THE UNIVERSITY OF THE STATE OF NEW YORK
THE STATE EDUCATION DEPARTMENT

NEW YORK STATE SCIENCE SERVICE
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GEOLOGICAL SURVEY
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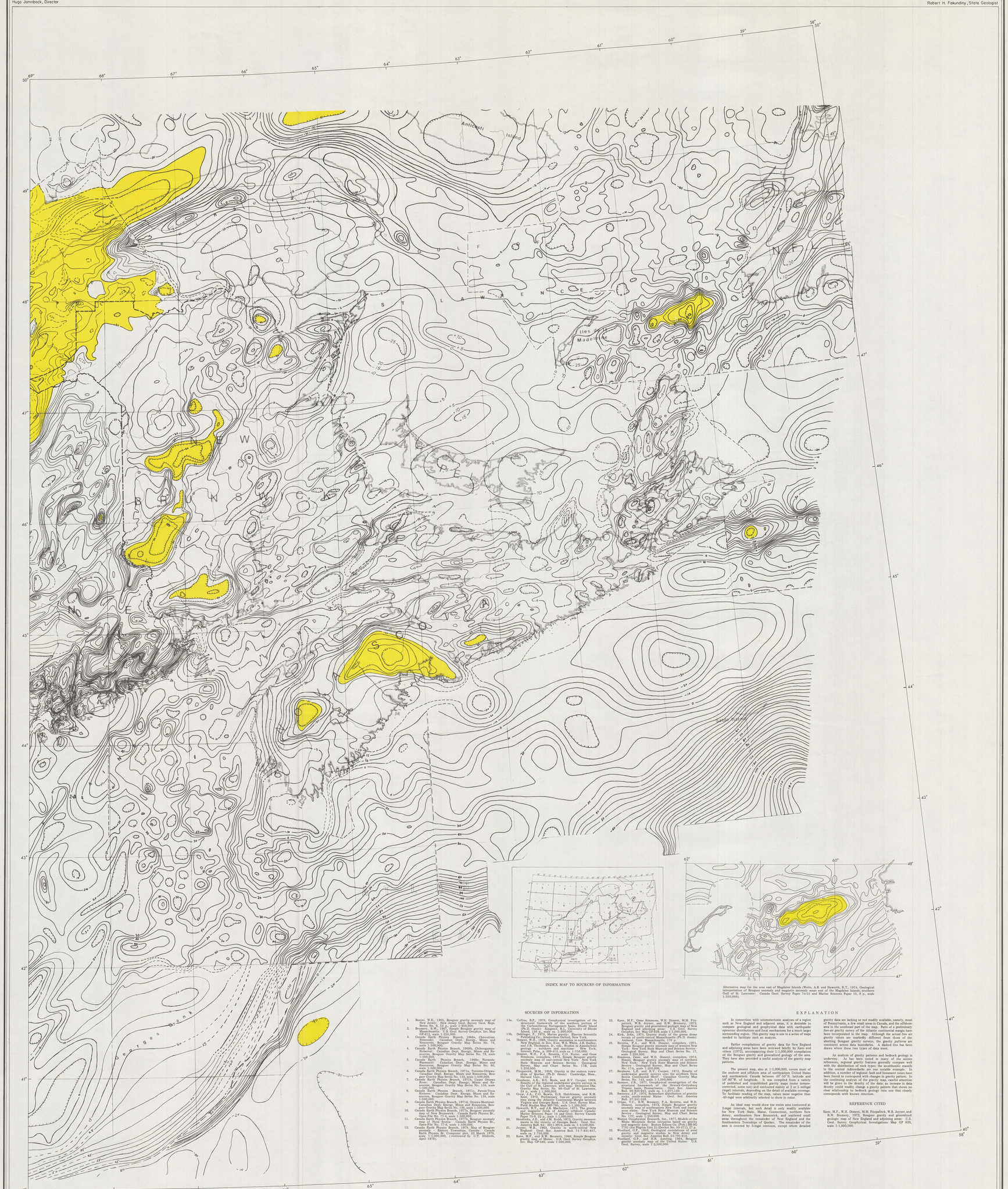

INDEX MAP TO SOURCES OF INFORMATION

Alternative map for the area east of Magdalen Islands (Watts, A.B. and Haworth, R.T., 1974, Geological interpretation of Bouguer anomaly and magnetic anomaly maps east of the Magdalen Islands, southern Gulf of St. Lawrence: Canada Geol. Survey Paper 74-55 and Marine Sciences Paper 10, 9 p., scale 1:250,000).

