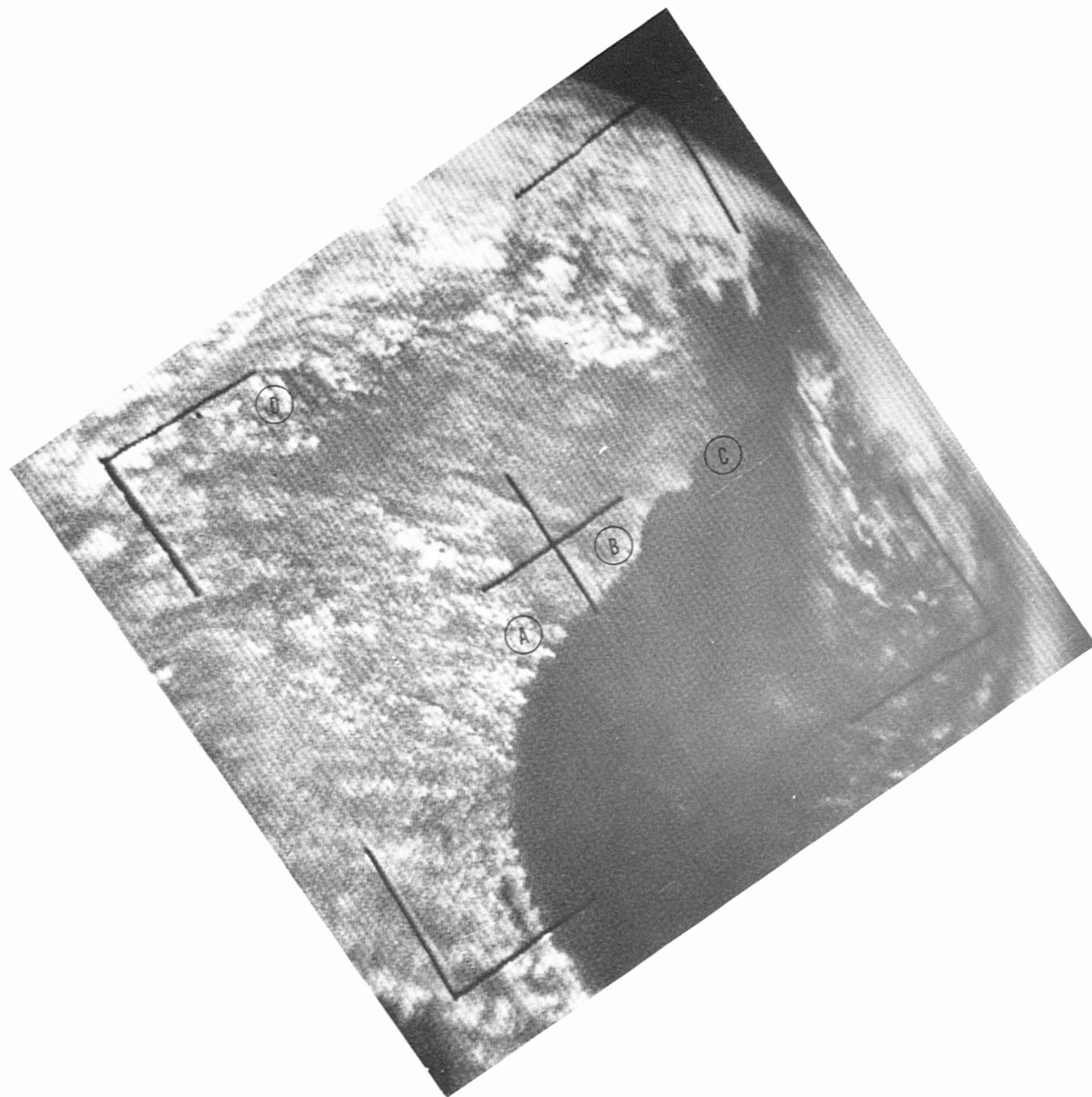
- A. Cape Fear
- B. Cape Hatteras
- C. Albemarle Sound
- D. Chesapeake Bay





