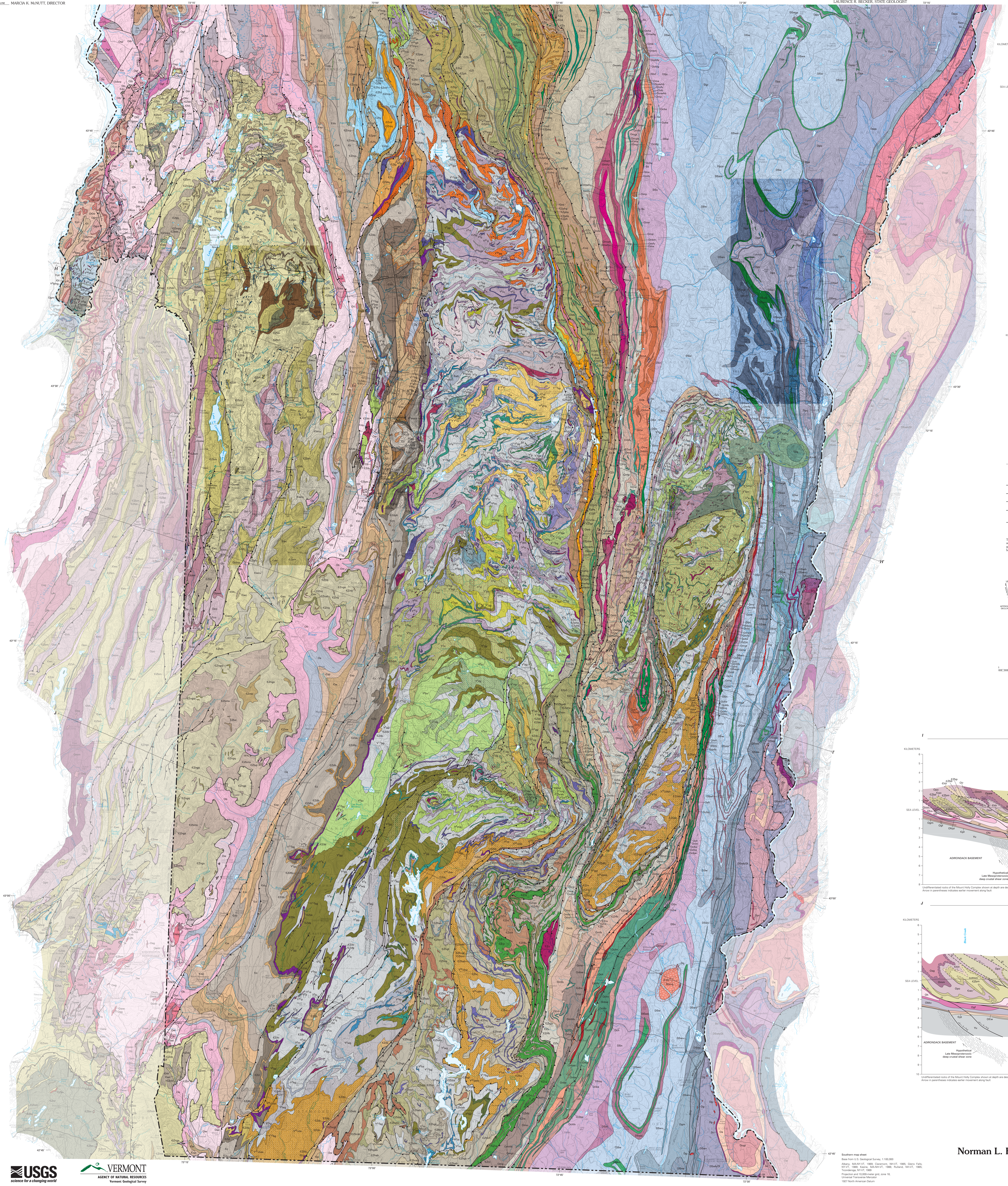
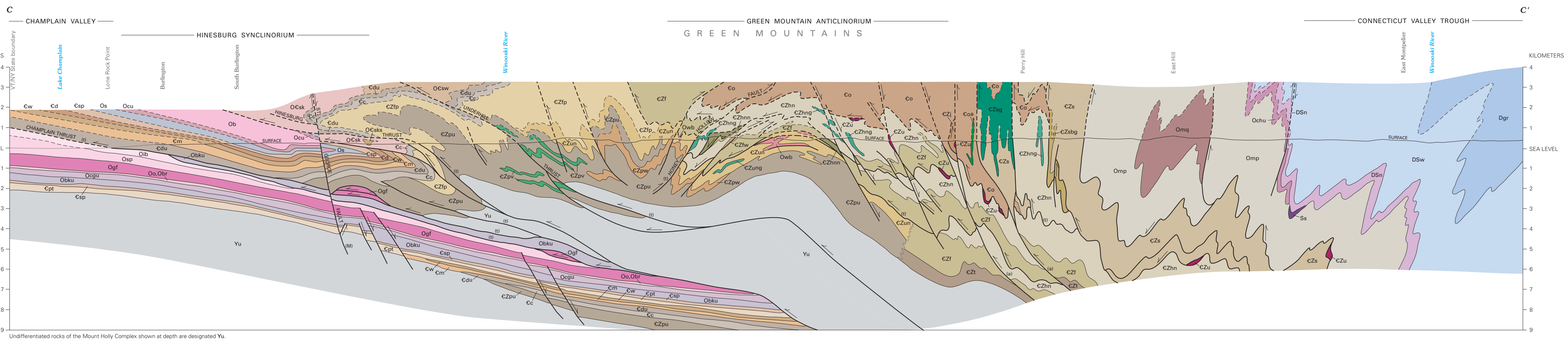
U.S. DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY
MARCIA K. McNUTT, DIRECTOR

