Vermont Geological Survey, DEC
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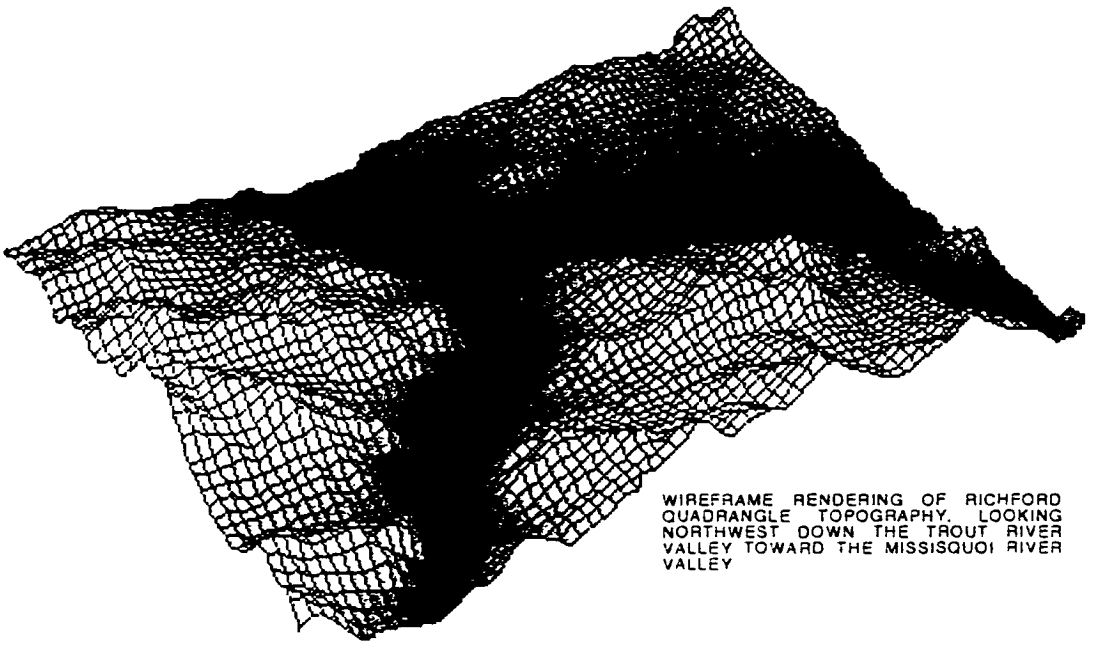
**Open File VG98-4** Rosencrantz, E., Schoonmaker, A., Copans, B., Holt, J., Ryan, J., Talcott, J., and Sonenberg, D., 1998, Bedrock geology of the Richford quadrangle, Franklin County, Vermont, 45 p., 6 plates, scale 1:24000. $20.00

# BEDROCK GEOLOGY OF THE RICHFORD QUADRANGLE
## F R A N K L I N  C O U N T Y  -  V E R M O N T



WIREFRAME RENDERING OF RICHFORD QUADRANGLE TOPOGRAPHY. LOOKING NORTHWEST DOWN THE TROUT RIVER VALLEY TOWARD THE MISSISQUOI RIVER VALLEY

Report to the Vermont Geological Survey (Contract #0963470)

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November, 1997

# REPORT CONTENTS

## OVERVIEW

This report is a summary of results of field mapping of the bedrock of Richford Quadrangle during the summer of 1997

The underlying objective of this project was to fill in details of the regional, and very general, bedrock map of the area compiled by Dennis (1964) In particular, the project would·

1 - Examine the Underhill Formation as exposed within the quadrangle to determine what, if any, subunits exist within the formation

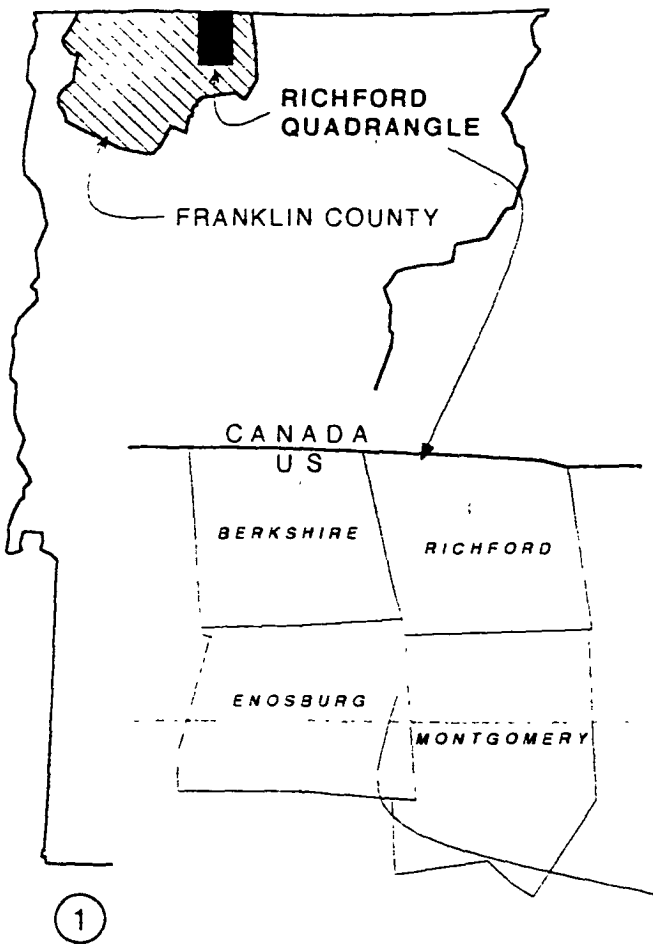
2 - Reconstruct the internal structure of the Cambridge-Richford-Valcourt synclinorium by mapping the distribution of these Underhill units

3 - Establish the location and nature of the structural boundary - Sutton-Honey Hollow thrust - between the rocks of the synclinorium to the west and those of the Sutton Mountain - Green Mountain anticlinorium to the east

4 - Reconstruct the distribution of lithology and structure of the geologic section east of the Sutton-Honey Hollow thrust

The mapping effort largely succeeded with regard to objectives 1 and 2, but was less successful in addressing objectives 3 and 4 The Underhill formation in the Richford area does include distinct, mappable subunits The spatial relationships among these units appear consistent, and provide a framework for reconstructing bedrock structure In contrast, the relationships among mappable units along and east of the trace of the Sutton-Honey Hollow thrust are not yet clear, and the structure of the thrust, and overthrust rocks subsequently obscure That the eastern rocks have undergone two penetrative folding episodes makes reconstruction more difficult

All conclusions and interpretations (and many of the observations) of this report, including the overlay maps, must be considered tentative as representing a working model of quadrangle bedrock lithology and structure The work consists of a single-season effort and a "one-pass" look at what is a complexly folded sequence Lithological descriptions are entirely field-based and include no information about petrographic fabric or metamorphism both of which bear on defining Underhill lithology · Much of the mapped lithology has been extrapolated from a limited set of field observations on the basis of what are as yet unproved observations about lithologic relationship There has been no followup mapping to check and/or test these conclusions, or to resolve the numerous mapping errors, lapses, and loose ends exposed during post-mapping workup of the material Nor have the results been compared to ongoing work in the Jay Peak region east of the quadrangle (Jon Holt, Adam Schoonmaker field areas) and in the Cold Hollow Mountains south of the quadrangle (Barry Doolan field area) No concerted effort has been made to place the quadrangle geology into the regional geological picture, or vice versa

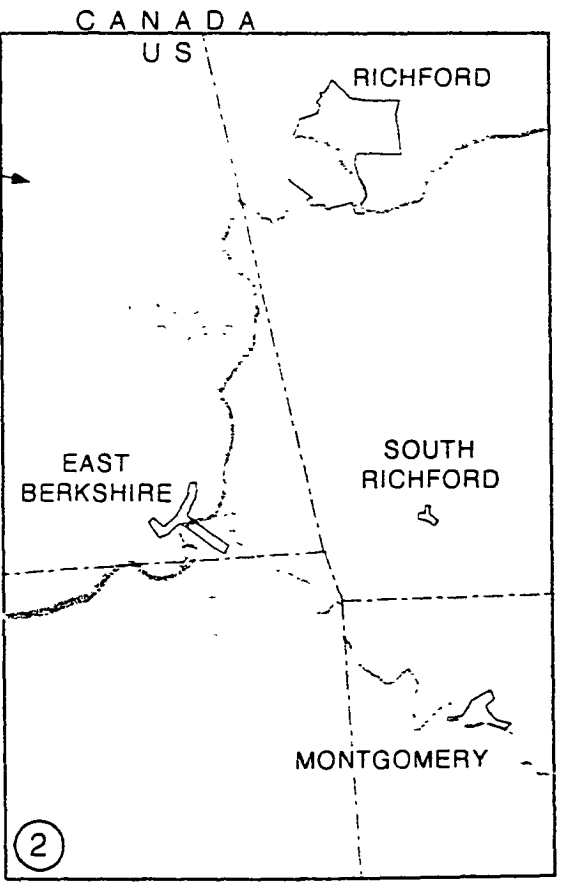


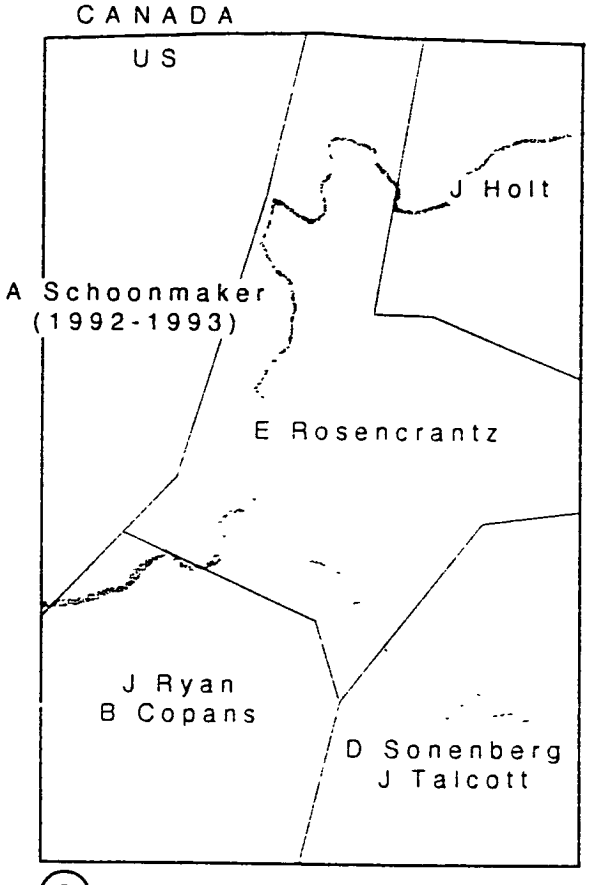

ADJACENT QUADRANGLES

| | |
|---|---|
| EF | ENOSBURG FALLS |
| JP | JAY PEAK |
| HN | HAZENS NOTCH |
| CHM | COLD HOLLOW MOUNTAINS |
| B | BAKERSFIELD |

## LOCATION

The Richford 7 5 minute quadrangle is located within the eastern third of Franklin County, northwestern Vermont. Quadrangle east, south, west and north boundaries are 72° 37.5' W, 44° 52 5' N, 72° 45 0' W, and the US-Canada border respectively The quadrangle covers portions of Berkshire, Richford, Montgomery, and Enosburg townships, and includes the villages Richford, South Richford, East Berkshire and Montgomery The NE-SW flowing Missisquoi and SE-NW flowing Trout Rivers roughly divide the quadrangle into northwestern, eastern southern thirds.






3 PRIMARY MAPPING AREAS

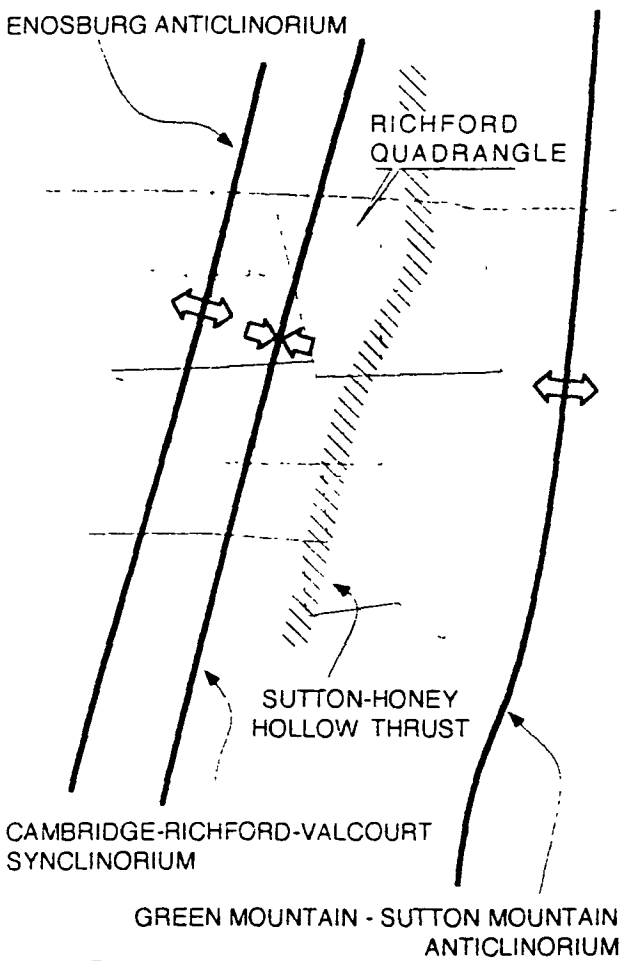
## FIELD MAPPING

The most recent mapping of the area done prior to this work was done by Dennis (1964) Dennis' descriptions and map were used to guide this effort, but his results *per se* have not been incorporated into this report Dennis (1964) and Schoonmaker (1997) each describe and discuss earlier regional studies at length.

The structural and lithologic data presented here have two sources. All of the data from the area east of the Missisquoi River were collected during the summer (June-July-August) of 1997 by Ben Copans Jon Holt, Eric Rosencrantz Jeremy Ryan, Dave Sonenberg and Jim Talcott Data from the northwestern part of the quadrangle, north and west of the river were collected during the summers of 1992 and 1993 by Adam Schoonmaker The primary field areas of each are shown at left

The Schoonmaker results were extracted from Schoonmaker (1997) Copans, Ryan, Sonenberg and Talcott each summarized their separate results for field course credit with the Department of Geology at the University of Vermont Their interpretations have been incorporated here (with modifications), but will also be submitted separately through the department. Holt's material from the northeast cornerof the quadrangle is currently unavailable, and this portion of the quadrangle has been left blank

All mapping was done at the 1 24000 scale of the topographic sheet Traverse and outcrop locations are based on compass direction and paced distance relative to mapped features

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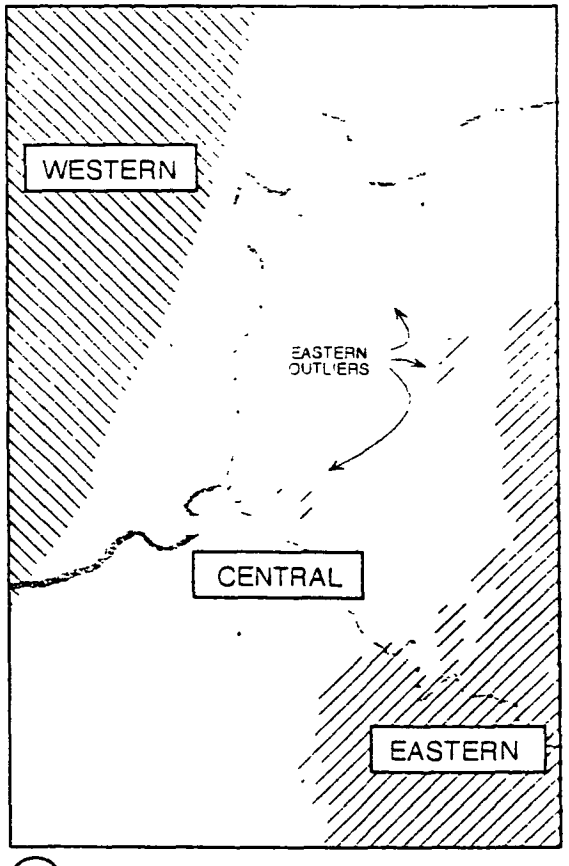
## TECTONIC SETTING

Within the large-scale regional Northern Vermont-Southern Quebec tectonic framework, the Richford Quadrangle is located on the Cambridge-Richford-Valcourt Syncline (synclinorium), between the Enosburg Anticline (anticlinorium) to the west, and the Green Mountain-Sutton Mountain Anticlinorium to the east The crest of the Enosburg Anticlinorium transects the northwest corner of the quadrangle. The Cambridge-Richford-Valcourt Synclinorium and Enosburg Anticlinorium are of Taconic origin, Green Mountain-Sutton Mountain Anticlinorium is of Acadian origin The nominal boundary between the synclinorium and Green Mountain-Sutton Mountain Anticlinorium is drawn at the Sutton-Honey Hollow Thrust, also of Taconic age, the trace of which transects the eastern edge of the quadrangle




(5) SEQUENCE LOCATION

## LITHOLOGY

Bedrock within the Richford Quadrangle may be divided into three (stratiform) sequences A western sequence includes the rocks exposed along the Enosburg Anticlinorium where the anticlinorium intersects the quadrangle These were mapped and described by Schoonmaker (1997), with extensive reference to the established Oak Hill and Mansville Complex sequences of southern Quebec. An eastern sequence includes the rocks located east of the Sutton-Honey Hollow Thrust along the east side and southeast corner of the quadrangle A central sequence includes the remaining rocks of the synclinorium, between the western anticlinorium and the thrust. The western and central sequences are probably lithologically continuous, whereas the eastern sequence appears distinct and separate