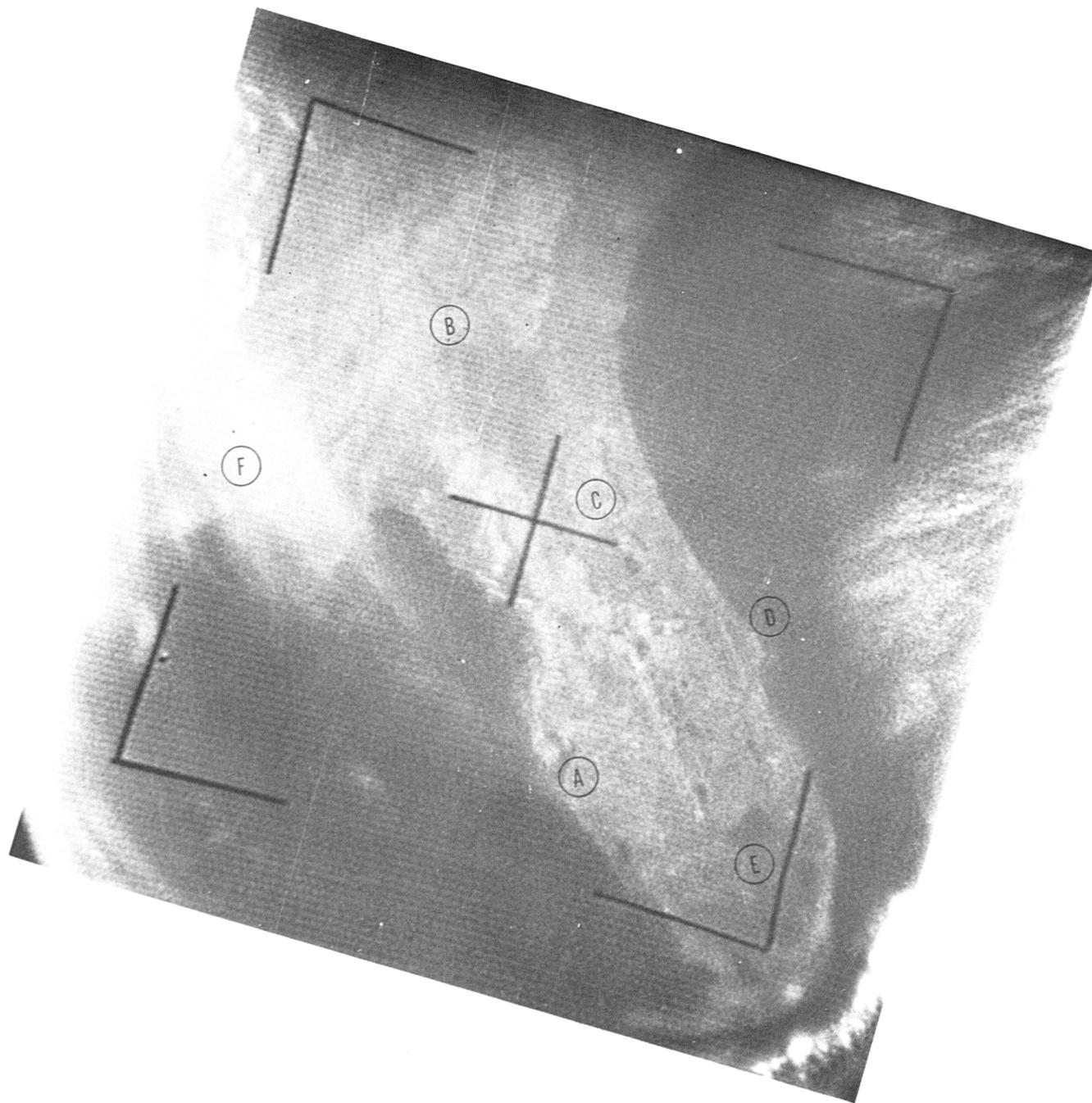
June 8, 1964
1754 GMT Direct Mode
TIROS VII Pass 5253
Camera 2 Frame 2

- A. St. Helena Sound
- B. Cape Romain
- C. Cape Lookout
- D. Great Smoky Mountains