Prepared in cooperation with the
STATE OF VERMONT, VERMONT AGENCY OF NATURAL RESOURCES,
VERMONT GEOLOGICAL SURVEY
LAURENCE R. BECKER, STATE GEOLOGIST

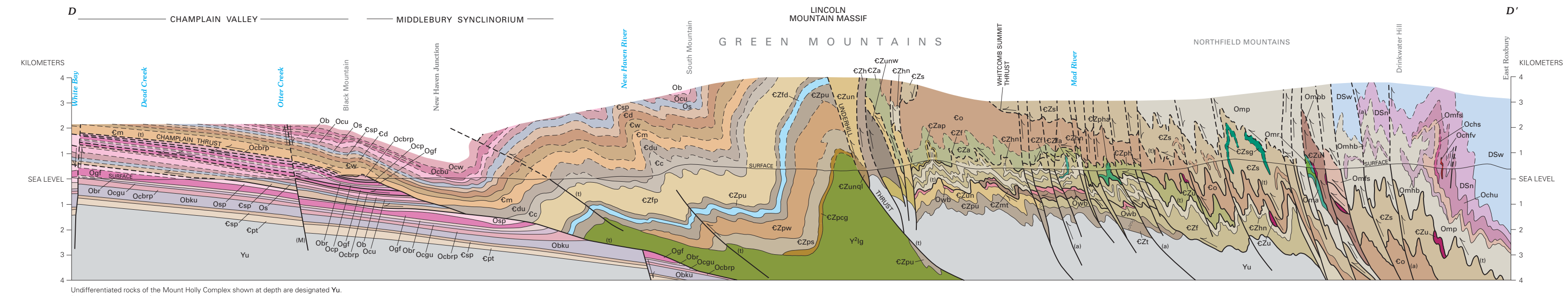

73°15′
73°00′
72°45′
72°30′
72°15′
43°45′
43°30′
43°15′
43°00′
42°45′
H
H′
I
I′
J
J′
Rutland
Bennington
Lake Bomoseen
Lake St. Catherine
Chittenden Reservoir
TACONIC FRONTAL THRUST
CHAMPLAIN THRUST
GREEN MOUNTAIN FRONTAL THRUST
WHITCOMB SUMMIT THRUST
MONROE FAULT
AMMONOOSUC FAULT
WESTMINSTER WEST FAULT ZONE