Western Sequence

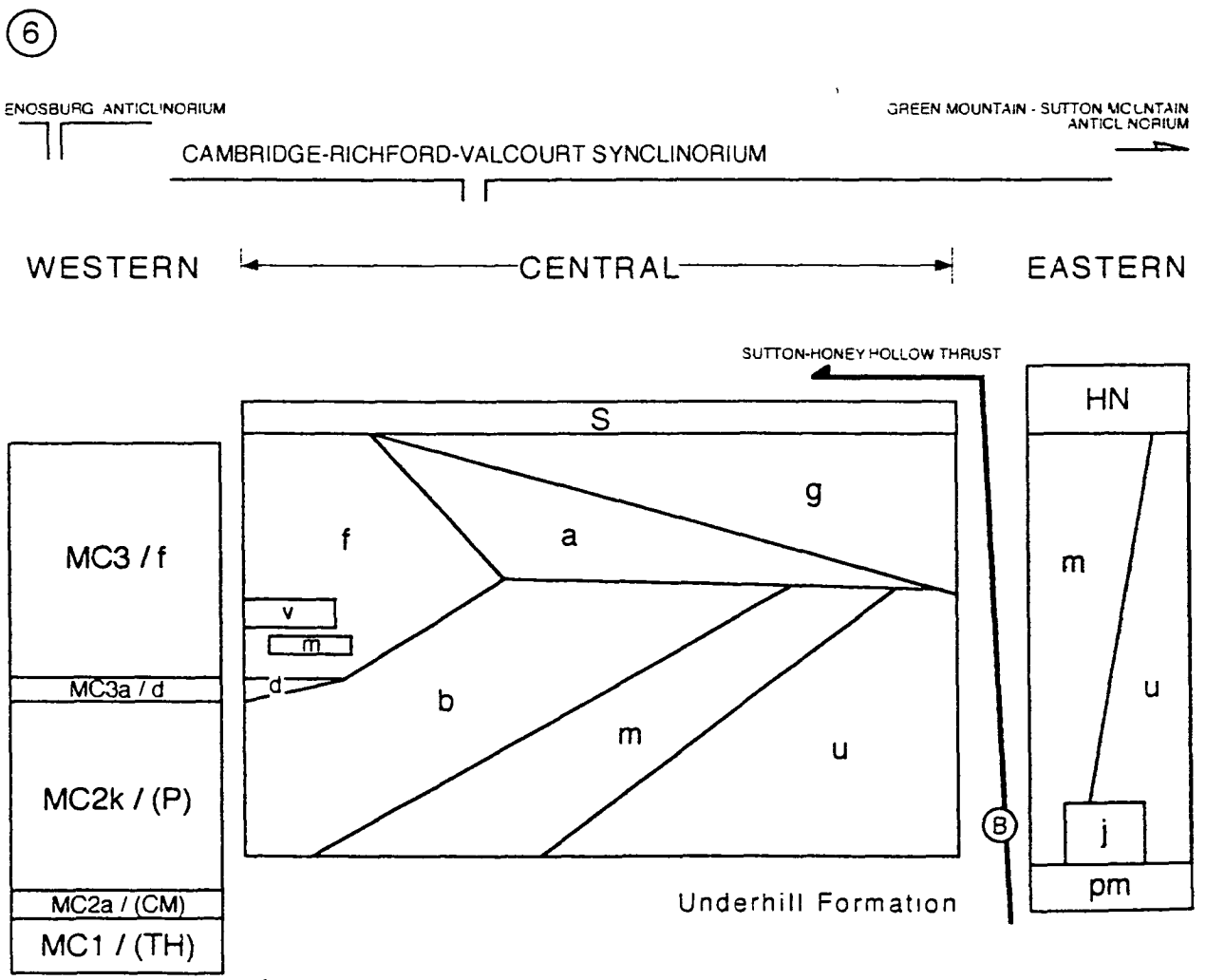
Within the area of the Enosburg Anticlinorium intersected by the Richford Quadrangle, Schoonmaker (1997) identifies 6 Mansville Complex (MC) units, which he correlates to four formations These are the following

• Unit MC3 Green(?) fine-grained sericite-quartz-chlorite-feldspar schist The unit shows both massive and layered aspects, the consisting of fine- to medium-grained quartz and/or feldspar transposition layers Additional lithologies include (i) massive, very fine-grained, green sericite-chlorite phyllite.

and (ii) very fine-grained silver/black sericite-chlorite-hematite phyllite with uncommon quartz layers Schoonmaker (1997) correlates these to the Fairfield Pond Formation and related units of the Oak Hill Group and Mansville Complex. The unit is identified on the map as "f"

• Unit MC3a Buff to tan weathering whitish sandy to silty dolomite, or alternatively, dolomitic sandstone. The unit is discontinuous and no more than several meters thick Correlated to the White Brook Formation The unit is mapped as "d".

• Unit MC2k Massive medium-grained quartz-chlorite-muscovite metawacke. with abundant sheared and isoclinally folded quartz veins oriented parallel or subparallel to the dominant schistosity. Quartz and feldspar clasts range in size from 0 05 to 0 3 mm. Recrystallized quartz and feldspar appear within a muscovite/chlorite matrix, with muscovite well-developed along the dominant schistosity. The unit includes 1 to 2 mm euhedral magnetite grains Schoonmaker



(1997) correlates the unit to the Pinnacle Formation on the basis of relative position to unit MC3a, the "White Brook" dolomite The unit is identified on the map as "(P)".

• Unit MC2j Forest-green, actinolite-bearing chlorite schist Minor exposures mark an uppermost volcanic layer within the MC2 unit. Not identified on the map

• Unit MC2a Black slaty muscovite phyllite, composed of dominant sericite plus fine-grained quartz and some chlorite Correlated to the Call Mill Formation, and mapped as unit "(CM)"

• Unit MC1 Massive chlorite-albite-epidote schist, with schistose textures defined by recrystallized albite and chlorite Epidote crystals cross-cut the dominant fabric The units includes locally abundant euhedral to subhedral magnetite Identified as the Tibbit Hill Formation, mapped as unit "(TH)"

Central Sequence

The central sequence includes 9 distinct units, as follows

• Unit S. Black, graphitic phyllite with characteristic 1 to 5 mm thick white or tan silty laminations Contains pyrite This unit is the Sweetsburg Formation. The rock weathers to a characteristic flat black or dark (graphite) gray, and may appear rusty owing to weathering of pyrite Pyrite crystallization is extensive, with euhedral crystals (invariably weathered) up to 2 and 3 cm in diameter Can be associated with black chlorite schists

• Unit f Green-gray mica-quartz-albite phyllite to fine-grained schist Clean surfaces characteristically weather toolive-green to light-brown Usually compositionally banded at a scale of centimeters, may also appear massive without visible layering or foliation This is the same unit mapped by Schoonmaker (1997) as MC3, nominally the Fairfield Pond member of the Underhill Formation (or Fairfield Pond Formation).

• Unit a - "albitic unit": Quartz-albite-chlorite green-gray phyllitic schist or blue-gray phyllite with secondary white albite porphyroblasts The green-gray variety also commonly includes millimeter thick carbonate laminations or scales Characteristically weathers tan and or rusty, owing to pyrite content

• Unit g - "graphitic-albitic unit" Similar to the "albitic" units, with the addition of penetrative black graphitic phyllite layering, ranging in thickness from one millimeter to several meters plus black chlorite phyllite layers ranging in thickness from a millimeter to less than a meter The black phyllites are identical in composition to the Sweetsburg lithology, and the unit as a whole is interpreted as representing a transposed boundary layer between the Sweetsburg and albitic Underhill, with amount and thickness of graphitic phyllite increasing toward the Sweetsburg horizon

• Unit d The same unit as MC3a above.

• Unit b - "blue-gray unit" Distinctive silver-blue (electric blue) weathering, black to dark green chlorite schists interlayered with (i) blue-gray to blue-green-gray medium-grained metawackes or (ii) blue-gray quartz-mica phyllites

color which is predominately green-gray "above" unit f, and blue-gray" below", unit b However, the blue-gray unit displays many of the characteristics of the West Sutton Schist, which lies adjacent to but above the White Brook horizon This raises the question of whether the discontinuous dolomites correlate to the White Brook horizon, or define a separate horizon higher in the section On the other hand, the blue-gray unit might represent two units

Eastern Sequence

The eastern sequence includes five distinct mappable units These are the following

• Unit HN Hazens Notch Formation Coarse quartz-albite-mica schist, rusty weathering owing to included pyrite, with albite porphyroblasts, plus dark blue-gray quartzite layers of varying thickness Foliation surfaces contain disseminated graphite Albite porphyroblasts may be black owing to included graphite

• Unit m. Quartz-albite-chlorite schist with magnetite porphyroblasts. Clean foliation surfaces weather pale gray to pale green. Considered a unit of the Underhill.

• Unit u Quartz-albite-chlorite schist, without magnetite Commonly quartzose, and weathered surfaces may take on a "corduroy" texture parallel to foliation Considered a unit of the Underhill.

• Unit j: Mica-quartz-albite schist, with foliation surfaces weathering to a characteristic pale silver-green Fresh broken surfaces and/or crushed samples have a pronounced "soapy" feel common to talc Uncommon magnetite may be present This unit corresponds to the Jay Peak lithology of Dennis( 1964) Considered a unit of the Underhill.

• Unit pm. Peaked Mountain Greenstone. This unit consists of chlorite-albite-epidote greenstone in association with a pervasively recrystallized host rock containing large (1 to 5 mm) crystals of secondary white albite and/or quartz and/or magnetite

Although the spatial relationships among these units is unknown, observed relationships tentatively suggest a sequence, listed top to base, of Hazens Notch, magnetic, non-magnetic, Jay Peak, and Peaked Mountain The latter two units appear discontinuous and may have been cut out along the Sutton-Honey Hollow thrust, Peaked Mountain, Jay Peak, and non-magnetic units are all observed along the trace of the thrust. Where exposed, the Peaked Mountain always lies adjacent to the thrust
All of the observed eastern units are strongly schistose

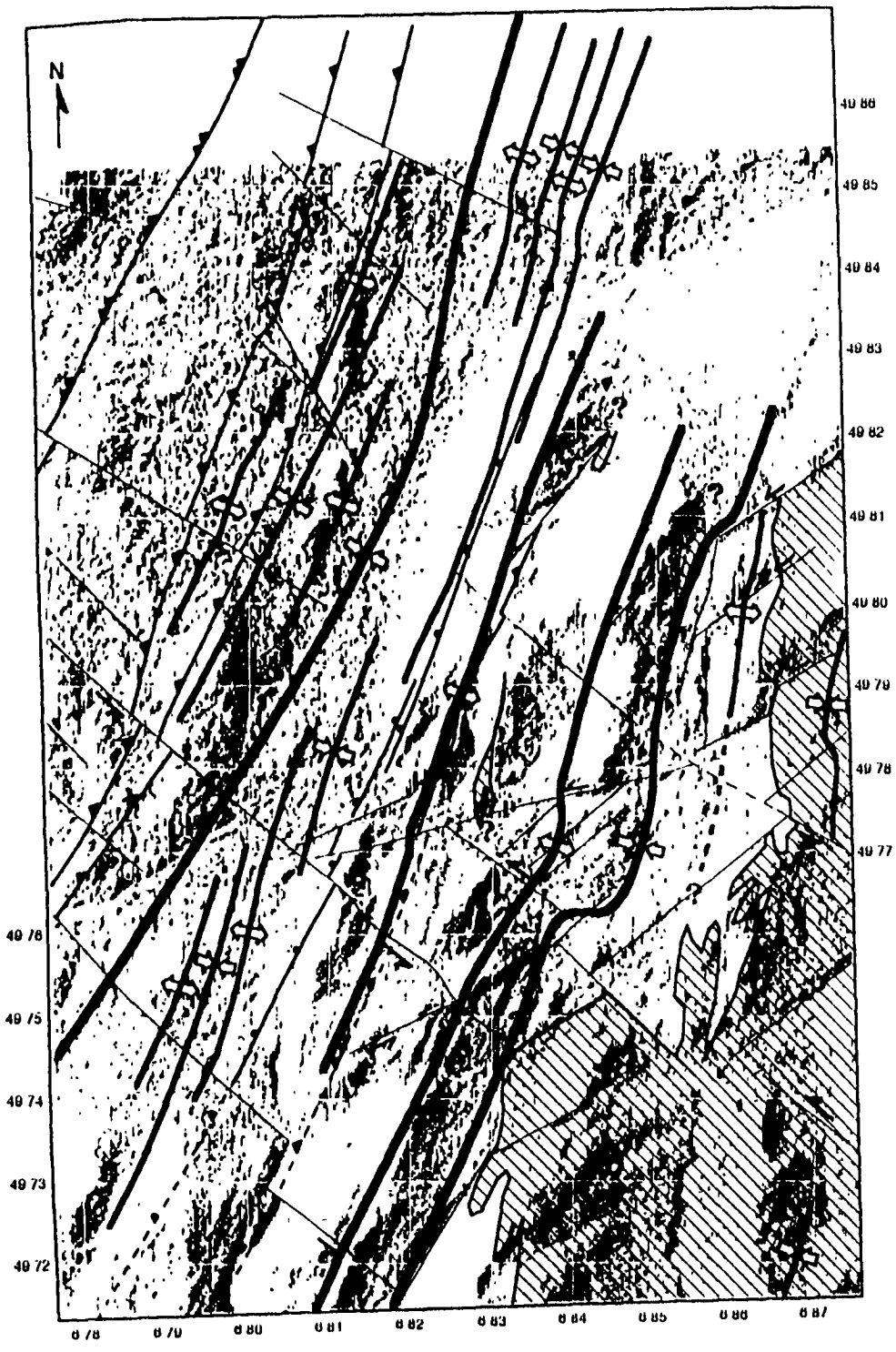
# STRUCTURE

The geology of Northern Vermont and Southern Quebec records evidence of three major deformational events. The first two, D1 (deformation event 1) and D2 are considered to be of Taconic age and origin, and the third, D3, is considered to be Acadian D1 involved emplacement of large, west-vergent, isoclinal, recumbent nappes. The D1 schistostity, S1, is recorded in quartz veining and bedding parallel compositional layering. The D2 event is characterized by vertical to east-vergent isoclinal folding, with penetrative axial-plane cleavage (S2) development The D3 event is characterized by open folding with a spaced axial-plane cleavage.

Structure related to all these events are present in the rocks of the Richford Quadrangle, and the distribution of lithology across the quadrangle is controlled by varying degrees by all three The dominant event is D2 in the sense that penetrative D2 folding (F2) and schistosity (S2) define the appearance of the rock at all scales (see Figure 7), obscuring or obliterating older D1 structure, and persisting through the younger D3 deformation.

## D1 Structures

Although D1 structure undoubtedly pervades the bedrock at outcrop and smaller scales, such structure is obscure, having essentially been obliterated by the D2 overprint Schoonmaker (1997) briefly describes and discusses D1 structures as they occur within the western part of the quadrangle, but elsewhere these have




# RICHFORD QUADRANGLE

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## ⑦ MAJOR STRUCTURES

- D2 -

TRACE OF SYNFORM

TRACE OF ANTIFORM

BROME-WEST FLETCHER FAULT

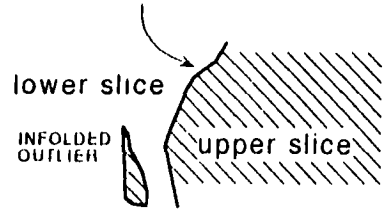
HIGH ANGLE REVERSE FAULT

HIGH ANGLE REVERSE SHEAR

TEETH ON OVERTHRUST

- D1 -

TRACE OF THE SUTTON THRUST

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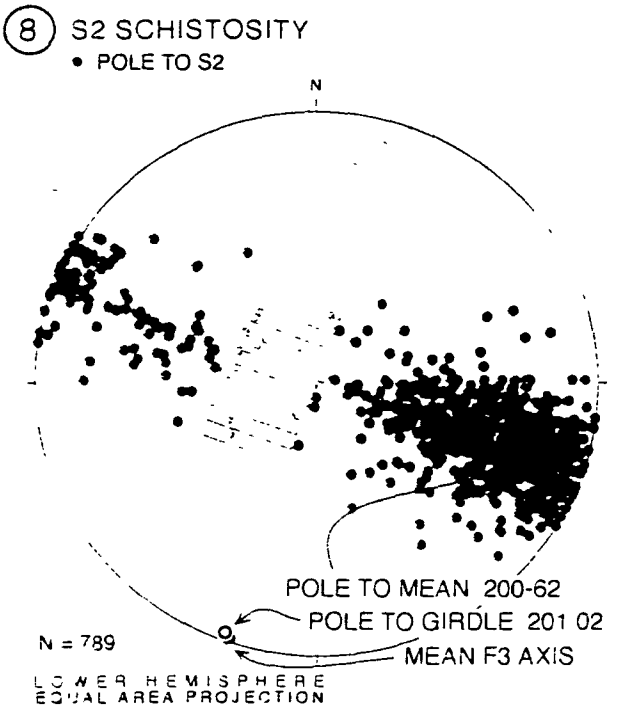
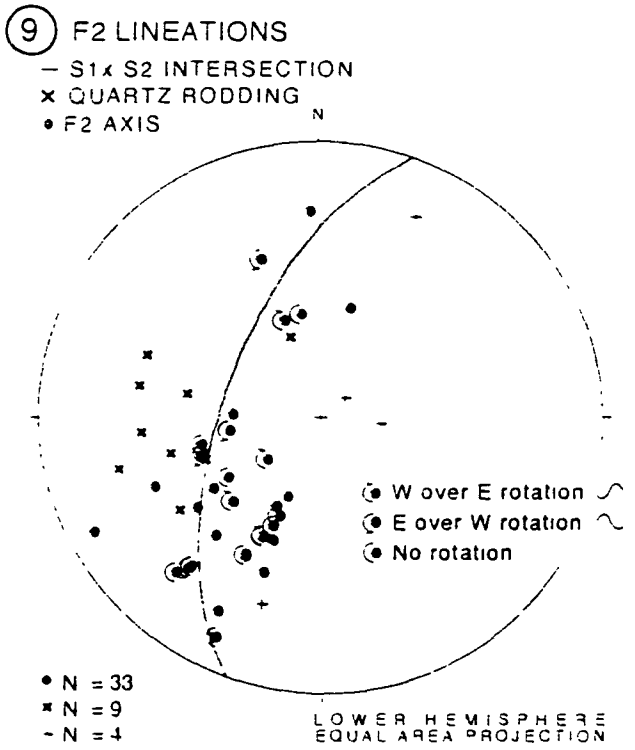



deliberately not been examined

The trace of the Sutton-Honey Hollow Thrust is determined on the basis of lithological discontinuity - specifically change of rock type across the Sweetsburg formation - rather than on preserved fault structure At the few locations where the trace of the thrust is exposed in outcrop, it occurs as a simple, sharp juxtaposition of rock type. Any mesoscale structure associated with the decollement appears to have been obliterated by subsequent D2 transposition and recrystallization, and the horizon has been complexly folded by both D2 and D3 events