April 1, 1964
1508 GMT Direct Mode
TIROS VII Pass 4246
Camera 2 Frame 5

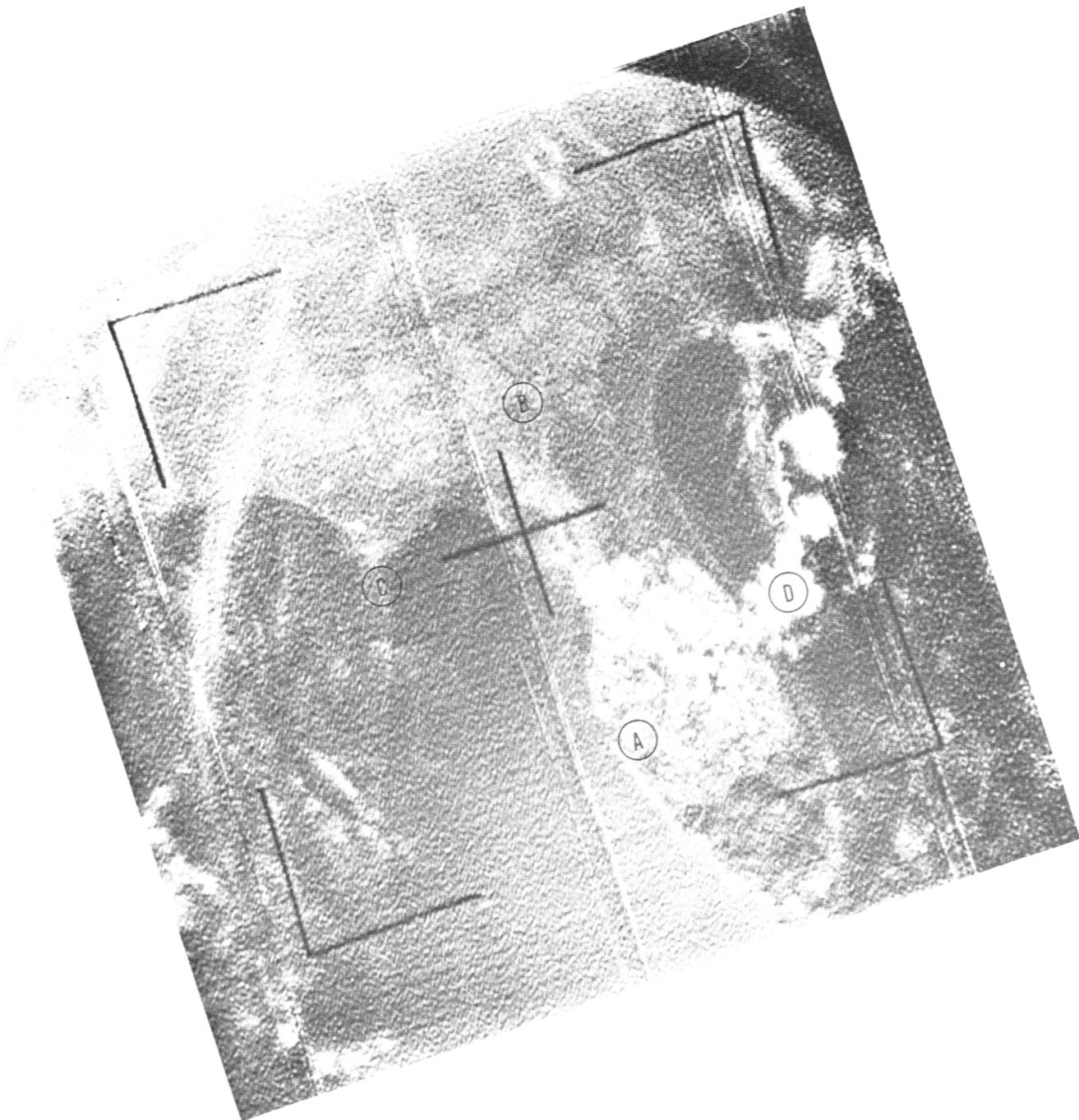
- A. Tampa Bay
- B. Ocmulgee River
- C. St. Johns River
- D. Cape Kennedy (Canaveral)
- E. Lake Okeechobee
- F. Cloud cover