Southern map sheet

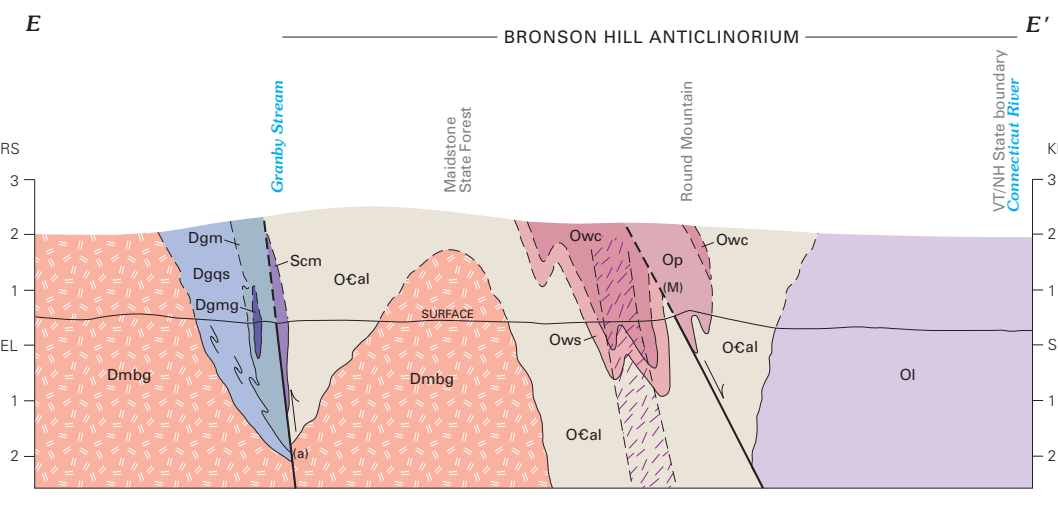
Base from U.S. Geological Survey, 1:100,000
Albany, MA-NY-VT, 1989; Claremont, NH-VT, 1985; Glens Falls, NY-VT, 1989; Keene, MA-NH-VT, 1986; Rutland, NH-VT, 1985; Ticonderoga, NY-VT, 1989
Projection and 10,000-meter grid, zone 18, Universal Transverse Mercator
1927 North American Datum