D2 Structures

D2 related structures include (i) vertical to east-vergent isoclinal folds (F2) accompanied by a (ii) a penetrative cleavage (S2) D2 structure also includes (iii) several high angle reverse faults and/or shear displacements

D2 isoclinal folds pervade bedrock at all scales from centimeters to kilometers. Folding is extremely tight, with individual folds commonly displaying height to width aspect ratios of more than 10:1. Shearing of fold limbs and detached fold hinges are common The S2 plane parallels the F2 axial plane, and is oriented subparallel to parallel to lithologic layering

The mean S2 schistosity (Figure 8) strikes 200° with a 62° west dip Poles to S2 are distributed along an EW girdle The mapped regional orientations of S2

show that it progressively changes from east-dipping through vertical to west-dipping west to east across the Enosburg Anticlinorium and Cambridge-Richford-Valcourt Synclinorium This progressive change is observed to occur across the quadrangle, from predominantly vertical along the western edge to west-dipping eastward However, some of this change may simply reflect the increasing intensity of D3 folding eastward. The pole to the plane of intersection defining the girdle of S2 poles lies within 3° of the mean F3 fold axis, suggesting that much of the observed spread of orientation records folding of the S2 surface by F3

Measured F2 axes (Figure 9) plot as a loose distribution paralleling the mean S2 (axial plane) orientation with the majority of axes trending southwest with steep plunge This implied preferred orientation of F2 hinge is not consistent with the map pattern, which indicates that F2 folding is largely upright and lobate

Schoonmaker (1997) notes that D2 deformation results in the rotation into parallelism and recrystallization of earlier and primary structure D2 has in fact largely transposed older structures, which raises a number of questions about mapping lithological distribution Transposition "blurs" lithological and older structural contacts Contacts become in effect contact "envelopes" or zones, as described in the case of the "graphitic-albitic" map unit. Consequently the assumption that lithological boundaries are oriented parallel or subparallel to the S2 plane may not always apply A transposed contact envelope might be oriented at a large angle to the foliation plane while showing, at the outcrop, every indication of being subparallel.

The large structures of the quadrangle shown in Figure 7 are of D2 origin. The placement and orientation of the high-angle reverse faults are inferred from the mapped distribution of (and discontinuity of) lithology, and are assumed to represent shearing parallel to fold limb. Nowhere are these directly exposed The high angle reverse shear, on the other hand, is a narrow zone, less than 100 meters in width, containing the full range of Underhill lithology, plus Sweetsburg rocks, in correct relationships isoclinally folded across distances of several 10s of meters

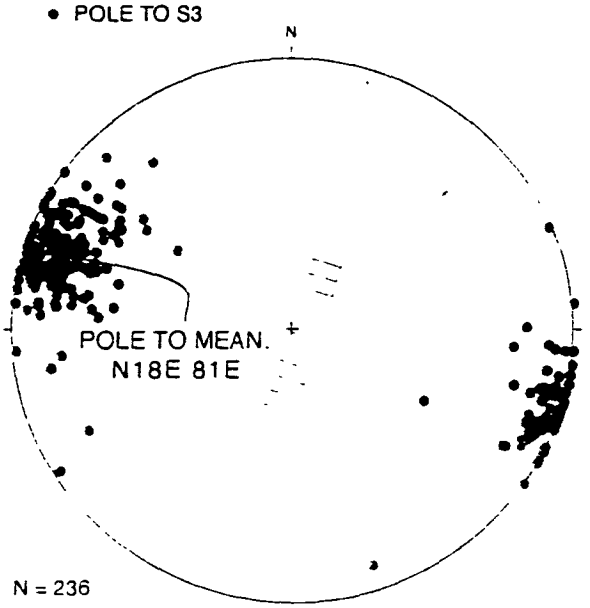
D3 Structures

Structures related to the D3 event include (i) open folding of lithological layering and S2 surfaces (F3) and (ii) a spaced cleavage, commonly expressed as a fracture cleavage, oriented axial-planar to folds (S3)

Folds range in size ( i e., in frequency and amplitude) from a few centimeters to several 10s of meters. Individual folds are almost everywhere assymetric and parasitic in character, with a west over east vergence F3 folding occurs throughout the quadrangle, with an increase of intensity and pervasiveness west to east The mapped distribution of F3 axes shows no systematic distribution of north-plunging to south-plunging axes, and both may occur within a single outcrop

(10) D3 CLEAVAGE

• POLE TO S3



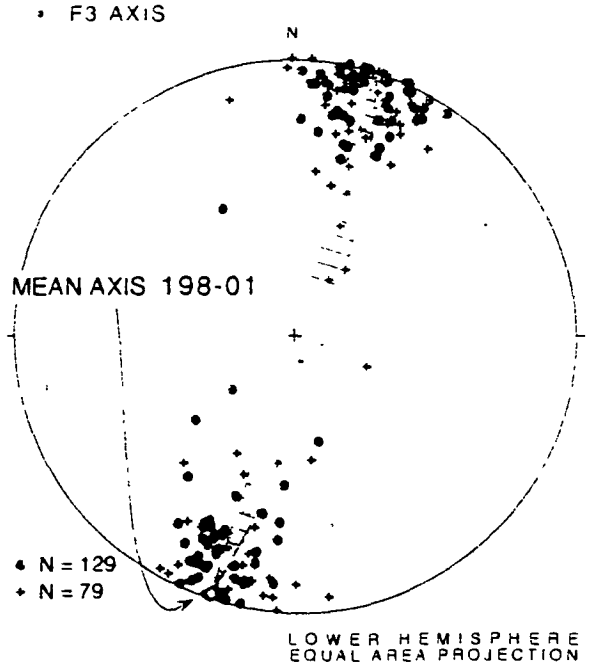

The S3 axial plane cleavage is weakly developed and may be altogether absent. The most common aspect is that of fine, coplanar fractures spaced about 1 cm apart. The orientation is consistent, with poles to cleavage planes showing a tight cluster about a mean pole to a plane striking 018 with a dip of 81 toward the east (Figure 10)

Fold axes trend NNE-SSW and may gently plunge both north and south, but plot as a concentrated cluster around a mean trend and plunge of 198-01 - i e. essentially horizontal (Figure 11)

(11) D3 LINEATIONS

+ S2 x S3 INTERSECTION

• F3 AXIS



## JOINTS AND FAULTS

Jointing, and related faulting, of bedrock within the Richford area is at the same time obscure and obvious Individual outcrops as a rule show few obvious fractures or joints At the same time, outcrops commonly display elongate shapes where the long axis of the outcrop parallels foliation trends: i.e 020°-200°. This indicates that S2 and/or S3 foliations serve as the locus for pervasive fracturing, jointing and weathering of bedrock.

The best overview of bedrock jointing and related faulting is obtained by examining and mapping topographic lineaments e g straight line features cutting what other-wise is a highly non-linear landscape The map of topographic lineaments (Figure 12, following) was constructed from digital shaded relief and topographic slope images (see the "Shaded Relief" and "Topographic Slope" plates attached to the report) calculated from the USGS Digital Elevation Model of the Richford Quadrangle

Lineament trends fall into three distinct groups, as shown in the rose diagram accompanying the map. The fact that lineaments do show these distinct preferred orientations suggests that they describe master joint orientations and or traces of fault sets

The largest group, labeled A, trends 017-197°, subparallel to the mean strike of both S2 and S3 foliations This group also defines the pronounced topographic "grain" evident in the landscape south of the Trout River valley, also visible in the distribution of outcrop at ground level throughout the quadrangle

The second group, B, trends 055-235° Lineaments of this orientation are most prevalent within the eastern half of the quadrangle, and define a distinct preferred orientation of stream cut, slope break, and topographic ridge

The third group, C, trending 310-130°, extend the width of the quadrangle West of the Missisquoi River, within the western third of the quadrangle, these define the preferred orientation of stream valleys

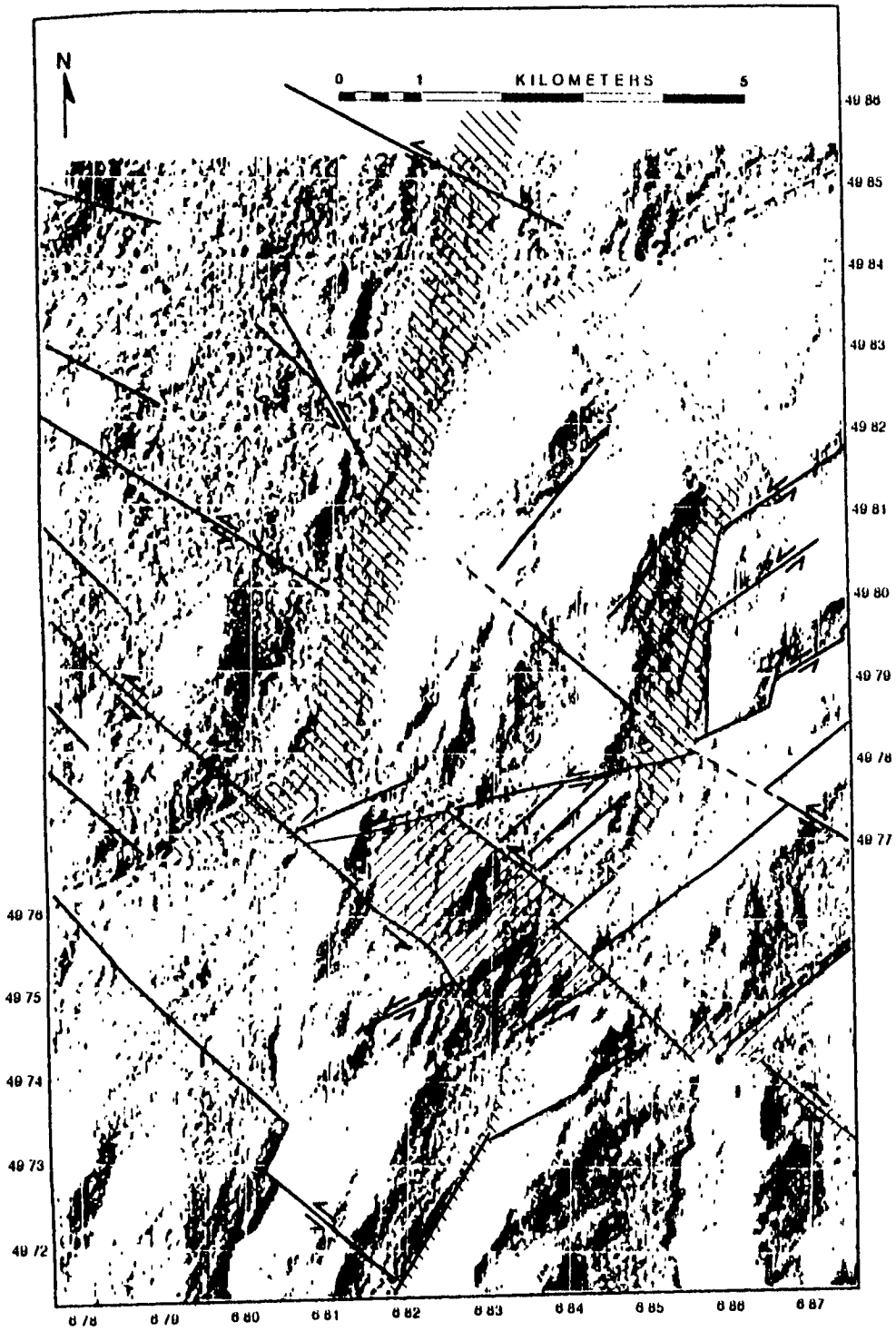
The main drawback to this approach is that it cannot measure joint/fault dip direction, which must be established in the field In this particular instance there is the added problem of S3 and S2 having parallel trends Although lineament group A corresponds to well-measured foliation orientation, it is unknown whether the dominant joint plane parallels the steeply east-dipping S3 or west-dipping S2

A comparison of mapped lineament with mapped lithology suggests further that the B (NE-SW trending) and C (NW-SE trending) sets of lineaments describe the locations of basement faults In most cases the traces of these lineaments correspond to distinct mismatches of lithology or unit trend These displacements, combined with the relative orientations of the lineament/fault sets, and with apparent displacements among lineament/faults, imply a basement fault distribution and history as outlined in Figure 13

The speculation is that basement faults (excluding the D2 reverse shears)

originate in two events The earlier event involved left-lateral displacement along NE-SW trends (B lineaments), with possible grabens forming parallel to foliation trends. Both the NS trending Missiquoi valley and NS trending valley transecting the east-central region of the quadrangle may in reflect underlying grabens The later event included left-lateral displacement along WNW-ESE trends (C lineaments), with cross-cutting and displacement of older B faults. The "Trout River" fault complex arises as a result of transfers of displacement between a series of parallel faults The distribution and orientation of inferred faults within the "broken" terrain along and south of the Trout River valley is consistent with left-lateral simple shearing and/or counter-clockwise block rotation

In all cases, the amount of displacement across faults appears small, well within a couple of hundred meters As noted above, neither fault dip directions, nor sense and magnitude of likely vertical displacements, can be determined from lineament analysis




# RICHFORD QUADRANGLE
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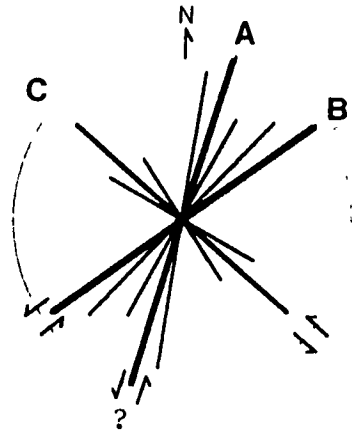
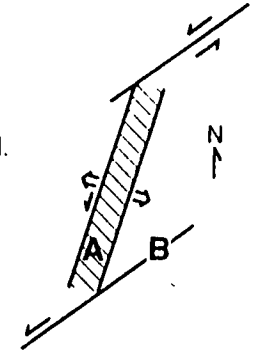
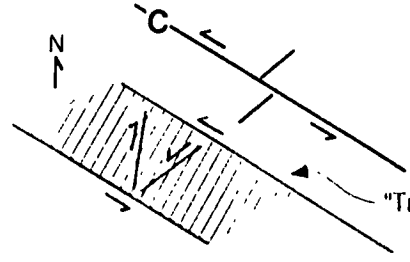
## (13) FAULTS




Early left-lateral displacements along NE-SW trends, with graben development (?) on foliation trend. Implies EW extensional regional strain




Late left-lateral dispacement along WNW-ESE trends, with reactivation of older faults within "Trout River" step zones Implies EW compressional regional strain