May 6, 1964
1613 GMT Direct Mode
TIROS VIII Pass 1990
Camera 1 Frame 1

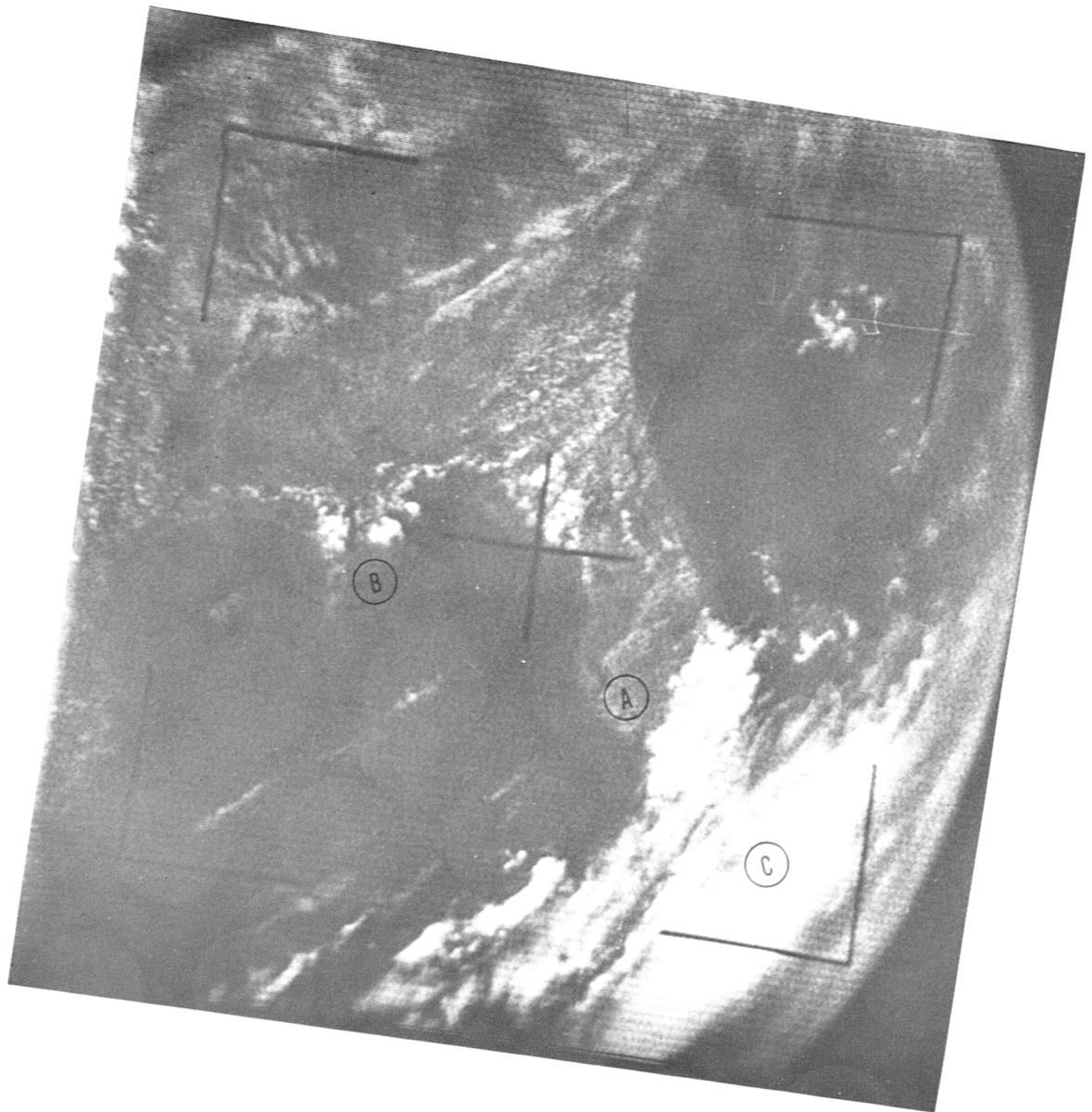
- A. Tampa Bay
- B. Ocmulgee River
- C. Cape St. George
- D. Cloud cover