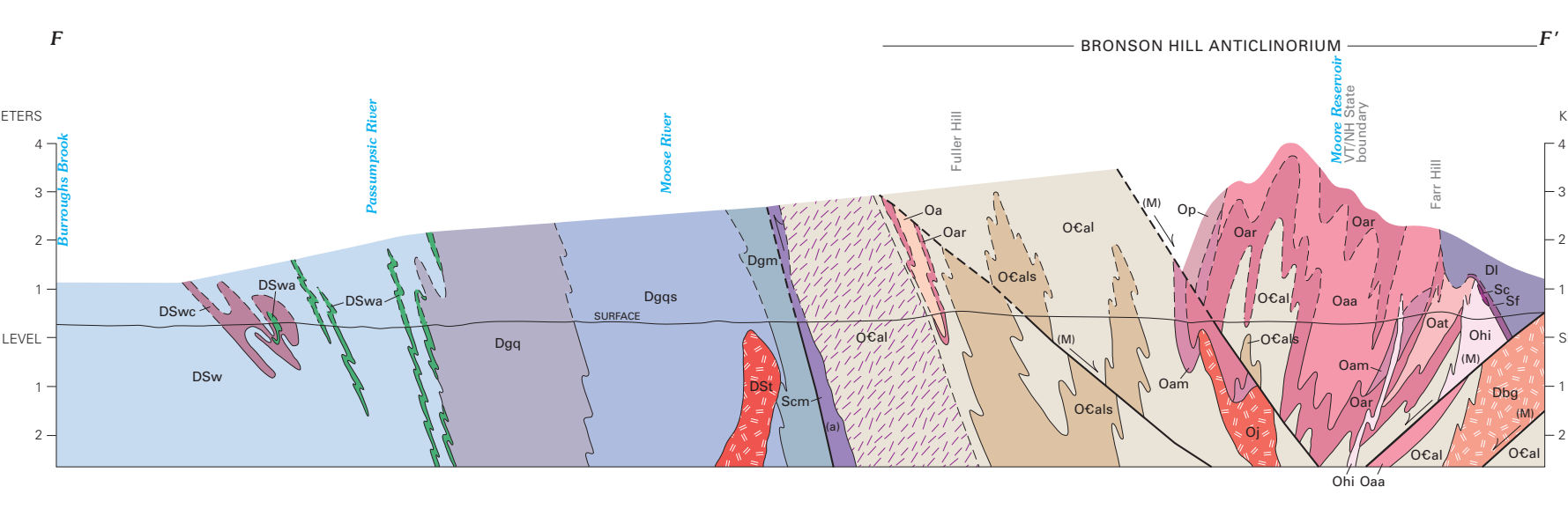

C
C′
CHAMPLAIN VALLEY
HINESBURG SYNCLINORIUM
GREEN MOUNTAIN ANTICLINORIUM
GREEN MOUNTAINS
CONNECTICUT VALLEY TROUGH
KILOMETERS
SEA LEVEL
VT/NY State boundary
Lake Champlain
Lone Rock Point
Burlington
South Burlington
Winooski River
Perry Hill
East Hill
East Montpelier
Winooski River
CHAMPLAIN THRUST
HINESBURG THRUST
UNDERHILL THRUST
SURFACE
Yu

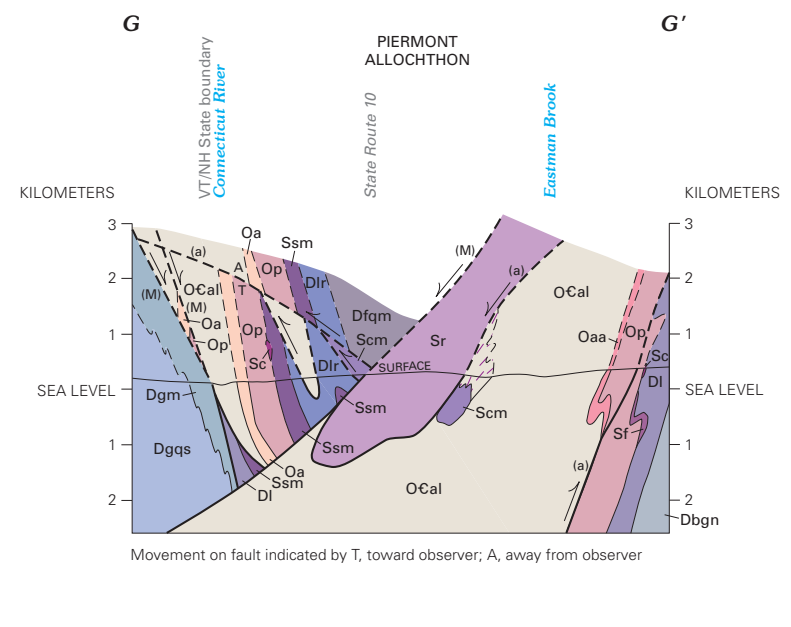
Undifferentiated rocks of the Mount Holly Complex shown at depth are designated **Yu**.
Dotted contact indicates facies change