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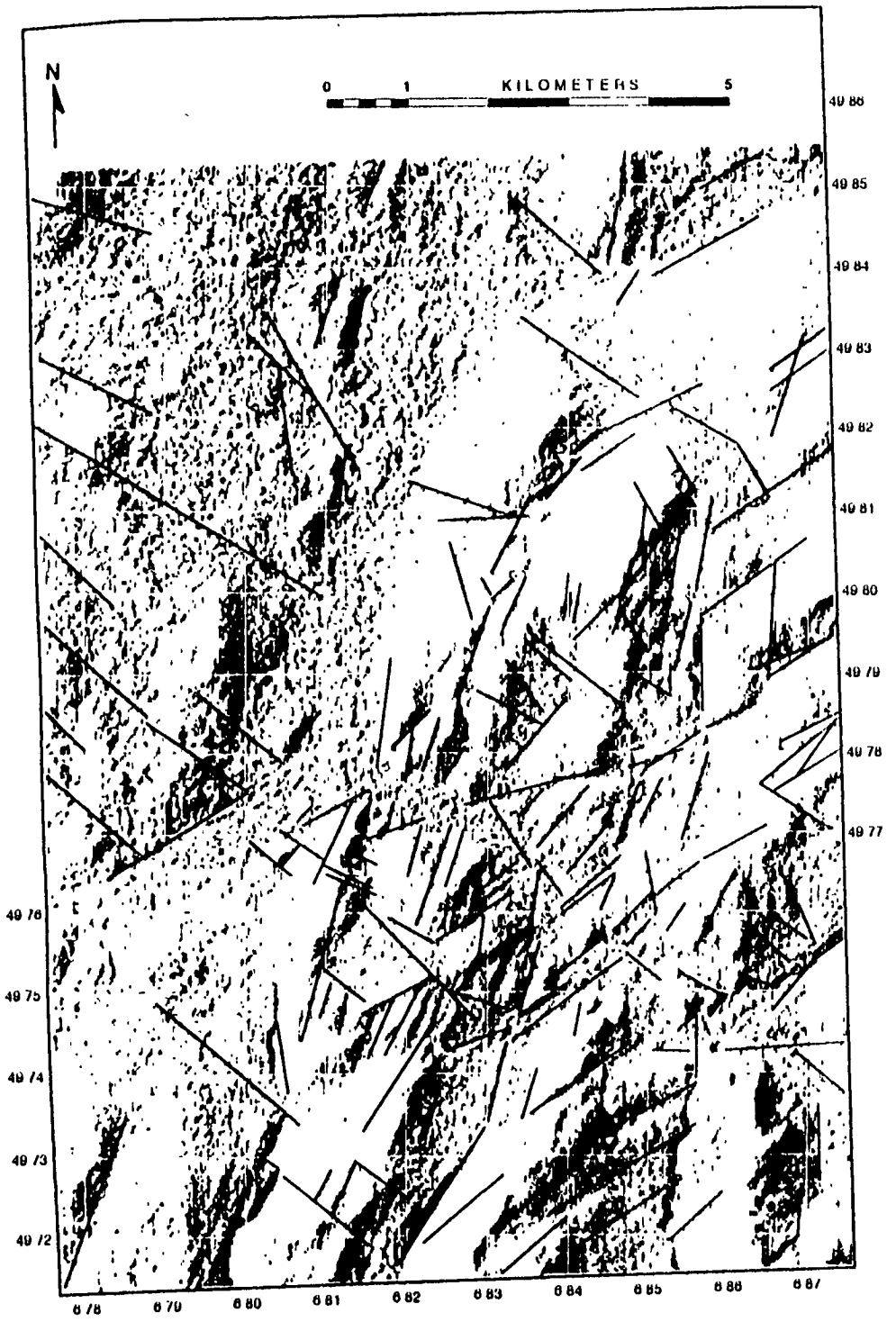
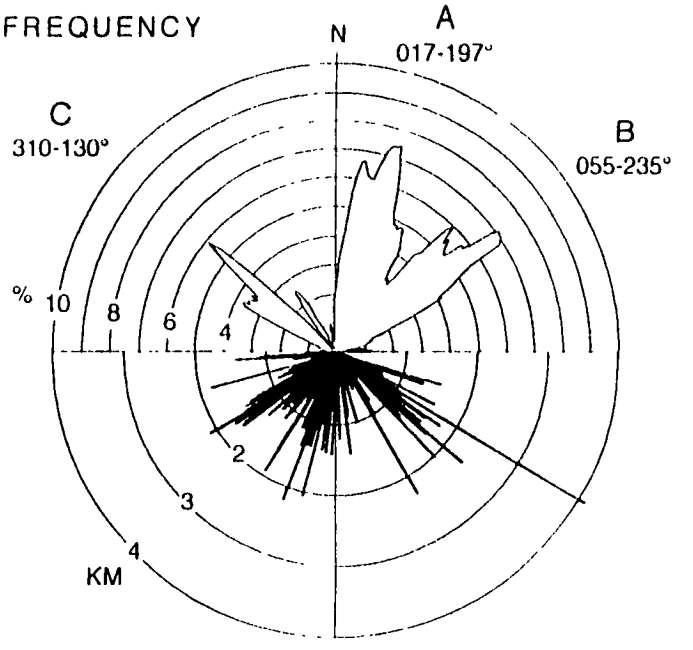
FRANKLIN CO. · VERMONT

## ⑫ TOPOGRAPHIC LINEAMENTS




DISTRIBUTION N = 201

## REFERENCES

Dennis, J G., 1964 *The Geology of the Enosburg Area, Vermont.* Vermont Geological Survey Bulletin 23, 56 p.

Schoonmaker, A , 1997 Stratigraphy and *Structure of the Enosburg Falls Area: Implications for Extending Geotectonic Structures of Quebec into Vermont.* M.S. Thesis, University of Vermont, 207 p

## KEY TO LISTING OF STRUCTURAL MEASUREMENTS

STATION - designations as follows:

(1) AS244 - A.Schoonmaker (1997) thesis stations. Sequential numbering.

(2) RC619-10 - Initials of mapper or map team, followed by month and day, followed by outcrop measurement station.
- BC - B.Copans
- JR - J.Ryan
- RC - J.Ryan and B.Copans
- DS - D Sonenberg
- JT - J.Talcott
- ST - D.Sonenberg and J. Talcott
- JH - J.Holt
- ER - E.Rosencrantz

(3) HWY-A - Route 118 "field trip" sites.

F3 - Trend and plunge of D3 fold axes.

S3 - Strike and dip† of D3 axial plane spaced cleavage.

S3xS2 - Trend and plunge of lineations defined by the intersection of S3 axial plane spaced cleavage and S2 axial plane schistosity.

F2 - Trend and plunge of D2 fold axes.

S2 - Strike and dip† of D2 axial plane schistosity.

S2xS1 - Trend and plunge of lineations defined by the intersection of S2 axial plane schistosity and S1 axial plane foliation (Schoonmaker [1997] only).

S1 - Strike and dip† of D1 axial plane foliation (Schoonmaker [1997] only).

FT - Strike and dip† of fault zone (single observation).

w/e, w|e, w\e - "climbing" direction of parasitic folds, respectively west over east, neutral, east over west.

† Right hand rule.

Schoonmaker (1997) mineral lineations:

| | |
|---|---|
| AS202 | 210-73 |
| AS725 | 166-52 |

| STATION | F3 | S3 | S3xS2 | F2 | S2 | S2xS1 | S1 | FT |
|---|---|---|---|---|---|---|---|---|
| AS201 | 228-65 | | | 207-21 | 034-82 | | | |
| AS202 | | | | | 022-82 | | | |
| AS203 | 168-57 | 252-81 | | | | | | |
| AS204 | | 333-72 | | | | | | |
| AS205 | | | | | 028-82 | | | |
| AS206 | 330-47 | | | | | | | |
| AS207 | | 328-89 | | | | | | |
| AS208 | | 350-77 | | | | | | |
| AS210 | | | | | 020-80 | | | |
| AS211 | | | | | 032-74 | | | |
| AS213 | | | | | 023-90 | | | |
| AS214 | | | | | 015-90 | | | |
| AS215 | 229-50 | | | | 029-86 | 056-81 | 053-90 | |
| AS233 | | | | | 034-84 | | | |
| AS244 | | | | | 210-87 | | | |
| AS245 | | | | | 030-90 | | | |
| AS247 | | | | | 214-76 | | | |
| AS248 | | | | | 200-87 | | | |
| AS249 | | | | | 189-82 | | | |
| AS253 | | | | | 206-87 | | | |
| AS256 | | | | | 212-87 | | | |
| AS258 | | | 173-52 | | 026-90 | | | |
| AS261 | | | | | 022-78 | | | |
| AS262 | | | | | 193-87 | | | |
| AS264 | | 006-81 | 032-71 | | | | | |
| AS266 | | | | | 028-76 | | | |
| AS267 | | | | | 030-84 | | | |
| AS270 | | | | | 022-86 | | | |
| AS271 | | 353-73 | 038-66 | | 023-83 | | | |
| AS273 | | | | | 034-74 | | | |
| AS274 | | | | | 205-89 | | | |
| AS276 | | | | | 025-84 | | | |
| AS278 | | | | | 205-84 | | | |
| AS279 | | | | | 030-87 | | | |
| AS280 | | | | | | | 030-77 | |
| AS281 | | | | | 030-77 | | | |
| AS282 | | | | | 030-74 | | | |
| AS284 | | | | | 021-85 | | | |
| AS287 | | | | 199-39 | 200-73 | | 204-73 | |
| AS288 | | | | | 205-82 | | | |
| AS289 | | | | | 023-89 | | | |
| AS290 | | | | | 203-70 | | | |
| AS294 | | | | | 204-70 | | | |
| AS298 | | | | | 197-86 | | | |
| AS299 | | | | | 200-78 | | | |
| AS300 | 217-35 | 030-74 | | | 200-84 | | | |
| AS325 | | | | | 032-90 | | | |
| AS326 | | | | | 210-82 | | | |
| AS327 | | | | | 029-82 | | | |
| AS328 | | | | | 034-76 | | | |

| STATION | F3 | S3 | S3xS2 | F2 | S2 | S2xS1 | S1 | FT |
|---|---|---|---|---|---|---|---|---|
| AS329 | | | | | | | 220-87 | |
| AS331 | | | | | 214-86 | | | |
| AS332 | | | | | 214-80 | | | |
| AS334 | | 210-45 | | | | | | |
| AS333 | | | | | 023-83 | | | |
| AS335 | | | | | 020-34 | | | |
| AS336 | | | | | 190-83 | | | |
| AS338 | | | | | 034-73 | | | |
| AS339 | | | | | 198-76 | | | |
| AS340 | | | | | 204-85 | | | |
| AS341 | | | | | | | 204-85 | |
| AS342 | | | | | 022-88 | | | |
| AS343 | | | | | 020-88 | | | |
| AS344 | | | | | 020-84 | | | |
| AS346 | | | | | 042-67 | | | |
| AS347 | | | | | 209-86 | | | |
| AS350 | | | | | 024-90 | | | |
| AS351 | | | | | 026-90 | | | |
| AS353 | | | | | 214-78 | | | |
| AS354 | | | | | 217-84 | | | |
| AS355 | | | | | 205-81 | | 205-81 | |
| AS356 | 194-28 | | | | | | | |
| AS387 | | | | | 021-87 | | | |
| AS388 | 010-21 | | | | | | | |
| AS389 | | | | | | | 025-87 | |
| AS700 | | 010-83 | 014-44 | 232-44 | 210-71 | 026-21 | 043-51 | |
| AS701 | | | | | 025-79 | | | |
| AS703 | | 158-88 | 168-82 | | 022-86 | 197-29 | 035-65 | |
| AS704 | | | | | 029-78 | | | |
| AS705 | | | | | 024-86 | | | |
| AS707 | | | | | 205-73 | 098-72 | 033-74 | |
| AS722 | | | | 017-57 | 196-87 | | | |
| AS725 | | | | | | | | |
| HWY-A | | 184-80 | 359-04 | | 355-37 | | | |
| HWY-B | | 006-69 | 008-17 | | 200-54 | | | |
| HWY-C | | 018-80 | | 207-42 | 198-65 | | | |
| HWY-D | | 021-80 | | | 025-65 | | | |
| HWY-D | | | | | 012-85 | | | |
| HWY-D | | | | | 044-50 | | | |
| HWY-D | | | | | 197-12 | | | |
| HWY-E | 020-03 | 020-85 | | | 185-35 | | | |
| ER619-1 | 030-06 | 210-76 | | | | | | |
| ER619-2 | | 020-80 | | | | | | |
| ER619-3 | | | | | | | | |
| ER619-4 | | 022-70 | | | | | | |
| ER619-5 | | | | | 185-30 | | | |
| ER619-6 | | | | | 170-40 | | | |
| ER619-7 | 024-01 | 015-78 | | | 195-55 | | | |
| ER619-8 | | | | | | | | |
| ER619-9 | | 180-72 | 000-00 | | 180-40 | | | |

| STATION | F3 | S3 | S3xS2 | F2 | S2 | S2xS1 | S1 | FT |
|---|---|---|---|---|---|---|---|---|
| RC619-7 | | | | | 021-58 | | | |
| RC619-8 | | | | | 180-32 | | | |
| RC619-8 | | | | | 210-54 | | | |
| RC619-9 | | 030-81 | | | 211-54 | | | |
| RC619-10 | 200-23 | 201-79 | | | | | | |
| RC619-13 | | 018-89 | | | 016-32 | | | |
| ST619-3 | 012-00 | 012-85 | | | 197-60 | | | |
| ER620-1 | | | | | 192-81 | | | |
| ER620-2 | | | | | 072-39 | | | |
| ER620-3 | | | | | | | | |
| ER620-4 | 020-25 | 190-81 | | | | | | |
| ER620-5 | | | | | | | | |
| ER620-6 | | | | | | | | |
| ER620-7 | | | | | | | | |
| ER620-8 | | | | | | | | |
| ER620-9 | | 010-70 | 020-25 | | 020-90 | | | |
| ER620-10 | | | | | | | | |
| RC620-2 | | 014-55 | 010-11 | | 234-22 | | | |
| RC620-5 | | | | | 213-44 | | | |
| RC620-6a | | | | | 214-39 | | | |
| RC620-6b | | | | | 227-45 | | | |
| RC620-7 | | | | | 255-40 | | | |
| RC620-8 | | | 023-55 | | 225-48 | | | |
| RC620-11 | | 195-84 | 018-36 | | 238-60 | | | |
| RC620-12 | | | 115-67 | | 218-57 | | | |
| RC620-14 | | | 014-15 | | 235-38 | | | |
| RC620-15 | | | | | 200-22 | | | |
| ST620-2 | 201-10 | | | | 010-56 | | | |
| ST620-4 | 021-26 | | | | 014-41 | | | |
| ER623-1 | | 010-70 | 186-12 | | 170-35 | | | |
| ER623-2 | | | | | 180-40 | 280-35Q | | |
| ER623-3 | | | | | 018-90 | | | |
| ER623-4 | 013-05 | | | | 177-40 | | | |
| ER623-5 | | | | | 190-53 | | | |
| ER623-6 | | | | | 192-74 | | | |
| ER623-7 | | | | | 190-75 | | | |
| ER623-8 | | 014-90 | 014-08 | | 342-14 | | | |
| ER623-9 | | | | | | | | |
| ER623-10 | | 018-79 | 193-15 | | 020-65 | | | |
| ER623-10 | | | | | 030-82 | | | |
| RC623-3 | | | | | 195-46 | | | |
| RC623-5 | | 006-55 | | | 203-38 | | | |
| RC623-6 | | | | | 209-20 | | | |
| RC623-6 | | | | | 190-43 | | | |
| RC623-7 | | | | | 192-46 | | | |
| RC623-7 | | | | | 010-19 | | | |
| RC623-8 | | 185-83 | | | 004-07 | | | |
| RC623-10 | | | | | 321-19 | | | |
| ST623-2 | 011-19 | | | | 168-27 | | | |
| ST623-3 | 022-11 | | | | 159-23 | 290-35Q | | |

| STATION | F3 | S3 | S3xS2 | F2 | S2 | S2xS1 | S1 | FT |
|---|---|---|---|---|---|---|---|---|
| JT623-5 | 194-22 | | | | | | | |
| ST623-6 | 200-25 | | | | | | | |
| ST623-7 | | | | | 195-70 | | | |
| ST623-8 | | | | | 184-71 | | | |
| ER624-1 | | 019-74 | 024-18 | | 215-60 | | | |
| ER624-2 | | 020-71 | 025-12 | | 304-13 | | | |
| ER624-3 | | 017-78 | 019-08 | | 215-26 | | | |
| ER624-4 | 012-10 | 009-83 | | | | | | |
| ER624-5 | | | | | 185-45 | | | |
| ER624-6 | | | | | 195-38 | | | |
| ER624-7 | | | | | 180-64 | | | |
| ER624-8 | 195-24 | | | | 185-79 | | | |
| ER624-9 | 197-20 | 015-65 | | | | | | |
| ER624-10 | | | | | 190-66 | | | |
| ER624-11 | | | | | | | | |
| ST624-1 | 002-23 | 185-68 | | | | | | |
| ST624-3 | 021-31 | | | | 188-57 | | | |
| ST624-5 | 012-07 | | | | 193-50 | | | |
| ST625-1 | 018-09 | | | | 343-43 | | | |
| ST625-3 | 020-24 | | | | 190-57 | | | |
| ST625-4 | 031-10 | | | | 356-23 | | | |
| ER626-1 | | | | | 189-72 | | | |
| ER626-2 | | | | | | | | |
| ER626-3 | | | | | 198-76 | | 190-50 | |
| ER626-4 | | | | | 180-60 | | | |
| ER626-5 | | | | | | | | |
| ER626-6 | 201-10 | 014-85 | | | | | | |
| ER626-7 | | | | | 186-68 | | | |
| ER626-8 | | | | | 197-54 | | | |
| ER626-8 | | | | | 200-66 | | | |
| RC626-1 | | 040-71 | | | 191-71 | | | |
| RC626-2 | | | | | 206-70 | | | |
| RC626-3 | 026-03 | 026-60 | | | 028-90 | | | |
| RC626-5 | | 205-83 | | | 211-57 | | | |
| ST626-1 | 007-27 | | | | 187-35 | | | |
| ST626-3 | 025-03 | | | | 216-16 | | | |
| ST626-4 | 013-20 | | | | 007-24 | | | |
| ER627-1 | 196-02 | 012-74 | | | 210-43 | | | |
| ER627-2 | | | | | 198-40 | | | |
| ER627-3 | | | | | 195-51 | | | |
| ER627-4 | | | | | 202-35 | | | |
| ER627-5 | | | | | 200-63 | | | |
| ER627-6 | | | | | | | | |
| ER627-7 | | | | | 192-45 | | | |
| ER627-8 | | | | | 188-62 | | | |
| ER627-9 | 013-04 | 012-90 | | | | | | |
| ER627-10 | | | | | 186-72 | | | |
| ER627-11 | 026-22 | 005-90 | | | 195-58 | | | |
| RC627-1 | | | | | 210-70 | | | |
| RC627-3 | | | | | 220-74 | | | |
| RC627-6 | | 027-66 | | | 215-66 | | | |