May 27, 1964
1916 GMT Tape Mode
TIROS VIII Pass 2207
Camera 1 Frame 13

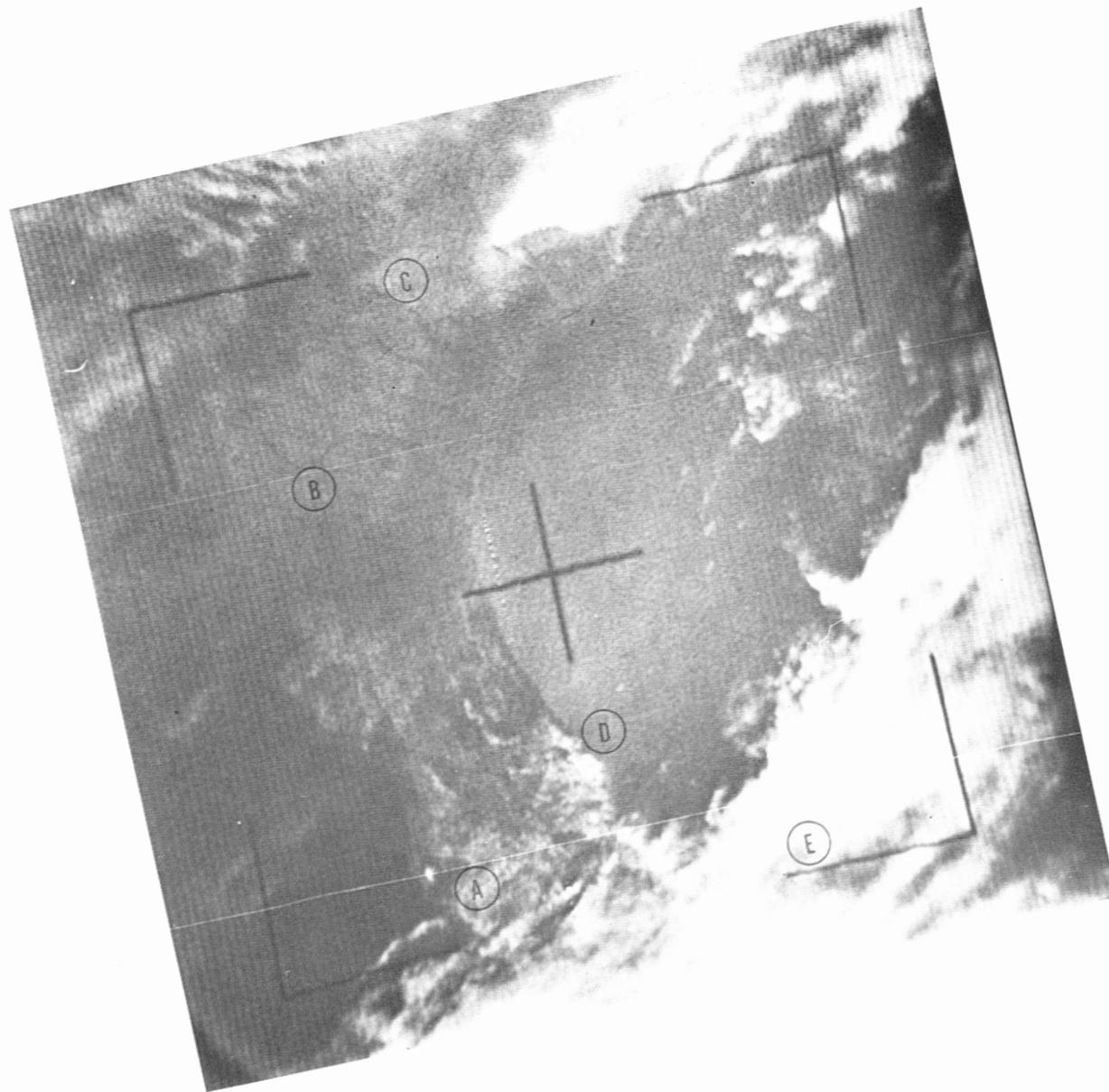
- A. Tampa Bay
- B. Cape St. George
- C. Cloud cover