D
D′
CHAMPLAIN VALLEY
MIDDLEBURY SYNCLINORIUM
LINCOLN MOUNTAIN MASSIF
GREEN MOUNTAINS
NORTHFIELD MOUNTAINS
KILOMETERS
SEA LEVEL
White Bay
Dead Creek
Otter Creek
Black Mountain
New Haven Junction
New Haven River
South Mountain
WHITCOMB SUMMIT THRUST
Mad River
Drinkwater Hill
East Roxbury
CHAMPLAIN THRUST
SURFACE
Yu

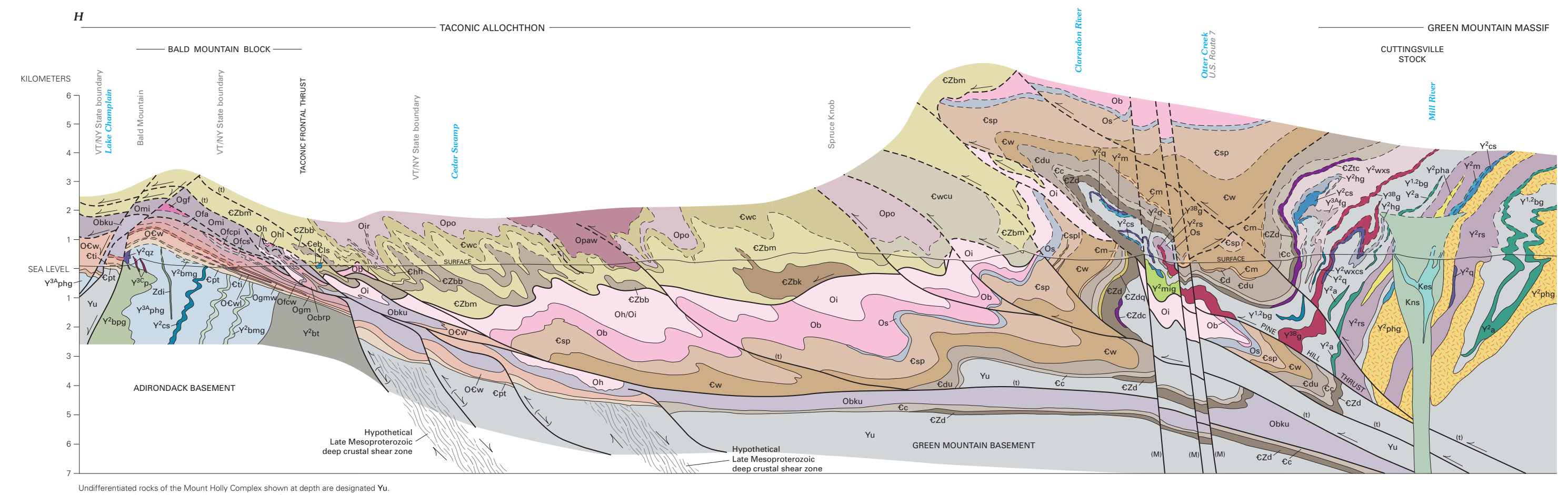
Undifferentiated rocks of the Mount Holly Complex shown at depth are designated **Yu**.
Dotted contact indicates facies change


E
E′
BRONSON HILL ANTICLINORIUM
KILOMETERS
SEA LEVEL
Granby Stream
Maidstone State Forest
Round Mountain
VT/NH State boundary
Connecticut River
SURFACE

