U.S. DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY
MARCIA K. McNUTT, DIRECTOR

Prepared in cooperation with the
STATE OF VERMONT, VERMONT AGENCY OF NATURAL RESOURCES,
VERMONT GEOLOGICAL SURVEY
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SCIENTIFIC INVESTIGATIONS MAP 3184
BEDROCK GEOLOGIC MAP OF VERMONT
SHEET 2 OF 3

73°15′
73°00′
72°45′
72°30′
72°15′
72°00′
71°45′
71°30′
45°00′
44°45′
44°30′
44°15′
44°00′
CANADA
UNITED STATES
LAKE CHAMPLAIN
LAKE MEMPHREMAGOG
CONNECTICUT RIVER
Burlington
Montpelier
Barre
St Johnsbury
Middlebury
A
A′
B
B′
C
C′
D
D′
E
E′
F
F′
G
G′
GEOLOGIC STRUCTURE MAP
Laurentian margin
Shelf and clastic sequence
Rift clastic suite and volcanics
Transitional margin rocks
Ordovician accreted rocks
Connecticut Valley trough
QUÉBEC, CANADA
MASSACHUSETTS
NEW YORK
NEW HAMPSHIRE
Rift clastics
Taconic allochthon
Laurentian basement
GREEN MOUNTAIN ANTICLINORIUM
GREEN MOUNTAINS
LOWELL MOUNTAIN ANTICLINE
CHAMPLAIN VALLEY
ST. ALBANS SYNCLINORIUM
KILOMETERS
SEA LEVEL
SURFACE
Magog Group rocks? (of Québec)
Undifferentiated rocks of the Mount Holly Complex shown at depth are designated Yu.
Dotted contact indicates facies change

GEOLOGIC STRUCTURE MAP
EXPLANATION

Connecticut Valley trough

Selected allochthons and fault slices (others labeled)

- Piermont allochthon
- Mount Abraham slice
- Prospect Rock slice
- Taconic allochthon
- Belvidere Mountain Structural Complex and Tillotson Peak Complex (TPC)

Igneous rocks and Mesoproterozoic basement

- White Mountain Igneous Suite—Dikes and plutons shown (Cretaceous and Jurassic)
- New Hampshire Plutonic Suite—Dikes and plutons shown (Devonian)
- Lake Memphremagog Intrusive Suite (Silurian)
- Oliverian and Highlandcroft Plutonic Suites (Silurian to Ordovician)
- North River Igneous Suite (Ordovician and Late Cambrian)
- Cardinal Brook Intrusive Suite (Neoproterozoic)
- Mesoproterozoic basement rocks

Ultramafic rocks (serpentinites)

Contact—Not shown around many granite plutons

Faults

- Early orogenic thrust fault—Sawteeth on upper plate. Abbreviation: (t), Taconian
- Syn-metamorphic or post-metamorphic thrust fault—Sawteeth on upper plate. Abbreviations: (t), Taconian; (a), Acadian
- Strike-slip fault—Arrows indicate relative movement
- High-angle fault—Abbreviation: (M), Mesozoic
- Normal fault—Ticks on downthrown side. Abbreviation: (M), Mesozoic

Folds

- Antiform
- Synform
- Overturned antiform
- Overturned synform
- Inclined late Acadian fold in Connecticut Valley trough

⊙46 **U-Pb zircon sample site**—See table 1 on back of sheet 3

SCALE 1:500 000
10 0 10 20 MILES
10 0 10 20 30 KILOMETERS

EXPLANATION OF MAP SYMBOLS

Contact—Approximately located; dashed where encloses overprint pattern; dotted where concealed by water

Faults—Approximately located; dashed and queried where uncertain; dotted where concealed by water. On cross sections, age of principal movement where known is shown by (t), Taconian; (a), Acadian; (M), Mesozoic

- **Thrust fault**—Pre-metamorphic or early metamorphic; sawteeth on upper plate. Age of principal movement is considered oldest Taconian
- **Thrust fault**—Syn-metamorphic or post-metamorphic with respect to either Taconian or Acadian metamorphism. Sawteeth on upper plate
- **Strike-slip fault**—Arrows show sense of lateral relative movement. Age of principal movement is considered Acadian or Alleghanian
- **Normal fault**—Ticks on downthrown side; arrows indicate sense of oblique relative movement where known. Age of principal movement is considered Acadian, Alleghanian, or Mesozoic
- **Brittle fault**—Sense of movement, where known, is shown by U, upthrown side; D, downthrown side

48⊙ **U-Pb zircon sample site**—See table 1 on back of sheet 3

The geology portrayed in adjacent Massachusetts, New York, and New Hampshire is partly subdued to more clearly define the geographic limits of the State of Vermont. Some of the geology shown in these adjoining areas was newly surveyed for this map in order to obtain a better understanding of the rock units and structures within Vermont.

14½°
TRUE NORTH
MAGNETIC NORTH
APPROXIMATE MEAN DECLINATION, 2011

QUÉBEC, CANADA
NEW YORK
N.H.
MASS.
CONN.
R.I.
MAP LOCATION

SCALE 1:100 000
1 0 1 2 3 4 5 6 7 8 9 10 KILOMETERS
1 0 1 2 3 4 5 6 7 8 MILES
CONTOUR INTERVAL 20 METERS

Northern map sheet

Base from U.S. Geological Survey, 1:100,000

Groveton, ME-NH-VT, 1986; Lake Champlain North, NY-VT, 1986; Lake Champlain South, NY-VT, 1986; Montpelier, NH-VT, 1988; Mount Mansfield, VT, 1989; Mount Washington, ME-NH-VT, 1988; Rutland, NH-VT, 1985; Sherbrooke, ME-NH-VT, 1986; Ticonderoga, NY-VT, 1989

Projection and 10,000-meter grid, zones 18 and 19, Universal Transverse Mercator

1927 North American Datum

BEDROCK GEOLOGIC MAP OF VERMONT

By

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2011

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