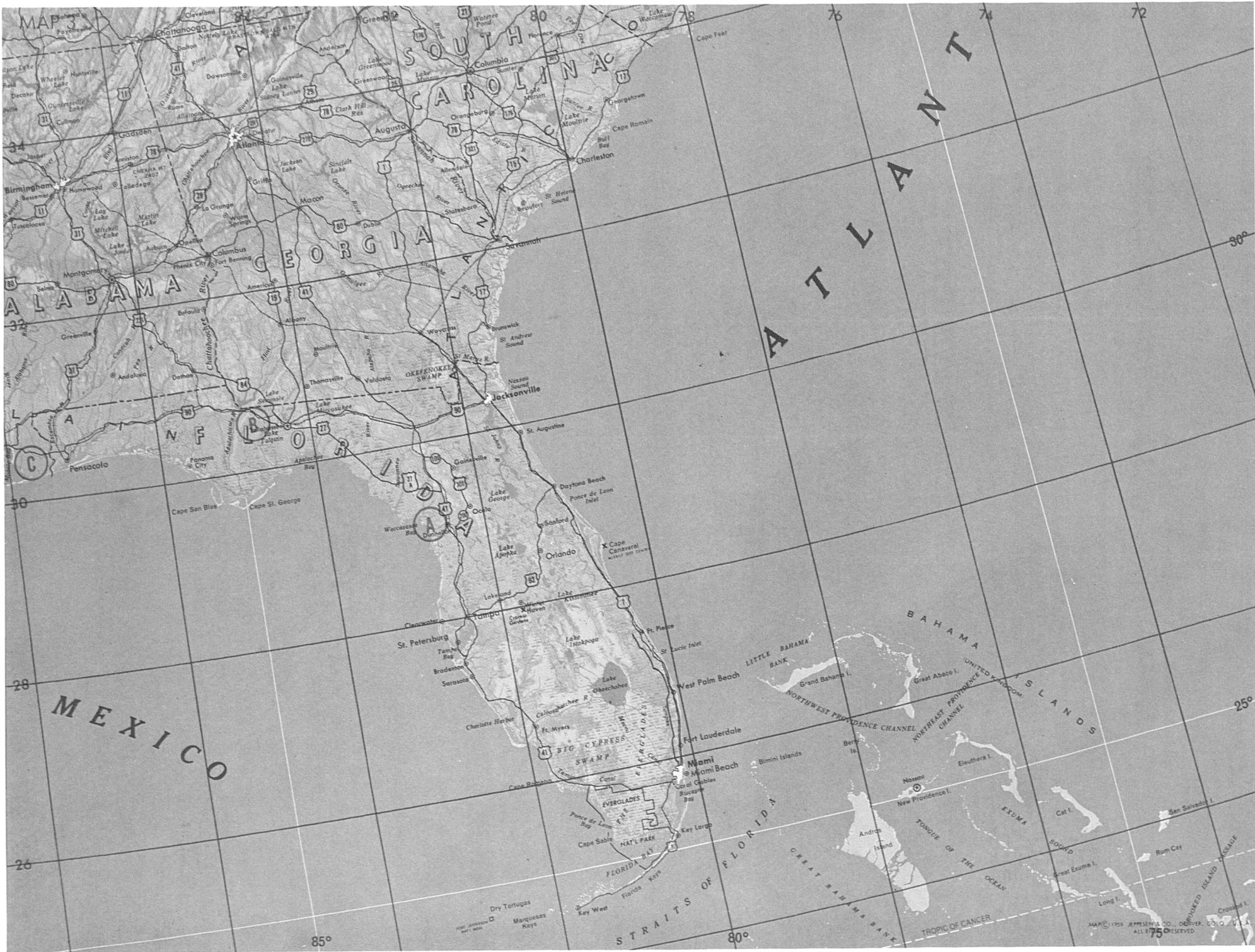




June 3, 1964
1650 GMT Tape Mode
TIROS VIII Pass 2397
Camera 1 Frame 13

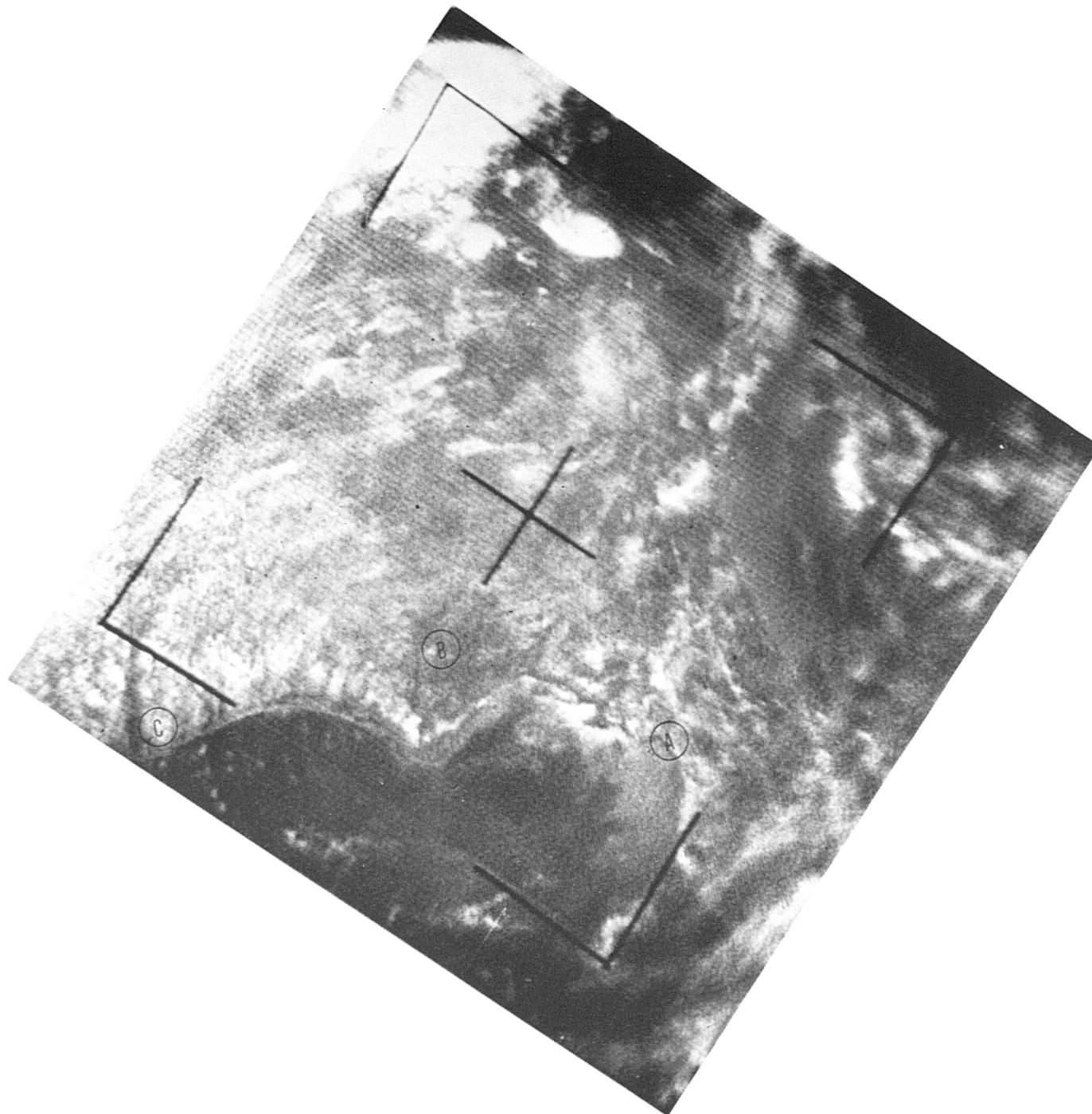
- A. Tampa Bay
- B. Ocmulgee River
- C. Savannah River
- D. Cape Kennedy (Canaveral)
- E. Cloud cover





June 13, 1964
1624 GMT Direct Mode
TIROS VII Pass 5326
Camera 1 Frame 2

- A. Waccasassa Bay
- B. Apalachicola River
- C. Mobile Bay





June 13, 1964
1624 GMT Direct Mode
TIROS VII Pass 5326
Camera 1 Frame 3

- A. Waccasassa Bay
- B. Apalachicola River
- C. Mobile Bay
- D. Sun glint