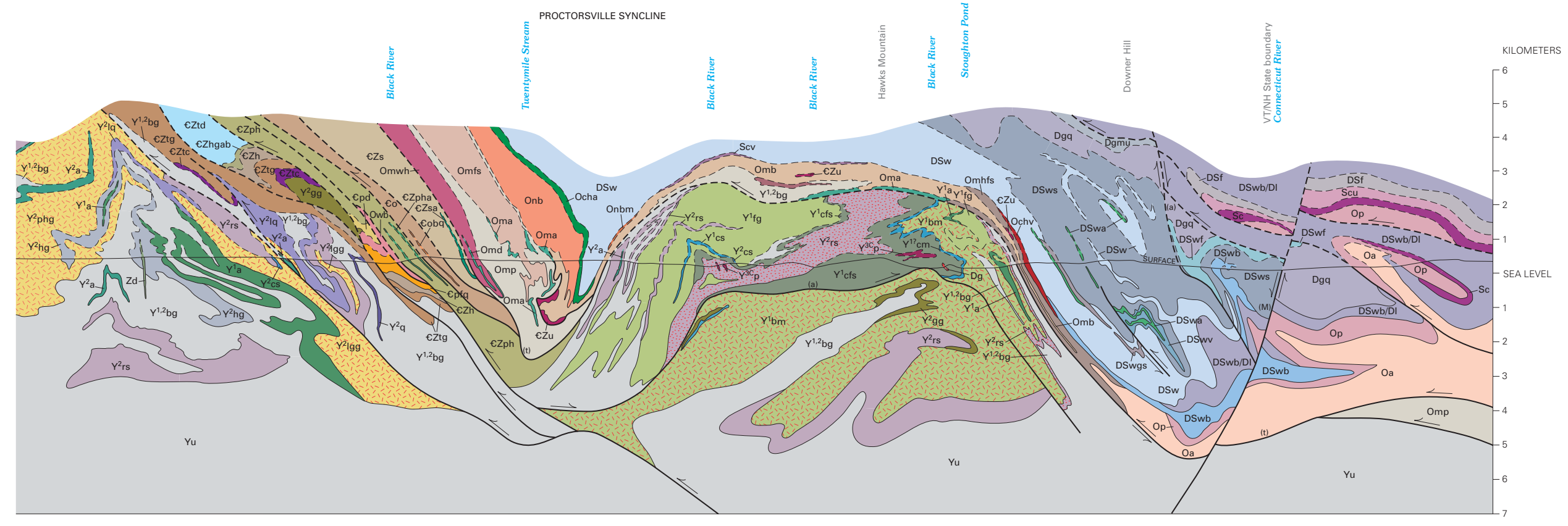

F
F′
BRONSON HILL ANTICLINORIUM
KILOMETERS
SEA LEVEL
Burroughs Brook
Passumpsic River
Moose River
Fuller Hill
Moose Reservoir
VT/NH State boundary
Farr Hill
SURFACE


G
G′
PIERMONT ALLOCHTHON
KILOMETERS
SEA LEVEL
VT/NH State boundary
Connecticut River
State Route 10
Eastman Brook
SURFACE

Movement on fault indicated by T, toward observer; A, away from observer


H
TACONIC ALLOCHTHON
BALD MOUNTAIN BLOCK
GREEN MOUNTAIN MASSIF
CUTTINGSVILLE STOCK
KILOMETERS
SEA LEVEL
VT/NY State boundary
Lake Champlain
Bald Mountain
TACONIC FRONTAL THRUST
Cedar Swamp
Spruce Knob
Clarendon River
Otter Creek
U.S. Route 7
Mill River
ADIRONDACK BASEMENT
GREEN MOUNTAIN BASEMENT
Hypothetical Late Mesoproterozoic deep crustal shear zone
PINE HILL THRUST
SURFACE

Undifferentiated rocks of the Mount Holly Complex shown at depth are designated **Yu**.
Arrow in parentheses indicates earlier movement along fault


H′
GREEN MOUNTAIN MASSIF
CHESTER DOME
CONNECTICUT VALLEY TROUGH
PROCTORSVILLE SYNCLINE
KILOMETERS
SEA LEVEL
Black River
Twentymile Stream
Black River
Black River
Hawks Mountain
Black River
Stoughton Pond
Downer Hill
VT/NH State boundary
Connecticut River
SURFACE
Yu

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

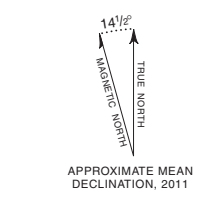
Strike-slip fault—Arrows show sense of lateral relative movement. Age of principal movement is considered Acadian or Alleghanian