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EXPLANATION

In connection with seismotectonic analyses of a region such as New England and adjacent areas, it is desirable to compare geological and geophysical data with earthquake epicenter distributions and focal mechanisms for a much larger surrounding region. This gravity map is one in a series of maps needed to facilitate such an analysis.

Earlier compilations of gravity data for New England and adjoining areas have been reviewed briefly by Kane and others (1972), accompanying their 1:1,000,000 compilation of the Bouguer gravity and generalized geology of the area. They have also provided a useful analysis of the gravity map patterns.

The present map, also at 1:1,000,000, covers most of the onshore and offshore area of northeastern United States and southeastern Canada between 40°-50°N. latitude and 58°-80°W. of longitude. It was compiled from a variety of published and unpublished gravity maps (some terrain-corrected, some not) and contoured mainly at 2 or 5 milligal (mgal) intervals, depending on the detail of available coverage. 40 mgal was chosen as the lowest contour, and negative than -40 mgal were arbitrarily selected to show in color.

An ideal map would show the entire area contoured at 2-mgal intervals, but such detail is only readily available for New York State, Maine, Connecticut, northern New Jersey, southeastern New Brunswick, and scattered small areas throughout the remainder of New England and the Southeastern Townships of Quebec. The remainder of the area is covered by 5-mgal contours, except where detailed gravity data are lacking or not readily available, namely, most of Pennsylvania, a few small areas in Canada, and the offshore area in the southeast part of the map. Parts of a preliminary free-air gravity survey of the Atlantic continental margin have been incorporated in the map. Although the actual free air gravity values are markedly different from those of the abutting Bouguer gravity surveys, the gravity *patterns* are similar and a reasonable continuous contour line has been drawn where these two types of data meet.

An analysis of gravity patterns and bedrock geology is underway. As has been noted in many of the source references, regional gravity features generally compare well with the distribution of rock types: the anorthositic massifs of the Adirondacks, Nonesuch, and Grenville provinces. In addition, a number of regional fault and lineament zones have been found to correspond with changes in gravity pattern. In the continuing analysis of the gravity map, careful attention will be given to the density of the data; an increase in data density could readily change a gravity pattern that shows no clear relationship to bedrock geology into one that closely corresponds with known structure.

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BOUGUER GRAVITY MAP OF NORTHEASTERN UNITED STATES AND SOUTHEASTERN CANADA, ONSHORE AND OFFSHORE

Compiled by C.T. Hildreth during 1977 and 1978

REGIONAL MAP NUMBER 1, (eastern sheet)

NEW ENGLAND SEISMOTECTONIC STUDY

Coordinator, Patrick J. Barosh

Scale 1:1,000,000

0 20 40 Miles

0 20 40 Kilometers

LEGEND

Bouguer anomaly, unless otherwise indicated on Index Map

10 15 20 — Gravity anomaly contour, dashed where interpolated

Gravity values less than - 40 milligals.

Contour interval 2 and 5 milligals.

Compilation and publication of this map was supported by a U.S. Nuclear Regulatory Commission grant, Contract No. AT(49-24)-0291.