| STATION | F3 | S3 | S3xS2 | F2 | S2 | S2xS1 | S1 | FT |
|---|---|---|---|---|---|---|---|---|
| RC627-11 | | | | | 198-73 | | | |
| RC627-12 | | | | | 205-83 | | | |
| RC627-13 | | 029-90 | | | | | | |
| RC627-14 | | | | | 201-70 | | | |
| RC627-15 | | 016-65 | | | 202-76 | | | |
| RC627-17 | | | | | 210-85 | | | |
| ST627-2 | 015-06 | 010-73 | | | | | | |
| DS627-3 | 025-03 | | | | | | | |
| JT627-3 | | | | | 200-48 | | | |
| ER628-1 | 021-18 | | | | | | | |
| ER628-2 | | | | | 190-72 | | | |
| ER628-3 | | 012-84 | 190-16 | | 198-64 | | | |
| ER628-4 | 018-11 | 020-81 | | | 200-46 | | | |
| ER628-4 | | | | | 327-30 | | | |
| ER628-5 | | | | | 210-59 | | | |
| ER628-6 | 020-20 | 020-90 | | | | | | |
| ER628-6 | | 016-84 | | | | | | |
| ER628-7 | | | | | 190-26 | | | |
| ER628-7 | | | | | 205-31 | | | |
| ER628-7 | | | | | 185-45 | | | |
| ER628-7 | | | | | 200-40 | | | |
| ER628-7 | | | | | 208-20 | | | |
| ER628-7 | 012-10 | | | | 220-20 | | | |
| ER628-8 | | | | | 207-45 | | | |
| ER628-8 | | | | | 180-35 | | | |
| ER628-9 | | 012-90 | 012-27 | | 225-44 | | | |
| RC628-2 | 019-14 | | | | 194-47 | | | |
| RC628-6 | 035-03 | | | | | | | |
| RC628-10 | | | | | 200-89 | | | |
| ER629-1 | | | | | 210-62 | | | |
| ER629-2 | | | | | 190-50 | | | |
| ER629-3 | | | | | 190-50 | | | |
| ER629-3 | | | | | 062-44 | | | |
| ER629-3 | 206-24 | | | | | | | |
| ER629-3 | 185-32 | | | | | | | |
| ER629-3 | | | | | 182-60 | | | |
| ER629-3 | | | | | 195-25 | | | |
| ER629-3 | | | | | 194-70 | | | |
| ER629-4 | 202-10 | | | | | | | |
| ER629-4 | 205-10 | 203-81 | | | | | | |
| ER629-4 | 205-26 | | | | | | | |
| ER629-5 | | | | | 206-81 | | | |
| ER629-5 | 203-18 | | | | 196-34 | | | |
| ER629-5 | | | | | 020-54 | | | |
| ER629-6 | 196-13 | 010-90 | | | 195-31 | | | |
| ER629-7 | | | | | 195-66 | | | |
| ER629-8 | 204-25 | 020-85 | | | | | | |
| ER629-9 | 204-10 | 024-85 | | | 208-80 | | | |
| ER629-10 | | | | | | | | |
| ER629-11 | 005-10 | | | | 182-64 | | | |

| STATION | F3 | S3 | S3xS2 | F2 | S2 | S2xS1 | S1 | FT |
|---|---|---|---|---|---|---|---|---|
| ER629-11 | | | | | 200-64 | | | |
| ER629-12 | 202-21 | | | | | | | |
| ER629-13 | 185-10 | | | | 180-85 | | | |
| RC630-3 | | 034-42 | | | 216-58 | | | |
| RC630-4 | | | | | 206-46 | | | |
| RC630-5 | | | | | 200-80 | | | |
| RC630-6 | | 026-75 | | | | | | |
| RC630-10 | | | | | 210-58 | | | |
| RC630-11 | | | | | 200-55 | | | |
| RC630-14 | | | | | 205-66 | | | |
| RC630-18 | | | | | 205-69 | | | |
| RC630-19 | | | | | 205-82 | | | |
| RC630-24 | | | | | 212-74 | | | |
| ER701-1 | 020-15 | 020-90 | | | 200-60 | | | |
| ER701-2 | | | | | 190-77 | | | |
| ER701-3 | | | | | 198-72 | | | |
| ER701-4 | | | | | 215-30 | | | |
| ER701-4 | | | | | 202-54 | | | |
| ER701-5 | | | | | 214-39 | | | |
| ER701-5 | | | | | 188-58 | | | |
| ER701-6 | | 018-90 | 198-08 | | 195-67 | | | |
| ER701-7 | | | | | 194-64 | | | |
| ER701-8 | | | | | 100-20 | | | |
| ER701-9 | 200-18 | 014-76 | | | | | | |
| ER701-10 | 185-26 | | | | 205-81 | | | |
| ER702-1 | | | | | 195-60 | | | |
| ER702-2 | | 012-74 | 014-05 | | 198-40 | | | |
| ER702-3 | | | | | 182-50 | | | |
| ER702-4 | | | | | 205-35 | 280-50Q | | |
| ER702-5 | | | | | 200-30 | | | |
| ER702-6 | | | | | 190-49 | | | |
| ER702-7 | | | | | 190-50 | | | |
| ER702-8 | | | | | 182-33 | | | |
| ER702-8 | | | | | 187-72 | | | |
| ER702-9 | | | | | 275-08 | | | |
| ER702-9 | | 025-80 | | | 208-47 | | | |
| ER702-9 | | | | | 180-05 | | | |
| ER702-10 | | 012-85 | 190-10 | | 180-42 | | | |
| ER702-11 | | | | | 191-70 | | | |
| ER702-12 | 195-14 | | | | 189-55 | | | |
| ER702-12a | | | | | 206-47 | | | |
| ER702-13 | | 020-70 | | | | | | |
| ER702-14 | 023-13 | | | | 196-54 | | | |
| ER702-15 | | 025-79 | | | | | | |
| ER702-16 | | 025-65 | 026-04 | | 210-54 | | | |
| ER702-17 | | | | | 195-50 | | | |
| ER702-17 | | | | | 204-65 | | | |
| ER702-18 | | | | | 200-66 | | | |
| ER706-1 | | | | | 201-51 | | | |
| ER706-2 | | | | | 201-58 | | | |

| STATION | F3 | S3 | S3xS2 | F2 | S2 | S2xS1 | S1 | FT |
|---|---|---|---|---|---|---|---|---|
| ER706-3 | | | | | 205-74 | | | |
| ER706-4 | | | | | 190-58 | | | |
| ER706-5 | | | | | 007-30 | | | |
| ER706-6 | | | | | 018-56 | | | |
| ER706-7 | | | | | 226-35 | | | |
| ER706-8 | | | | | 205-68 | | | |
| ER706-9 | | 020-81 | 022-12 | | 210-57 | | | |
| ER706-10 | | | | | 185-38 | | | |
| ER706-11 | | | | | 203-31 | | | |
| ER706-12 | | | | | 202-54 | | | |
| ER706-13 | | | | | 190-54 | | | |
| ER706-14 | | 016-90 | 196-03 | | 191-41 | | | |
| ER706-14 | | | | | 201-29 | | | |
| ER706-15 | 018-00 | 018-90 | | | 000-00 | | | |
| ER706-16 | | 010-90 | 180-10 | | 020-47 | | | |
| ER706-17 | | | | | 190-52 | | | |
| ER706-18 | | 016-74 | 195-05 | | 183-26 | | | |
| ER706-19 | 201-11 | | | | | | | |
| ER706-20 | | | | | 014-70 | | | |
| ER706-21 | | 210-75 | 204-20 | | 190-60 | | | |
| ER706-22 | | | | | 188-70 | | | |
| ER706-22 | | 020-90 | | | 020-90 | | | |
| ER706-23 | | 017-90 | 197-03 | | 193-38 | | | |
| ER706-24 | | 010-73 | | | 000-00 | | | |
| ER706-25 | | 016-88 | | | | | | |
| RC706-2 | | | | | 233-32 | | | |
| RC706-4 | | | | | 203-75 | | | |
| RC706-6 | | | | | | | | |
| ER707-1 | | | | | 202-61 | | | |
| ER707-2 | | | | | 197-74 | | | |
| ER707-2 | | 030-76 | 036-18 | | 250-30 | | | |
| ER707-3 | | 030-80 | | | | | | |
| ER707-3 | | | | | 194-54 | | | |
| ER707-4 | | | | | 200-54 | | | |
| ER707-5 | 198-10 | | | | 205-65 | | | |
| ER707-6 | | 010-83 | 010-05 | | 196-44 | | | |
| ER707-7 | | | | | 210-60 | | | |
| ER707-8 | | | | | 210-78 | | | |
| ER707-9 | 000-N | | | | 188-40 | | | |
| ER707-10 | | | | | 210-62 | | | |
| ER707-11 | | | | | 218-72 | | | |
| ER707-11 | | 018-70 | 028-19 | | 220-56 | | | |
| ER707-12 | | | | | 188-45 | | | |
| ER707-13 | | | | | 200-25 | | | |
| ER707-14 | | | | | 210-69 | | | |
| ER707-15 | | | | | 198-73 | | | |
| ER707-16 | | | | | 130-30 | | | |
| ER707-16 | 196-10 | | | | 135-16 | | | |
| ER707-17 | | | | | 199-35 | | | |
| ER707-17 | | | | | 209-79 | | | |

| STATION | F3 | S3 | S3xS2 | F2 | S2 | S2xS1 | S1 | FT |
|---|---|---|---|---|---|---|---|---|
| ER707-18 | | | | | 224-66 | | | |
| ER707-18 | | | | | 211-62 | | | |
| ER707-18 | | | | | 190-28 | | | |
| ER707-18 | | | | | 185-50 | | | |
| ER707-19 | | | | | 211-80 | | | |
| ER707-20 | | | | | 135-21 | | | |
| ER707-20 | | | | | 196-37 | | | |
| ER707-20 | | | | | 205-64 | | | |
| ER707-21 | | | | | 168-74 | | | |
| ER707-22 | | | | | 193-30 | | | |
| ER707-23 | | | | | 190-61 | | | |
| ER707-24 | | | | | 200-60 | | | |
| ER707-25 | | | | | 206-62 | | | |
| ER707-26 | | 030-68 | 207-07 | | 190-19 | | | |
| ER707-27 | | | | | 194-60 | | | |
| ER707-28 | | | | | 200-76 | | | |
| ER707-29 | | | | | 212-62 | | | |
| ER707-30 | | | | | 190-79 | | | |
| RC707-1 | | 207-80 | | | 202-44 | | | |
| RC707-2 | | | | | 204-63 | | | |
| RC707-5 | | | | | 202-78 | | | |
| RC707-7 | | | | | 205-65 | | | |
| RC707-9 | | 034-54 | | | 186-63 | | | |
| RC707-10 | | | | | 200-70 | | | |
| RC707-12 | | | | | 190-59 | | | |
| RC707-13 | | | | | 020-68 | | | |
| RC707-16 | | 026-90 | | | | | | |
| RC707-18 | | 030-90 | | | 211-42 | | | |
| RC707-22 | | | | | 206-50 | | | |
| RC707-23 | | | | | 205-87 | | | |
| RC707-29 | | | | | 190-57 | | | |
| JT707-1 | 192-09 | | | | 192-83 | | | |
| JT707-4 | 020-02 | | | | 200-52 | | | |
| JT707-5 | | 009-64 | | | | | | |
| ER708-2 | | | | | 206-70 | | | |
| ER708-3 | | | | | 190-28 | | | |
| ER708-4 | | 014-78 | | | 195-82 | | | |
| ER708-5 | 02-05 | 202-86 | | | 029-84 | | | |
| ER708-5 | | | | | 205-56 | | | |
| ER708-6 | | | | | 201-77 | | | |
| ER708-7 | | 011-74 | | | 200-84 | | | |
| JR708-3 | | 021-73 | | | | | | |
| JR708-9 | | 195-84 | | | 203-55 | | | |
| JR708-13 | 028-08 | 022-72 | | | | | | |
| JR708-21 | | | | | | | | |
| JR708-23 | 006-06 | | | | 214-50 | | | |
| JR708-32 | | | | | 186-29 | | | |
| ST708-3 | | | | | 016-52 | | | |
| ST708-4 | 015-21 | | | | 062-11 | | | |
| ST708-7 | 204-24 | | | | 191-61 | | | |
| JR709-1 | | | | | 022-78 | | | |

| STATION | F3 | S3 | S3xS2 | F2 | S2 | S2xS1 | S1 | FT |
|---|---|---|---|---|---|---|---|---|
| ER710-1 | | 008-90 | 008-40 | w/e | 200-76 | | | |
| ER710-2 | | 018-76 | 018-04 | | 202-51 | | | |
| ER710-2 | | | | 270-65 | 180-65 | | | |
| ER710-3 | | | | w/e | 200-51 | | | |
| ER710-3 | | | | | 200-59 | | | |
| ER710-4 | | | | | 190-70 | | | |
| ER710-5 | | | | | 205-60 | | | |
| ER710-6 | | | | | 195-78 | | | |
| ER710-7 | | | | | 195-59 | | | |
| ER710-7 | | | | | 200-31 | | | |
| ER710-8 | | 011-85 | | 220-42 | | | | |
| ER710-9 | | | | | 199-66 | | | |
| ER710-10 | | | | 230-70 | 190-76 | | | |
| ER710-10 | | | | w/e | | | | |
| JR710-1 | | 026-84 | | | 030-81 | | | |
| JR710-2 | | 018-84 | | | 210-53 | | | |
| JR710-3 | | 021-85 | | | | | | |
| JR710-4 | | 030-72 | | | 196-70 | | | |
| JR710-8 | | 022-90 | | | 210-72 | | | |
| JR710-9 | | 016-90 | | | 203-47 | | | |
| JR710-10 | | | | | | | | |
| JR710-11 | | 014-85 | | | | | | |
| JR710-13 | | | | | 207-54 | | | |
| JR710-15 | | | | | 203-40 | | | |
| JR710-15 | | | | | 205-35 | | | |
| JR710-19 | | | | | 193-72 | | | |
| BC710-1 | | | | | 204-54 | | | |
| BC710-2 | | | | | 202-53 | | | |
| BC710-3 | | | | | 207-54 | | | |
| BC710-4 | | | | | 214-77 | | | |
| BC710-5 | | | | | | | | |
| BC710-7 | | | | | 203-75 | | | |
| BC710-9 | | 035-67 | | | | | | |
| BC710-12 | | | | | 215-67 | | | |
| DS710-1 | | | | | 159-55 | | | |
| DS710-2 | | 191-86 | 007-09 | | 009-59 | | | |
| DS710-3 | | 015-85 | | | 206-44 | | | |
| DS710-4 | | 195-70 | | | 215-61 | | | |
| DS710-5 | 010-02 | 013-79 | | | 199-19 | | | |
| DS710-5 | | | | | 191-74 | | | |
| ER711-1 | | 020-75 | 000-00 | | 200-70 | | | |
| ER711-2 | | | | | 211-83 | | | |
| ER711-3 | | | | | 010-90 | | | |
| ER711-4 | | | | w/e | 195-70 | | | |
| ER711-5 | | | | w/e | 024-63 | | | |
| ER711-6 | | | | | 024-90 | | | |
| ER711-6 | | | | | 026-79 | | | |
| ER711-6 | | | | | 020-76 | | | |
| ER711-7 | | | | | 220-75 | | | |
| ER711-8 | 200-16 | | | | 210-59 | | | |

| STATION | F3 | S3 | S3xS2 | F2 | S2 | S2xS1 | S1 | FT |
|---|---|---|---|---|---|---|---|---|
| ER711-9 | | 005-62 | 018-23 | | 210-64 | | | |
| ER711-10 | | | | w/e | 225-80 | | | |
| ER711-11 | 014-10 | 013-80 | 014-10 | | 205-45 | | | |
| ER711-11 | | w/e | | | 215-52 | | | |
| ER711-12 | | | | | 212-78 | | | |
| ER711-13 | | | | | 211-74 | | | |
| ER711-14 | | | | | 210-60 | | | |
| ER711-15 | | | | | 024-77 | | | |
| ER711-15 | | | | | 018-82 | | | |
| JH711-1 | | | | | 210-89 | | | |
| JH711-2 | | 021-83 | 198-20 | | 285-20 | | | |
| JH711-6 | | | | | 019-50 | | | |
| JH711-8 | | | | | 215-44 | | | |
| JH711-10 | | | | | 209-68 | | | |
| JH711-11 | | | | 200-64 | | | | |
| JH711-12 | | 016-63 | 030-30 | | 235-54 | | | |
| JH711-13 | 019-15 | | | | 200-44 | | | |
| JH711-15 | w\e | | | | 190-64 | | | |
| JH711-17 | 030-02 | | | | 035-25 | | | |
| JH711-19 | | | | | 215-56 | | | |
| JH711-19 | | | | | 210-40 | | | |
| JH711-20 | | | | | 184-29 | | | |
| JH711-20 | | | | | 204-39 | | | |
| JH711-21 | 016-30 | | | | | | | |
| JH711-22 | | | | | | | | |
| JH711-26 | | 030-61 | 208-02 | | 209-79 | | | |
| JH711-27 | | | | | 199-63 | | | |
| JR711-1 | | | | | 205-28 | | | |
| JR711-2 | 203-03 | 194-82 | | | 194-35 | | | |
| JR711-4 | | | | | 202-28 | | | |
| JR711-6 | | 021-65 | | | 200-60 | | | |
| JR711-9 | | | | | 198-38 | | | |
| JR711-10 | 202-05 | 012-76 | | | 017-46 | | | |
| JR711-12 | | | | | 006-25 | | | |
| JR711-19 | | | | | 194-52 | | | |
| JR711-20 | | 003-80 | | | 194-51 | | | |
| JR711-26 | | | | | 208-26 | | | |
| ST711-1 | | | | | 212-65 | | | |
| ST711-2 | 190-34 | 207-89 | 192-29 | | 190-59 | | | |
| ST711-3 | | | 025-02 | | 200-47 | | | |
| ST711-5 | 197-41 | | | | 190-57 | | | |
| ST711-7 | | 019-72 | | | 051-28 | | | |
| ST711-8 | | 200-88 | | | | | | |
| ST711-9 | | | | | 020-52 | | | |
| ST711-10 | | | | 246-36 | | 256-44Q | | |
| ST711-11 | | 018-87 | | | 188-53 | | | |
| ST711-12 | | | | | 204-52 | | | |
| ER712-1 | | | | | 206-50 | | | |
| ER712-2 | | 355-90 | | | 180-20 | | | |
| ER712-2 | | | | | 170-50 | | | |