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

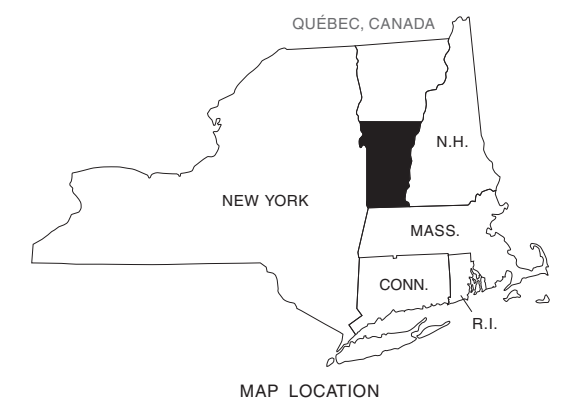
Brittle fault—Sense of movement, where known, is shown by U, upthrown side; D, downthrown side

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.

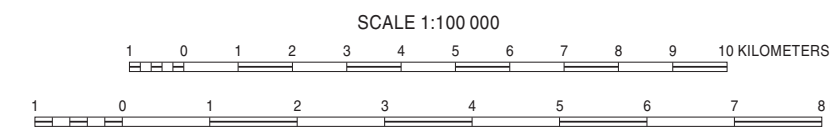

14½°
TRUE NORTH
MAGNETIC NORTH

APPROXIMATE MEAN DECLINATION, 2011

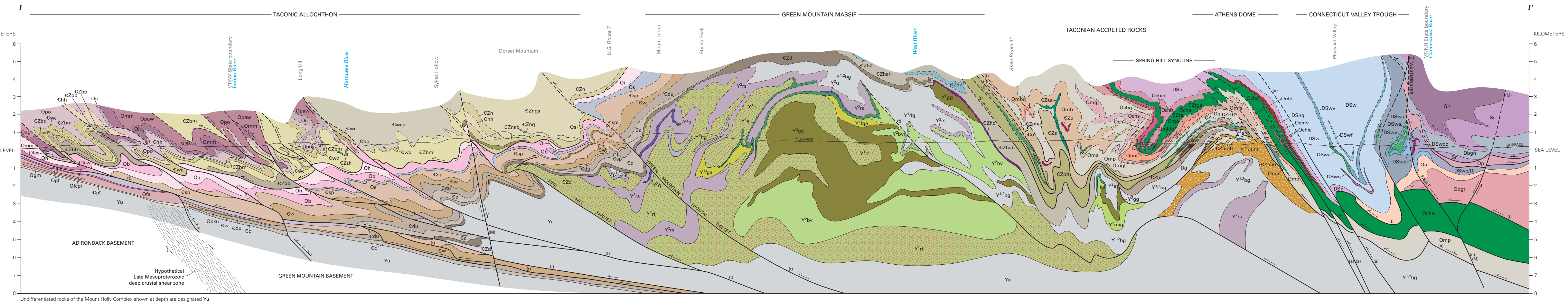

QUÉBEC, CANADA
N.H.
NEW YORK
MASS.
CONN.
R.I.