HILDRETH, C.T., 1979, NEW YORK STATE MUSEUM
MAP AND CHART SERIES NO. 32

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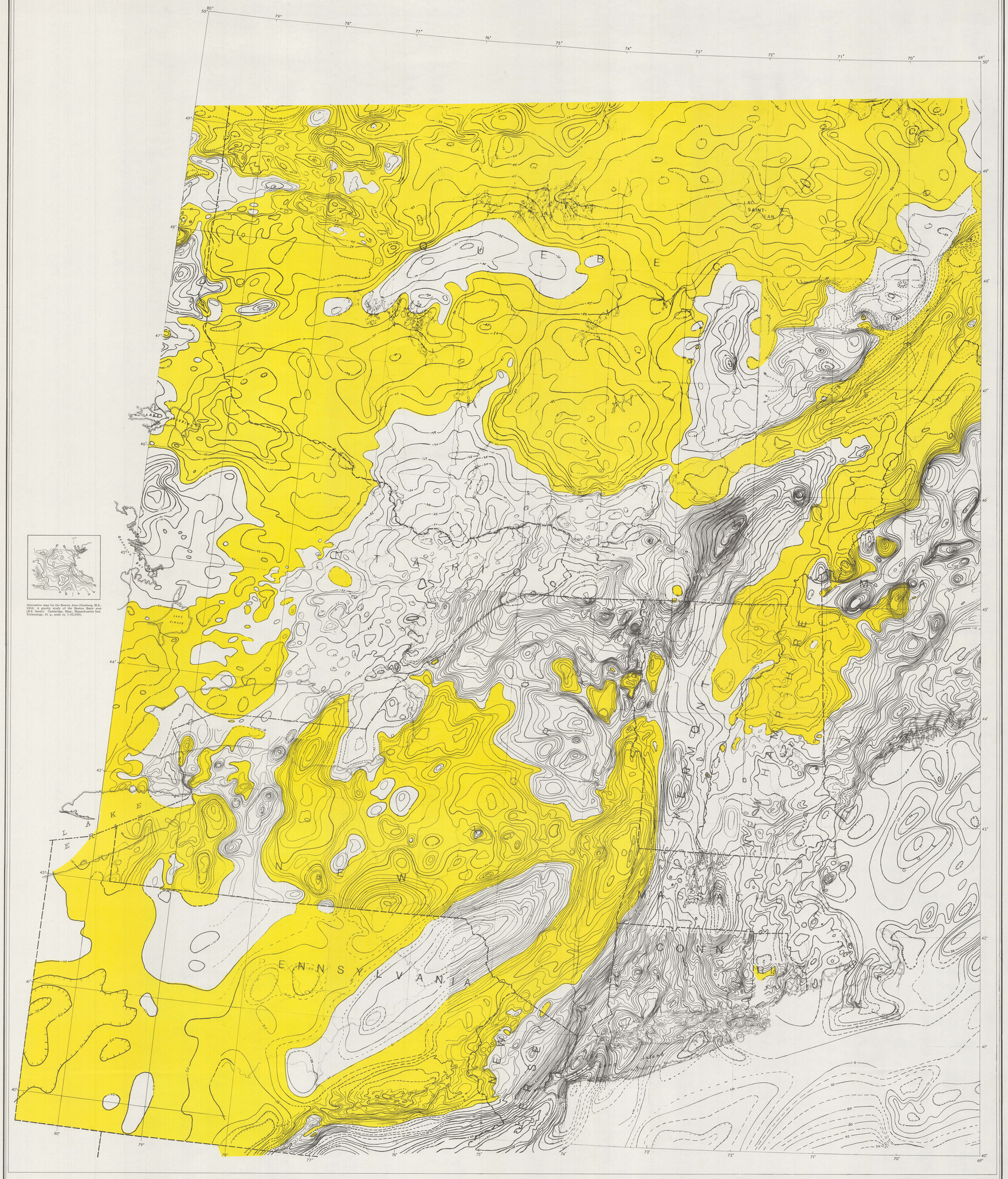

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BOUGUER GRAVITY MAP OF NORTHEASTERN UNITED STATES AND SOUTHEASTERN CANADA, ONSHORE AND OFFSHORE

Compiled by C. T. Hildreth during 1977 and 1978

REGIONAL MAP NUMBER 1, (western sheet)

NEW ENGLAND SEISMOTECTONIC STUDY

Coordinator, Patrick J. Barosh

LEGEND

Bouguer anomaly, unless otherwise indicated on Index Map

10 — 15 — 20 Gravity anomaly contour, dashed where interpolated

Gravity values less than −40 milligals.

Contour interval 2 and 5 milligals.

Scale 1:1,000,000

0 20 40 Miles

0 20 40 Kilometers

Compilation and publication of this map was supported by a U.S. Nuclear Regulatory Commission grant, Contract No. AT(49-24)-0291.

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