| STATION | F3 | S3 | S3xS2 | F2 | S2 | S2xS1 | S1 | FT |
|---|---|---|---|---|---|---|---|---|
| ER712-3 | | | | | 018-75 | | | |
| ER712-4 | 030-12 | | | | | | | |
| ER712-5 | 004-10 | | | | | | | |
| ER712-6 | | | | | 010-87 | | | |
| ER712-7 | | | | | | | | |
| ER712-8 | | | | 340-40 | 188-59 | | | |
| ER712-8 | | | | w\e | | | | |
| ER712-9 | | | | | 208-68 | | | |
| ER712-10 | | | | | 189-58 | | | |
| ER712-11 | | | | | 196-64 | | | |
| ER712-11 | | | | w\e | | | | |
| ER712-11 | | | | w/e | | | | |
| ER712-12 | | | | w\e | | | | |
| ER712-13 | | | | w/e | 189-60 | | | |
| ER712-14 | | | | | 188-52 | | | |
| ER712-15 | | | | | 183-52 | | | |
| ER712-16 | | | | | 194-55 | | | |
| JH713-1 | 195-33 | | | | 195-61 | | | |
| JH713-2 | | | | | 195-59 | | | |
| JH713-3 | | | | | 185-58 | | | |
| JH713-4 | | | | w/e | | | | |
| JH713-5 | | | | w/e | 200-66 | | | |
| JH713-6 | | | | w/e | 186-50 | | | |
| JH713-9 | | 008-65 | 185-05 | | 182-55 | | | |
| ER714-1 | | | | | 225-70 | | | |
| ER714-1 | | | | | 200-69 | | | |
| ER714-2 | | | | | 200-71 | | | |
| ER714-3 | 012-20 | | | 340-60 | 200-54 | | | |
| ER714-3 | | | | w/e | 175-38 | | | |
| ER714-4 | | | | | 198-46 | | | |
| ER714-5 | | | | | 175-50 | | | |
| ER714-5 | 005-81 | | 007-07 | | 198-36 | | | |
| ER716-1 | | | | | 185-64 | | | |
| ER716-2 | | | | | 190-62 | | | |
| ER716-3 | | | | | 200-64 | | | |
| ER716-4 | 030-05 | | | | 020-34 | | | |
| ER716-5 | | | | | 190-61 | | | |
| ER716-6 | | | | | 340-25 | | | |
| ER716-6 | | | | | 203-81 | | | |
| ER716-7 | | 030-74 | 204-19 | | 165-28 | | | |
| ER716-8 | | | | | 216-59 | | | |
| ER716-9 | | | | | 182-32 | | | |
| ER716-10 | | | | | 183-52 | | | |
| ER716-11 | | | | | 160-64 | | | |
| ER717-1 | | | | | 191-41 | | | |
| ER717-2 | | 010-75 | 187-05 | | 182-46 | 236-39Q | | |
| ER717-3 | | | | | 205-53 | | | |
| ER717-4 | | | | | 190-69 | | | |
| ER717-5 | | | | | 200-76 | | | |
| ER717-6 | | 019-72 | | | | | | |

| STATION | F3 | S3 | S3xS2 | F2 | S2 | S2xS1 | S1 | FT |
|---|---|---|---|---|---|---|---|---|
| ER717-7 | | | | | 197-75 | | | |
| ER717-8 | | 030-90 | 210-23 | | 203-74 | | | |
| ER717-9 | | | | | 200-74 | | | |
| ER717-9 | | | | | 192-79 | | | |
| ER717-10 | | 005-74 | | w\e | 192-65 | | | |
| ER717-11 | 014-06 | | | w\e | 200-60 | | | |
| ER717-11 | w/e | | | | | | | |
| ER717-12 | | | | | 192-67 | | | |
| ER717-13 | | | | | 194-55 | | | |
| ER717-14 | | 010-72 | | w/e | 214-65 | | | |
| ER717-15 | | | | w/e | 205-64 | | | |
| ER717-16 | | | | | 020-79 | | | |
| ER717-17 | | | | | 200-64 | | | |
| ER717-18 | | | | w/e | | | | |
| JR717-1 | | 020-82 | | | | | | |
| JR717-5 | | 197-82 | | | 010-46 | | | |
| JR717-8 | | | | | 195-53 | | | |
| JR717-12 | | | | | 000-72 | | | |
| JR717-13 | | | | | 195-45 | | | |
| JR717-14 | | | | | 200-18 | | | |
| JR717-16 | | | | | 007-54 | | | |
| JR717-17 | | | | | 002-45 | | | |
| BC717-1 | | | | | 197-46 | | | |
| BC717-2 | | | | | 190-64 | | | |
| BC717-3 | | | | | 220-55 | | | |
| BC717-4 | | | | | 208-30 | | | |
| BC717-10 | | | | | 045-50 | | | |
| BC717-11 | | | | | 204-50 | | | |
| BC717-12 | | | | | 200-75 | | | |
| BC717-16 | | | | | 180-20 | | | |
| BC717-19 | | | | | 212-37 | | | |
| ER718-1 | | | | w/e | 194-50 | | | |
| ER718-2 | | | | | 200-60 | | | |
| ER718-3 | | | | | 201-73 | | | |
| ER718-4 | | | | | 204-71 | | | |
| ER718-5 | | | | | 192-72 | | | |
| ER718-6 | | 016-76 | 017-03 | | 198-66 | | | |
| ER718-7 | | | | | 212-65 | 340-65Q | | |
| ER718-8 | 015-30 | | | | 212-75 | | | |
| ER718-9 | | | | w\e | 195-85 | | | |
| ER718-10 | | | | | 208-65 | 249-54Q | | |
| ER718-11 | | | | 225-54 | 194-73 | | | |
| ER718-11 | | | | w/e | | | | |
| ER718-12 | | | | | 168-65 | | | |
| ER718-12 | | | | | 010-48 | | | |
| ER718-13 | | 022-70 | | | 218-55 | | | |
| ER718-13 | | | | | 205-38 | | | |
| ER718-14 | | | | 251-54 | 208-56 | | | |
| ER718-14 | | | | w/e | | | | |
| ER718-15 | 025-27 | | | | 210-78 | | | |
| ER718-15 | | | | | 185-64 | | | |

| STATION | F3 | S3 | S3xS2 | F2 | S2 | S2xS1 | S1 | FT |
|---|---|---|---|---|---|---|---|---|
| ER718-16 | | | | | 150-30 | | | |
| ER718-17 | | | | | 192-60 | | | |
| ER718-18 | 015-06 | 008-75 | 015-25 | | 201-77 | | | |
| ER718-19 | | | | | 200-81 | | | |
| ER718-20 | | | | | 205-49 | | | |
| RC718-1 | | 185-87 | | | 190-25 | | | |
| RC718-2 | 192-08 | | | | | | | |
| RC718-5 | 205-19 | 196-77 | | | 012-32 | | | |
| RC718-7 | | | | | 015-39 | | | |
| RC718-8 | | | | | 206-10 | | | |
| RC718-10 | | | | | 202-66 | | | |
| RC718-11 | | | | | 208-41 | | | |
| DS718-3 | | | | | 202-37 | | | |
| DS718-4 | | | 221-38 | | 182-41 | | | |
| DS718-6 | | | | | 193-68 | | | |
| DS718-8 | | | | | 202-49 | | | |
| JT718-2 | | | 173-05 | | 223-38 | | | |
| JT718-3 | | 034-74 | | | 206-42 | | | |
| JT718-4 | 184-44 | | | | 202-58 | | | |
| JT718-7 | | 050-68 | | | 184-54 | | | |
| JT718-9 | | | 345-13 | | 180-50 | | | |
| JT718-10 | | | | | 208-40 | | | |
| JT718-11 | | | | | 222-44 | | | |
| BC719-2 | 020-12 | | | | 225-60 | | | |
| BC719-3 | 025-30 | | | | | | | |
| BC719-4 | | | | 358-27 | 185-47 | | | |
| BC719-4 | | | | | 207-85 | | | |
| BC719-5 | | | | | 201-41 | | | |
| BC719-6 | | | | | 030-20 | | | |
| JT719-1 | | 014-77 | | | | | | |
| JT719-3 | | | 016-01 | | | | | |
| JT719-5 | | 015-78 | | | 191-69 | | | |
| JT719-8a | | | | | 196-84 | | | |
| JT719-9 | | 022-77 | | | 186-62 | | | |
| JT719-10 | | | | | 194-62 | | | |
| ER720-1 | | | | | 213-52 | | | |
| ER720-1 | | | | | 203-74 | | | |
| ER720-2 | w/e | 020-70 | 020-00 | w\e | 200-65 | | | |
| ER720-2 | | | | w/e | 203-70 | | | |
| ER720-3 | | 010-85 | | | 190-76 | | | |
| ER720-4 | | | | | | | | |
| ER720-5 | | | | | | | | |
| ER720-6 | | | | w\e | 206-77 | | | |
| ER720-6 | | 018-60 | 018-00 | | 198-64 | | | |
| ER720-7 | | 014-81 | 192-20 | w\e | 180-60 | | | |
| ER720-7 | | | | 255-54 | | | | |
| ER720-8 | | | | w/e | | | | |
| ER720-9 | | | | | 183-53 | | | |
| ER720-10 | | | | w/e | | | | |
| ER720-11 | | | | | 180-80 | | | |

| STATION | F3 | S3 | S3xS2 | F2 | S2 | S2xS1 | S1 | FT |
|---|---|---|---|---|---|---|---|---|
| ER720-12 | | | | w/e | | | | |
| ER720-13 | | 006-75 | | | | | | |
| ER720-14 | | | | | 198-68 | | | |
| ER720-15 | | | | w\|e | | | | |
| ER720-16 | | | | | 195-70 | | | |
| BC720-1 | | 205-81 | | | | | | |
| BC720-2 | | | | | 210-19 | | | |
| BC720-5 | | 203-79 | | | 198-62 | | | |
| BC720-7 | | 022-81 | | | 208-79 | | | |
| BC720-12 | | 030-70 | | | | | | |
| BC720-13 | | 019-81 | | | | | | |
| BC720-14 | | 035-90 | | | 194-81 | | | |
| BC720-15 | | 027-90 | | | 005-70 | | | |
| ST720-1 | | 032-63 | | | 197-43 | | | |
| ST720-3 | | | | | 200-80 | | | |
| ST720-4 | | | | | 192-64 | | | |
| ST720-6 | | | | | 200-62 | | | |
| ST720-7 | | | | | 211-76 | | | |
| ST720-8 | 206-23 | 043-81 | | | 204-55 | | | |
| ST720-9 | 010-04 | | | | 197-47 | | | |
| ER721-1 | 020-18 | 025-78 | 027-07 | w/e | 208-76 | | | |
| ER721-2 | | | | | 204-75 | | | |
| ER721-3 | 025-16 | 015-74 | | | | | | |
| ER721-4 | | | | | | | | |
| ER721-5 | 008-14 | | | | | | | |
| ER721-6 | | | | | 184-50 | | | |
| ER721-7 | | | | | 186-50 | | | |
| ER721-8 | | | | | 208-61 | | | |
| ER721-9 | 008-10 | | | | | | | |
| ER721-10 | | 030-62 | | | | | | |
| JR721-3 | 021-24 | 206-82 | | | 197-60 | | | |
| JR721-5 | 016-06 | | | | | | | |
| BC721-1 | | 203-83 | | | 198-51 | | | |
| BC721-4 | | 018-81 | | | 197-38 | | | |
| BC721-7 | | 022-90 | | | 216-28 | | | |
| BC721-9 | | | | | 216-87 | | | |
| JR722-2 | | 194-80 | | | 183-59 | | | |
| JR722-5 | | 035-80 | | | | | | |
| JR722-6 | | 029-84 | | | | | | |
| BC722-3 | | | | | 200-72 | | | |
| ER723-1 | | 200-85 | 206-50 | | 195-81 | | | |
| ER723-2 | | | | | 200-59 | | | |
| ER723-3 | | | | | 205-84 | | | |
| ER723-4 | | | | w\|e | 210-81 | | | |
| JR723-1 | | 015-72 | | | 195-10 | | | |
| JR723-3 | | 193-85 | | | 017-31 | | | |
| JR723-7 | | 022-90 | | | 197-55 | | | |
| JR723-8 | | 013-88 | | | 185-28 | | | |
| JR723-12 | | 202-82 | | | 209-55 | | | |
| JR723-16 | | | | | 200-54 | | | |

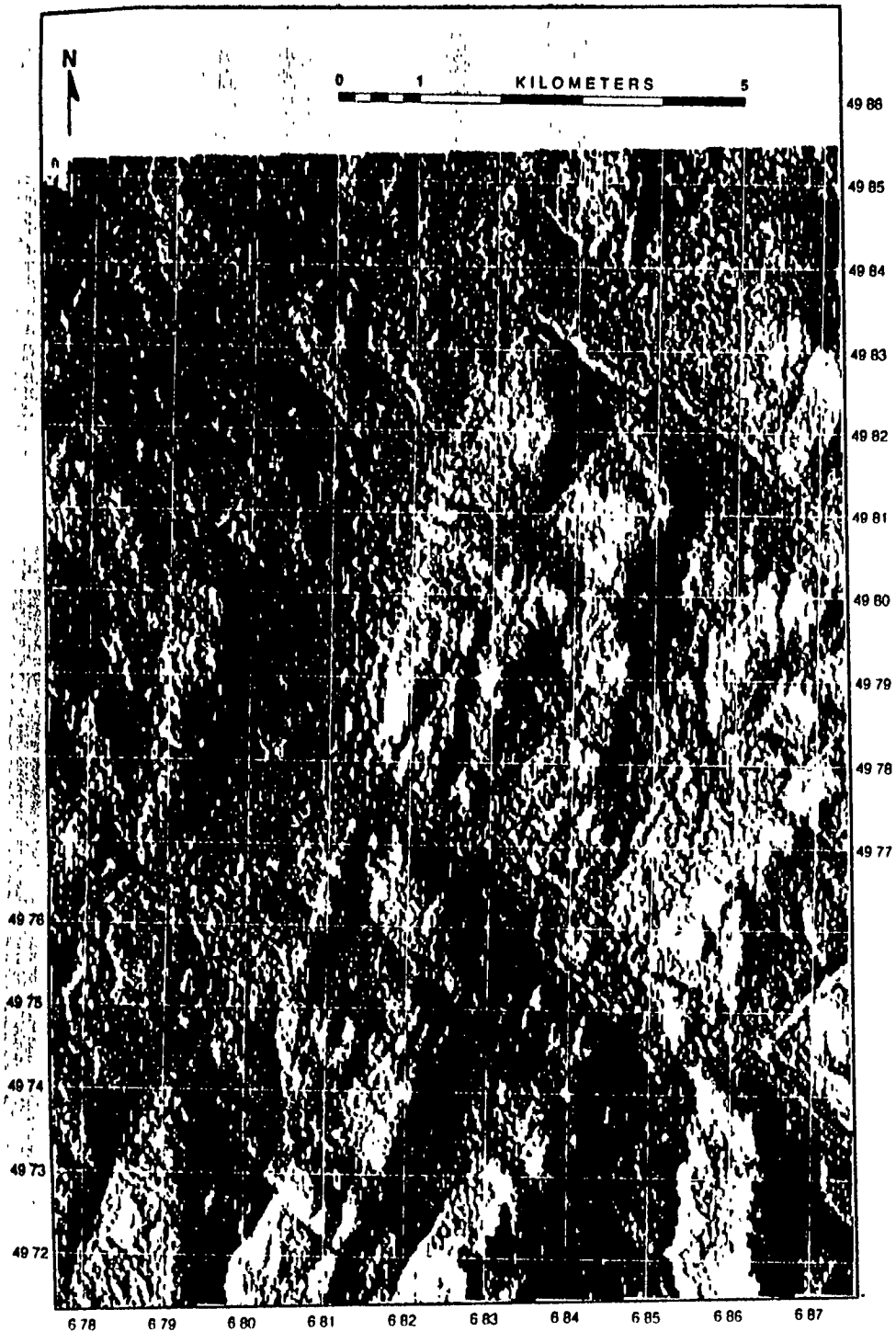
| STATION | F3 | S3 | S3xS2 | F2 | S2 | S2xS1 | S1 | FT |
|---|---|---|---|---|---|---|---|---|
| JR723-17a | | 202-80 | | | 199-63 | | | |
| JR723-17b | | 018-83 | | | 211-28 | | | |
| BC723-2 | | 019-90 | | | | | | |
| BC723-3 | | 027-80 | | | | | | |
| BC723-4 | | | | | 208-34 | | | |
| BC723-9 | | | | | 203-48 | | | |
| BC723-10 | | | | | 206-56 | | | |
| BC723-11 | | | | | 198-43 | | | |
| ER724-1 | | 016-70 | 022-17 | w/e | 210-66 | | | |
| ER724-2 | | | | | 198-84 | | | |
| ER724-3 | 190-17 | | | 242-10 | 000-00 | | | |
| ER724-4 | | | | 222-24 | 115-16 | | | |
| ER724-4 | | | | w\|e | | | | |
| ER724-5 | | | | | 195-75 | | | |
| ER724-6 | | | | | 185-48 | | | |
| ER724-7 | | | | | 180-40 | | | |
| ER724-8 | | 019-75 | 019-00 | | 200-50 | | | |
| ER724-9 | | | | | 200-69 | | | |
| ER724-10 | | | | | | | | |
| JR724-7 | 198-22 | 020-90 | | | 022-57 | | | |
| JR724-11 | | 198-86 | | | | | | |
| JR724-13 | | | | | 201-45 | | | |
| JR724-211 | | | | | 207-62 | | | |
| BC724-6 | | | | | 189-40 | | | |
| BC724-8 | | | | | 200-26 | | | |
| BC724-10 | | 027-75 | | | 208-46 | | | |
| BC724-16 | | | | | 196-72 | | | |
| JR725-1 | | | | | 018-39 | | | |
| JR725-4 | | | | | 021-62 | | | |
| JR725-5 | | 196-82 | | | 187-33 | | | |
| JR725-5 | | | | | 196-82 | | | |
| JR725-6 | | | | | 007-20 | | | |
| JR725-8 | | | | | 207-36 | | | |
| JR725-8 | | | | | 193-35 | | | |
| JR725-10 | | | | | 196-46 | | | |
| JR725-11 | | 015-85 | | | | | | |
| JR725-12 | | 016-89 | | | 197-51 | | | |
| JR725-14 | | | | | 194-82 | | | |
| JR725-16 | | | | | 200-40 | | | |
| JR725-22 | | | | | 203-28 | | | |
| ER726-1 | A | 020-78 | | | 000-00 | | | |
| ER726-2 | | | | | 102-20 | | | |
| ER726-2 | | | | | 185-40 | | | |
| ER726-2 | 208-15 | | | | 183-25 | | | |
| ER726-3 | | | | | 204-73 | | | |
| ER726-4 | | | | | 193-43 | | | |
| ER726-5 | | | | 350-60 | 194-62 | | | |
| ER726-5 | | | | 235-57 | | | | |
| ER726-5 | | | | w\|e | | | | |
| ER726-6 | | | | w/e | 205-73 | | | |