MAP LOCATION

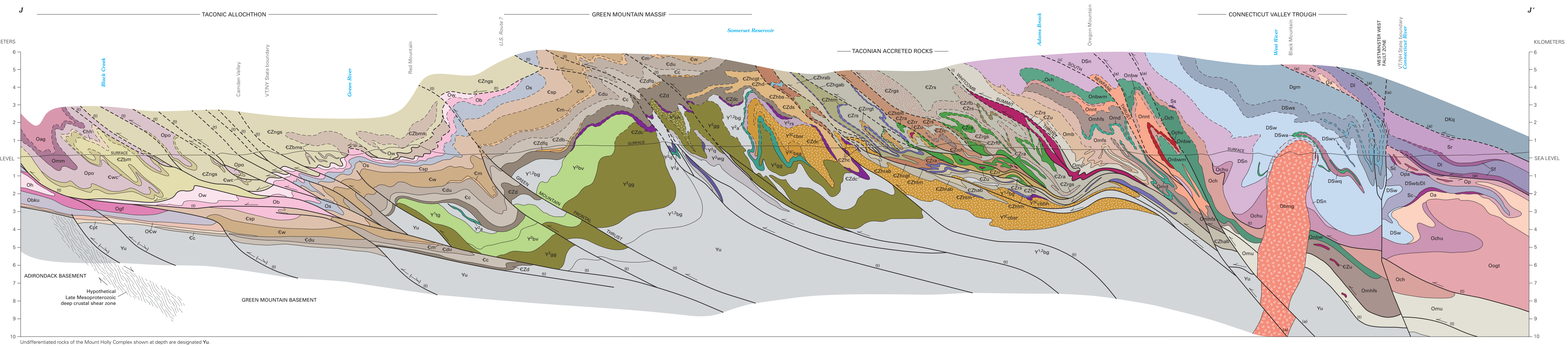
SCALE 1:100 000


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


I
I′
TACONIC ALLOCHTHON
GREEN MOUNTAIN MASSIF
TACONIAN ACCRETED ROCKS
ATHENS DOME
CONNECTICUT VALLEY TROUGH
SPRING HILL SYNCLINE
KILOMETERS
SEA LEVEL
VT/NY State boundary
Indian River
Long Hill
Mettawee River
Sykes Hollow
Dorset Mountain
U.S. Route 7
Mount Tabor
Styles Peak
West River
State Route 11
Pleasant Valley
VT/NH State boundary
Connecticut River
ADIRONDACK BASEMENT
GREEN MOUNTAIN BASEMENT
Hypothetical Late Mesoproterozoic deep crustal shear zone
PINE HILL THRUST
GREEN MOUNTAIN FRONTAL THRUST
WESTMINSTER WEST FAULT
SURFACE

Undifferentiated rocks of the Mount Holly Complex shown at depth are designated **Yu**.
Arrow in parentheses indicates earlier movement along fault


J
J′
TACONIC ALLOCHTHON
GREEN MOUNTAIN MASSIF
TACONIAN ACCRETED ROCKS
CONNECTICUT VALLEY TROUGH
KILOMETERS
SEA LEVEL
Black Creek
Camden Valley
VT/NY State boundary
Green River
Red Mountain
U.S. Route 7
Somerset Reservoir
Adams Brook
Oregon Mountain
West River
Black Mountain
WESTMINSTER WEST FAULT ZONE
VT/NH State boundary
Connecticut River
ADIRONDACK BASEMENT
GREEN MOUNTAIN BASEMENT
Hypothetical Late Mesoproterozoic deep crustal shear zone
GREEN MOUNTAIN FRONTAL THRUST
WHITCOMB SUMMIT THRUST
SOUTH NEWFANE THRUST
SURFACE

Undifferentiated rocks of the Mount Holly Complex shown at depth are designated **Yu**.
Arrow in parentheses indicates earlier movement along fault

BEDROCK GEOLOGIC MAP OF VERMONT

By

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With contributions by

Norman L. Hatch, Jr.,[1*] Douglas W. Rankin,[1] Barry L. Doolan,[2] Jonathan Kim,[3] Charlotte J. Mehrtens,[2] John N. Aleinikoff,[1] and J. Gregory McHone[4]

[1]U.S. Geological Survey, [2]University of Vermont, [3]Vermont Geological Survey, [4]Wesleyan University, *Deceased.

Cartography by Linda M. Masonic[1]

2011

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VERMONT
AGENCY OF NATURAL RESOURCES
Vermont Geological Survey

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GIS database compiled by Gregory J. Walsh and Marjorie H. Gale

Digital cartography by Linda M. Masonic

Edited by James R. Estabrook

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