| STATION | F3 | S3 | S3xS2 | F2 | S2 | S2xS1 | S1 | FT |
|---|---|---|---|---|---|---|---|---|
| ER726-7 | | | | | 185-74 | | | |
| ER726-8 | | | | w/e | 199-62 | | | |
| ER726-9 | A | | | | 000-00 | | | |
| ER729-1 | 022-18 | 004-85 | 004-00 | w/e | 000-00 | | | |
| ER729-1 | w/e | | | | | | | |
| ER729-2 | 016-00 | | | | 226-34 | | | |
| ER729-3 | 022-08 | 025-78 | 188-51 | | 008-90 | | | |
| ER729-3 | w/e | | | | | | | |
| ER729-4 | | | | w\e | 205-41 | 255-26Q | | |
| ER729-5 | | | | w/e | 198-67 | | | |
| ER729-5 | | | | | 210-63 | | | |
| ER729-6 | | | | 260-63 | 198-61 | | | |
| ER729-6 | | | | w\e | | | | |
| ER729-6 | 020-19 | 016-67 | 192-10 | | 185-54 | | | |
| JR729-2 | | 028-62 | | | 213-42 | | | |
| JR729-3 | | 195-85 | | | 214-42 | | | |
| JR729-5 | | 025-87 | | | | | | |
| JR729-8 | | | | | 210-72 | | | |
| JR729-9 | | | | | 198-28 | | | |
| JR729-10 | | 208-81 | | | 220-43 | | | |
| JR729-11 | | | | | 217-80 | | | |
| JR729-13 | | 203-86 | | | 186-12 | | | |
| JR729-14 | | 017-77 | | | 007-45 | | | |
| JR729-17 | | | | | 030-40 | | | |
| JR729-18 | | 017-87 | | | 212-24 | | | |
| JR729-20 | | 021-90 | | | 206-67 | | | |
| JR729-22 | | 020-83 | | | 198-32 | | | |
| JR729-23 | | | | | 204-42 | | | |
| JR729-24 | | 022-85 | | | 203-67 | | | |
| ER730-1 | w/e | | | w\e | 191-56 | | | |
| ER730-1 | | | | | 205-57 | | | |
| ER730-2 | | | | w\e | 019-75 | | | |
| ER730-2 | | | | 205-50 | | | | |
| ER730-3 | | | | | 198-62 | | | |
| ER730-4 | | | | | 204-86 | | | |
| ER730-4 | | | | | 196-85 | | | |
| ER730-5 | | | | | 185-59 | | | |
| ER730-6 | | | | w\e | 196-70 | | | |
| ER730-7 | | | | | 200-79 | | | |
| ER730-8 | | | | | | | | |
| ER730-9 | | | | | 205-90 | | | |
| ER730-10 | | | | | 198-77 | | | |
| ER730-11 | | | | w\e | | | | |
| ER730-12 | | | | | 195-85 | | | |
| ER730-13 | 015-00 | | | | 200-78 | | | |
| ER730-13 | | | | | 210-74 | | | |
| ER730-14 | | | | | 200-85 | | | |
| ER730-14 | | | | | 194-76 | | | |
| ER730-15 | | | | w\e | 204-78 | | | |
| JR730-1 | | | | | 197-40 | | | |
| JR730-3 | | 023-85 | | | 187-32 | | | |

| STATION | F3 | S3 | S3xS2 | F2 | S2 | S2xS1 | S1 | FT |
|---|---|---|---|---|---|---|---|---|
| JR730-6 | | 026-86 | | | 183-21 | | | |
| JR730-8 | | | | | 212-37 | | | |
| JR730-9 | | | | | 193-38 | | | |
| JR730-11 | | | | | 200-70 | | | |
| JR730-13 | | | | | 194-35 | | | |
| JR730-15 | | | | | 195-62 | | | |
| JR730-15 | | | | | 200-67 | | | |
| BC730-21 | | | | | 196-78 | | | |
| BC730-27 | | 012-80 | | | 194-67 | | | |
| BC730-29 | | | | | 209-76 | | | |
| BC730-31 | | 195-83 | | | 192-65 | | | |
| DS730-2 | | 036-57 | 200-45 | | 191-74 | | | |
| DS730-5 | | 031-63 | | | | | | |
| DS731-3 | | | | | 206-54 | | | |
| DS731-4 | | | | | 201-51 | | | |
| DS731-7 | 198-05 | | | | | | | |
| DS731-8 | | | | | 335-28 | | | |
| DS731-9 | | | | | 220-56 | | | |
| ER804-1 | 015-35 | | | | 005-55 | | | |
| ER804-2 | | | | | 210-76 | | | |
| ER804-3 | | | | | 190-85 | | | |
| ER804-4 | | | | | 200-85 | | | |
| ER804-5 | | | | | 194-68 | | | |
| ER804-6 | 030-09 | | | | | | | |
| ER804-7 | | | | | 192-55 | | | |
| ER804-8 | | 020-69 | 027-16 | | 209-81 | | | |
| ER804-9 | | 020-82 | 020-00 | | 201-76 | | | |
| ER804-10 | | | | | 199-74 | | | |
| ER804-11 | | | | | 203-39 | 265-36Q | | |
| ER804-12 | | | | | 203-87 | | | |
| ER804-13 | | | | | 209-85 | | | |
| JR804-3 | | | | | 202-60 | | | |
| JR804-4 | | 020-75 | | | 192-72 | | | |
| JR804-5 | | 023-72 | | | 186-37 | | | |
| JR804-6 | | | | | 206-50 | | | |
| JR804-8 | | | | | 183-30 | | | |
| JR804-10 | | | | | 190-50 | | | |
| JR804-10 | | | | | 201-70 | | | |
| JT804-1 | | 020-81 | | | 241-32 | | | |
| JT804-2 | 195-18 | 004-85 | | | 190-54 | | | |
| JT804-4 | | | | | 200-73 | | | |
| JT804-5 | | 018-80 | | | | | | |
| JR805-2 | | | | | 210-71 | | | |
| ST805-1 | | | | | 005-15 | | | |
| ST805-3 | | | | | 198-15 | | | |
| ST805-4 | | | | | 206-86 | | | |
| ST805-5 | | 016-70 | | | 020-46 | | | |
| ST805-6 | | 010-73 | | | 197-62 | | | |
| ST805-8 | | | | | 210-64 | | | |
| ST805-10 | | 003-60 | | | 355-40 | | | |

| STATION | F3 | S3 | S3xS2 | F2 | S2 | S2xS1 | S1 | FT |
|---|---|---|---|---|---|---|---|---|
| ER806-1 | | | | 220-29 | 198-60 | | | |
| ER806-1 | | | | e\|w | | | | |
| ER806-2 | | 015-74 | 202-23 | w\e | 210-74 | | | |
| ER806-3 | | | | 220-28 | 205-69 | | | |
| ER806-3 | | | | w\e | | | | |
| ER806-4 | | | | | | | | |
| ER806-5 | w/e | 020-78 | 021-02 | w/e | 202-64 | | | |
| ER806-6 | | | | | | | | 050-57 |
| ER806-7 | 194-09 | | | w\e | 202-53 | | | |
| ER806-8 | | | | w/e | 198-59 | | | |
| ER806-9 | | | | w\e | 200-68 | | | |
| ER806-10 | | | | 203-54 | 180-56 | | | |
| ER806-10 | | | | e\|w | | | | |
| ER806-11 | | | | | 203-73 | | | |
| ER806-12 | | | | | 194-51 | | | |
| ST806-1 | | 017-78 | 210-02 | | 036-20 | | | |
| ST806-3 | | 195-87 | | | | | | |
| ST806-2 | | 195-84 | | | 190-27 | | | |
| ST806-4 | | 027-83 | | | 200-26 | | | |
| ST806-5 | 191-09 | | | | 048-26 | | | |
| ST806-7 | | | | | 023-38 | | | |
| ST806-8 | | | | | 192-81 | | | |
| ST806-9 | | | | | 211-61 | | | |
| ST806-10 | | | | | 206-64 | | | |
| ST806-12 | | | | | 187-61 | | | |
| ER808-1 | 012-08 | 012-81 | * | | 196-65 | | | |
| ER808-2 | 015-05 | | | | H | | | |
| ER808-3 | A | 015-79 | | | | | | |
| ER808-4 | | | | | 025-39 | | | |
| ER808-4 | | | | | 204-87 | | | |
| BC808-7 | | | | | | | | |
| BC808-11 | | 022-90 | | | | | | |
| BC808-12 | | | | 205-60 | | | | |
| BC808-13 | | 013-74 | | | 194-30 | | | |
| ER810-1 | | | | | 192-80 | | | |
| ER810-2 | | | | | | | | |
| ER810-3 | | | | 205-12 | 192-48 | | | |
| ER810-3 | | | | w\|e | | | | |
| ER810-4 | | | | | 195-72 | | | |
| ER810-5 | | | | | 204-59 | | | |
| ER810-6 | | | | | 205-70 | | | |
| ER810-7 | | | | | | | | |
| ER810-8 | 025-00 | | | | 202-65 | | | |
| ER810-9 | | | | | 206-67 | | | |
| ER810-10 | | | | 205-50 | 200-62 | | | |
| ER810-10 | | | | w/e | | | | |
| ER810-11 | | | | | | | | |
| ER810-12 | 190-21 | | | 200-50 | 206-68 | | | |
| BC810-1 | | 026-85 | | | 021-24 | | | |
| BC810-4 | | 204-84 | | | 199-75 | | | |

| STATION | F3 | S3 | S3xS2 | F2 | S2 | S2xS1 | S1 | FT |
|---|---|---|---|---|---|---|---|---|
| BC810-5 | | 195-82 | | | 205-70 | | | |
| BC810-7 | | | | | 200-31 | | | |
| BC810-8 | | | | 234-52 | 215-54 | | | |
| BC810-9 | 015-04 | | | | 270-05 | | | |
| ER812-1 | | | | | 202-84 | | | |
| ER812-2 | | | | | 202-70 | | | |
| ER812-3 | | | | | 184-60 | | | |
| ER812-4 | 195-18 | 008-69 | | | 201-72 | | | |
| ER812-4 | A | | | | | | | |
| ER812-5 | | | | | 192-72 | | | |
| ER812-5a | | | | | 203-75 | | | |
| ER812-5b | | | | | 020-90 | | | |
| ER812-6 | 200-37 | 018-80 | | | 104-37 | | | |
| ER812-6 | A | | | | | | | |
| ER812-7 | | | | | 193-68 | | | |
| ER812-8 | | | | | | | | |
| ER812-9 | | | | | | | | |
| ER814-1 | | 005-75 | 020-45 | | 020-90 | | | |
| ER814-2 | | | | | 204-78 | | | |
| ER814-3 | | | | | 192-62 | | | |
| ER814-4 | | 012-86 | 013-06 | | 196-61 | | | |
| ER814-5 | | | | w/e | 019-90 | | | |
| ER814-5 | | | | | 815-75 | | | |
| ER814-6 | | | | | 209-83 | | | |
| ER814-7 | | | | w\e | | | | |
| ER814-7 | | | | 250-53 | | | | |
| ER814-8 | | | | | 188-42 | | | |
| ER814-9 | | | | | 197-70 | | | |
| ER815-1 | 204-13 | | | | 204-79 | | | |
| ER815-2 | | | | 208-42 | | | | |
| ER815-2 | A | | | w\e | 290-51 | | | |
| ER815-3 | | | | | 194-83 | | | |
| ER815-4 | | 018-64 | | | 198-80 | | | |
| ER815-5 | | | | | 195-70 | | | |
| ER815-6 | 196-25 | | | | 186-86 | | | |
| ER815-7 | | 010-77 | | | | | | |
| ER815-8 | | | | 202-58 | 190-86 | | | |
| ER815-8 | | | | w/e | 193-66 | | | |
| ER815-9 | | | | | 175-30 | | | |
| ER815-10 | 212-20 | | | | 200-72 | | | |

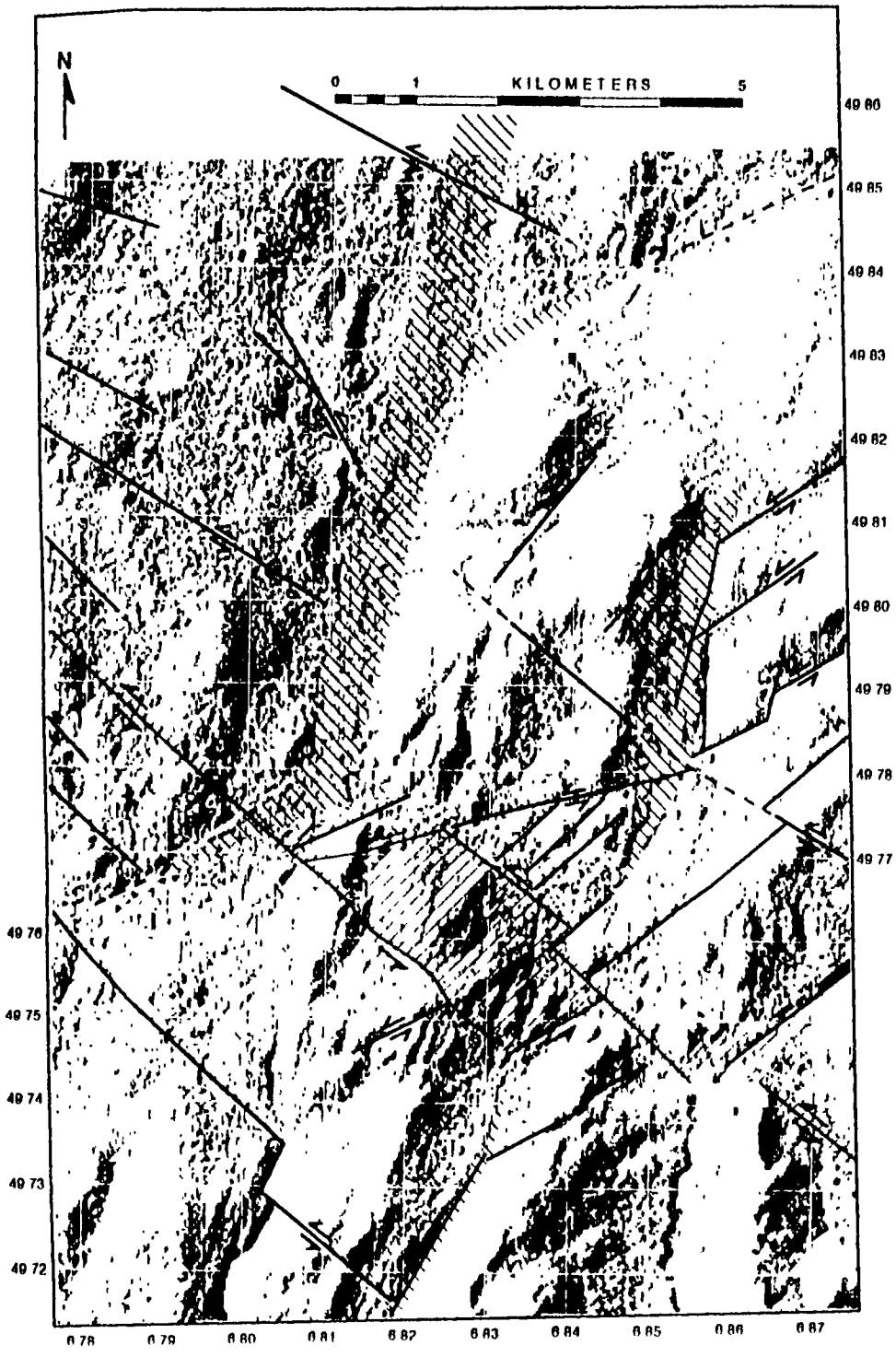



# RICHFORD QUADRANGLE
## FRANKLIN CO. - VERMONT

# SHADED RELIEF

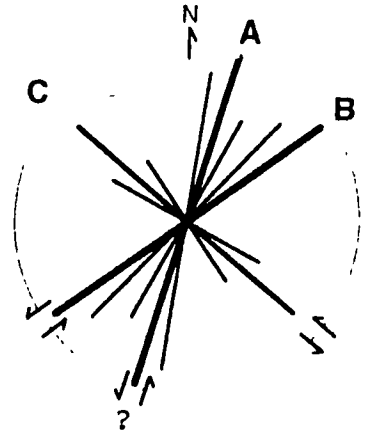
Landscape illuminated from 265° (south of west), with the source 20° above the horizon.

ERIC ROSENCRANTZ 1997

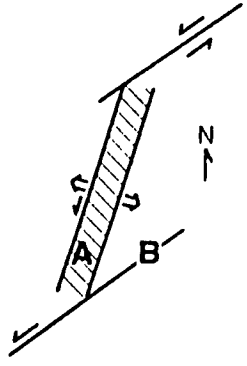


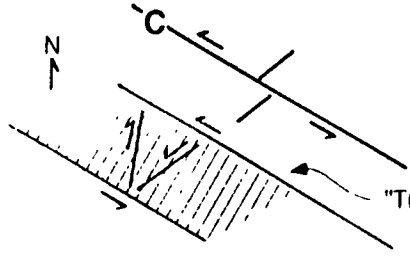

# RICHFORD QUADRANGLE
## FRANKLIN CO - VERMONT

## FAULTS




Early left-lateral displacements along NE-SW trends, with graben development (?) on foliation trend Implies EW extensional regional strain

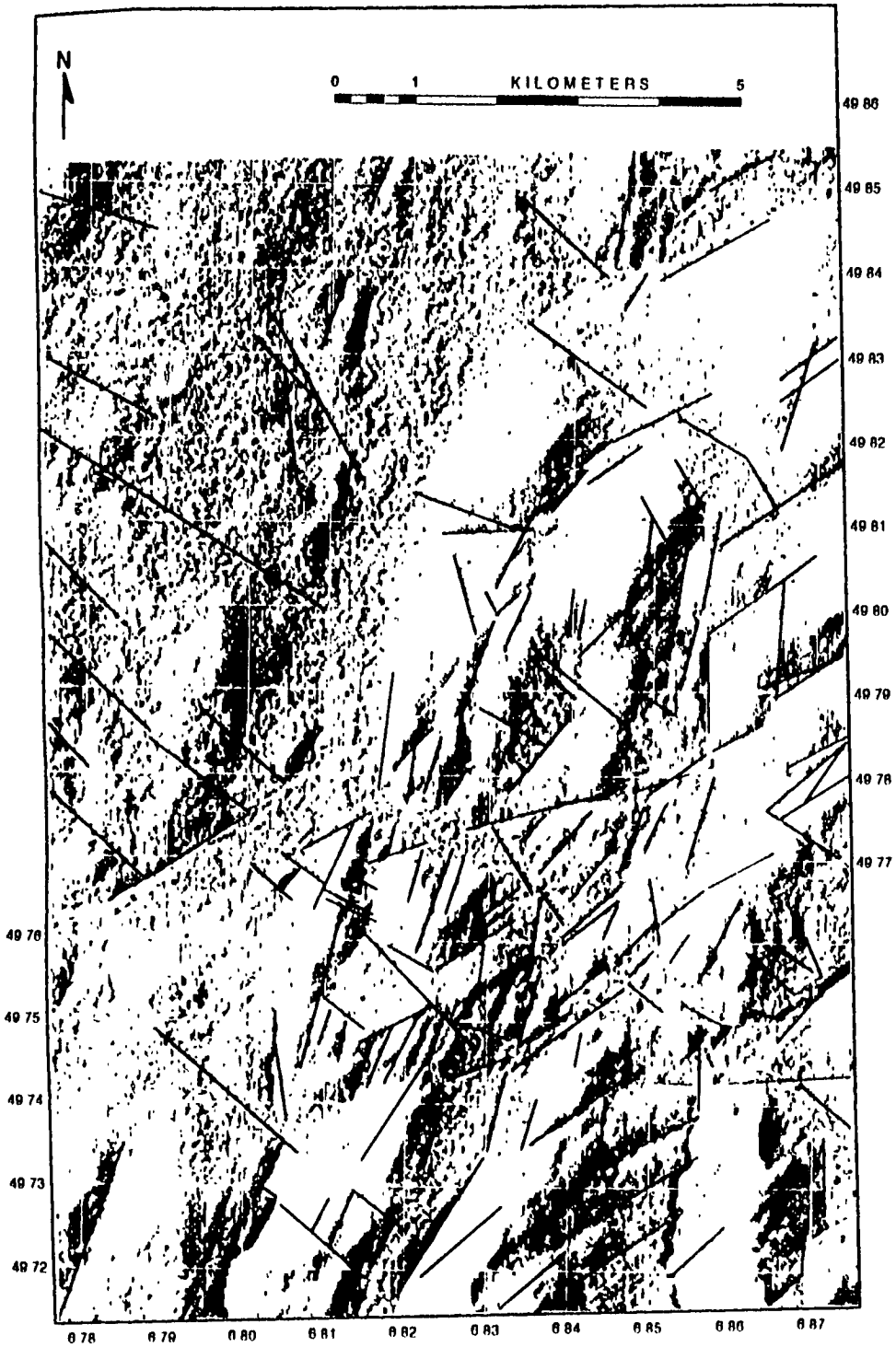



"Trout River" fault complex

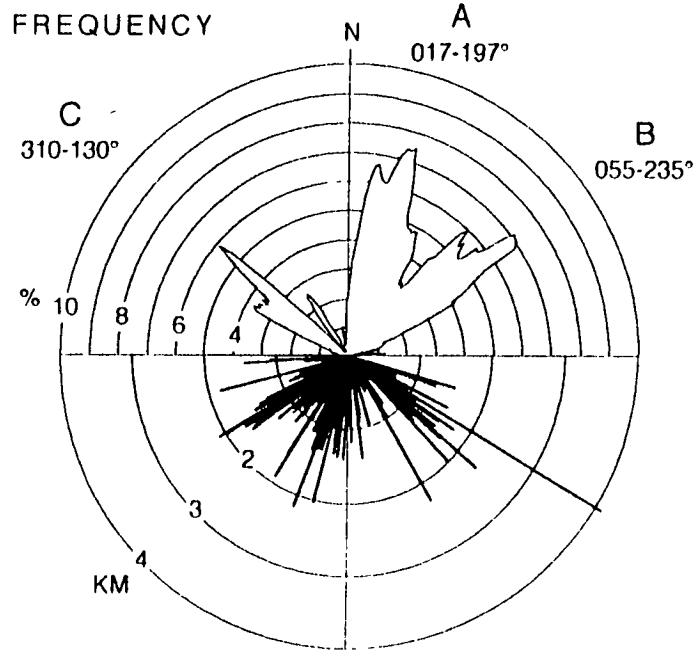
Late left-lateral dispacement along WNW-ESE trends, with reactivation of older faults within "Trout River" step zones Implies EW compressional regional strain.

ERIC ROSENCRANTZ 1997




# RICHFORD QUADRANGLE
## FRANKLIN CO - VERMONT

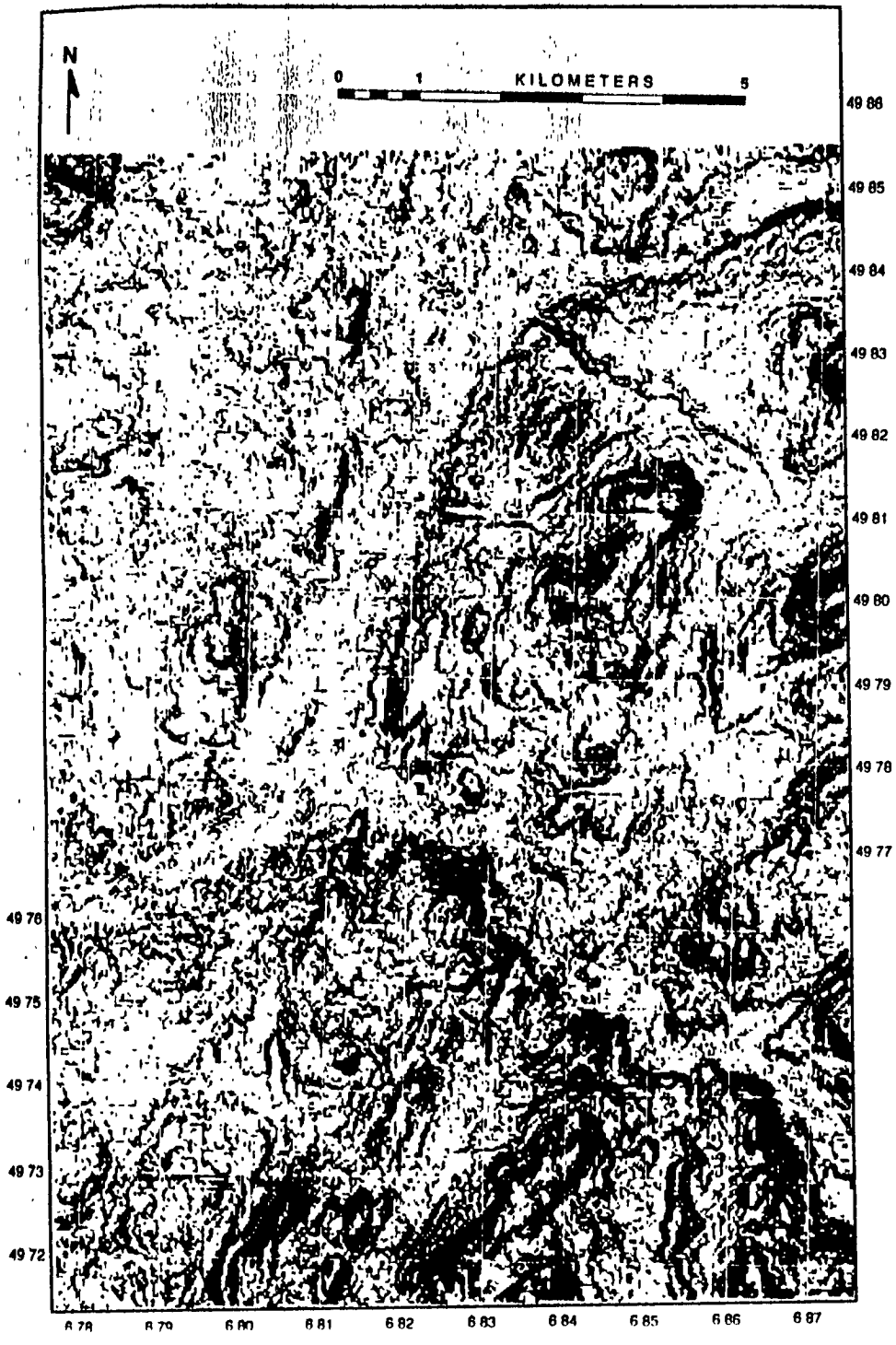
## TOPOGRAPHIC LINEAMENTS




DISTRIBUTION

N = 201

ERIC ROSENCRANTZ 1997

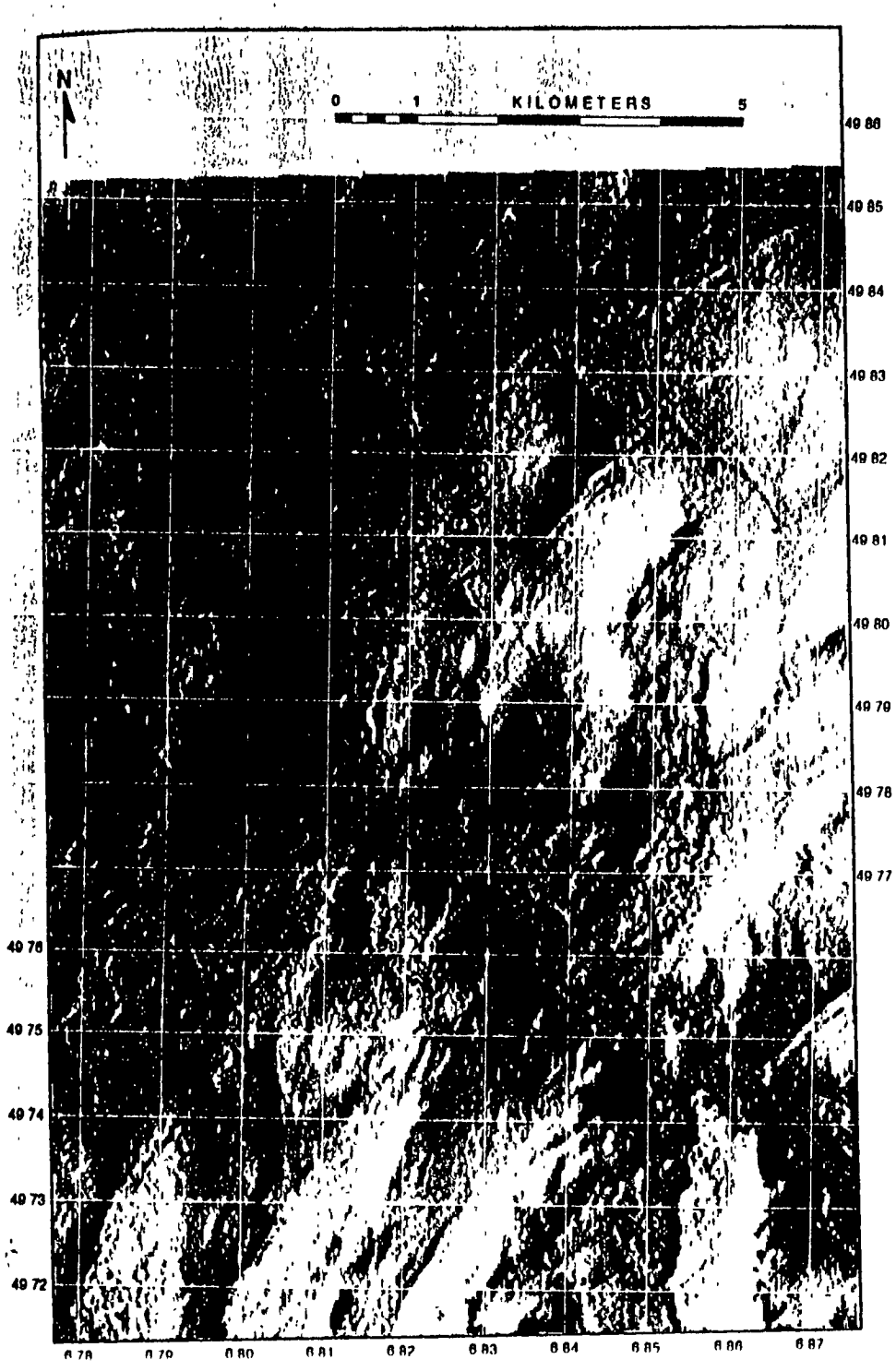



# RICHFORD QUADRANGLE
## FRANKLIN CO. - VERMONT

# TOPOGRAPHIC SLOPE

0 5 10 15 20 25 30 35 40

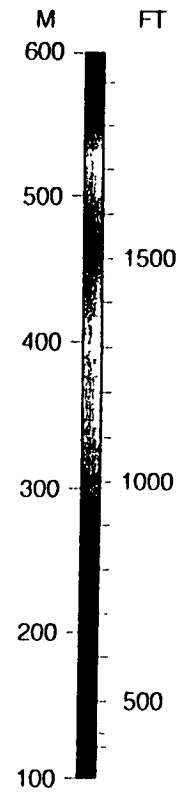
DEGREES FROM HORIZONTAL




# RICHFORD QUADRANGLE
## FRANKLIN CO. - VERMONT

# TOPOGRAPHIC RELIEF

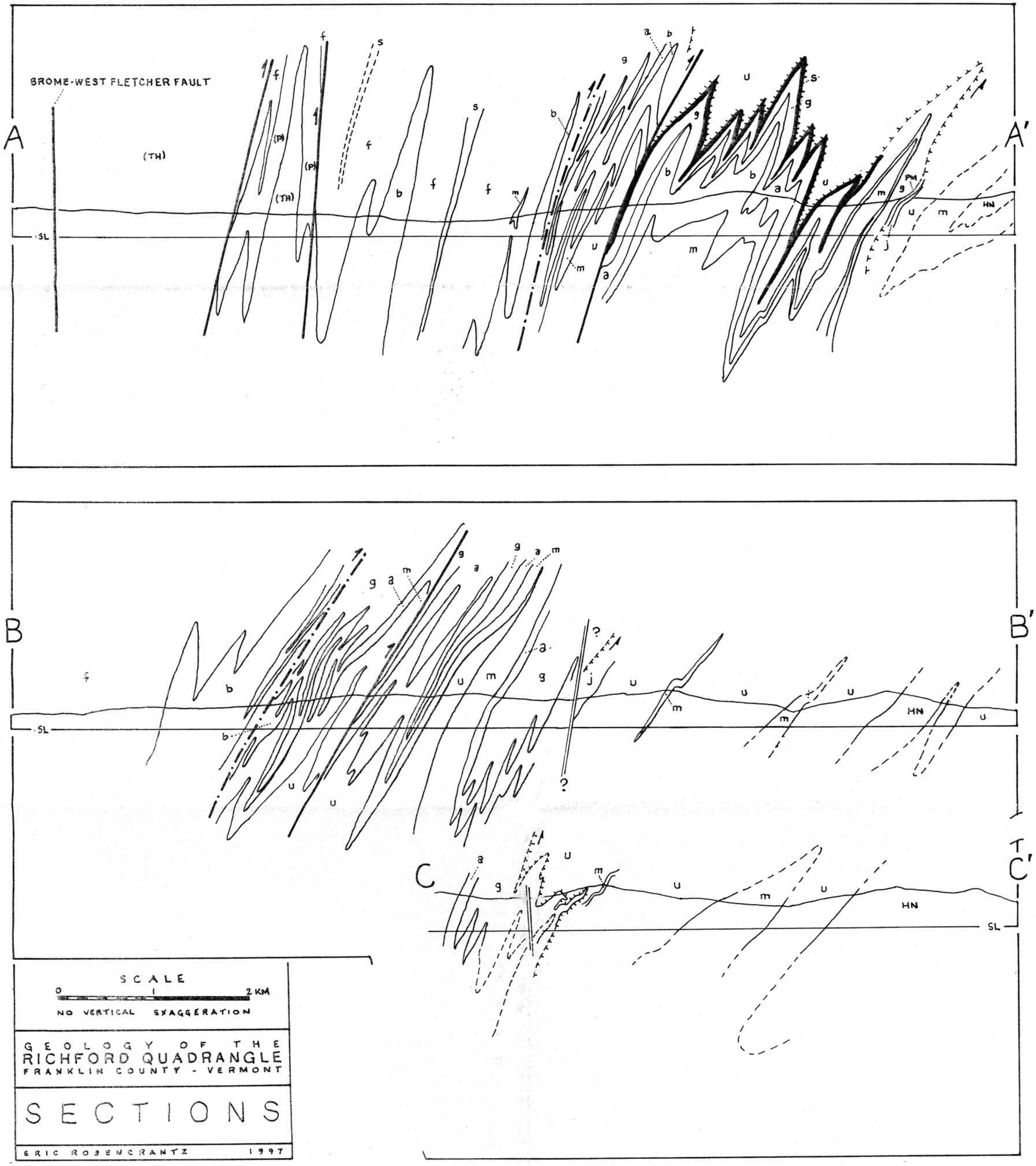
ELEVATION




ILLUMINATION

AZIMUTH. 280°

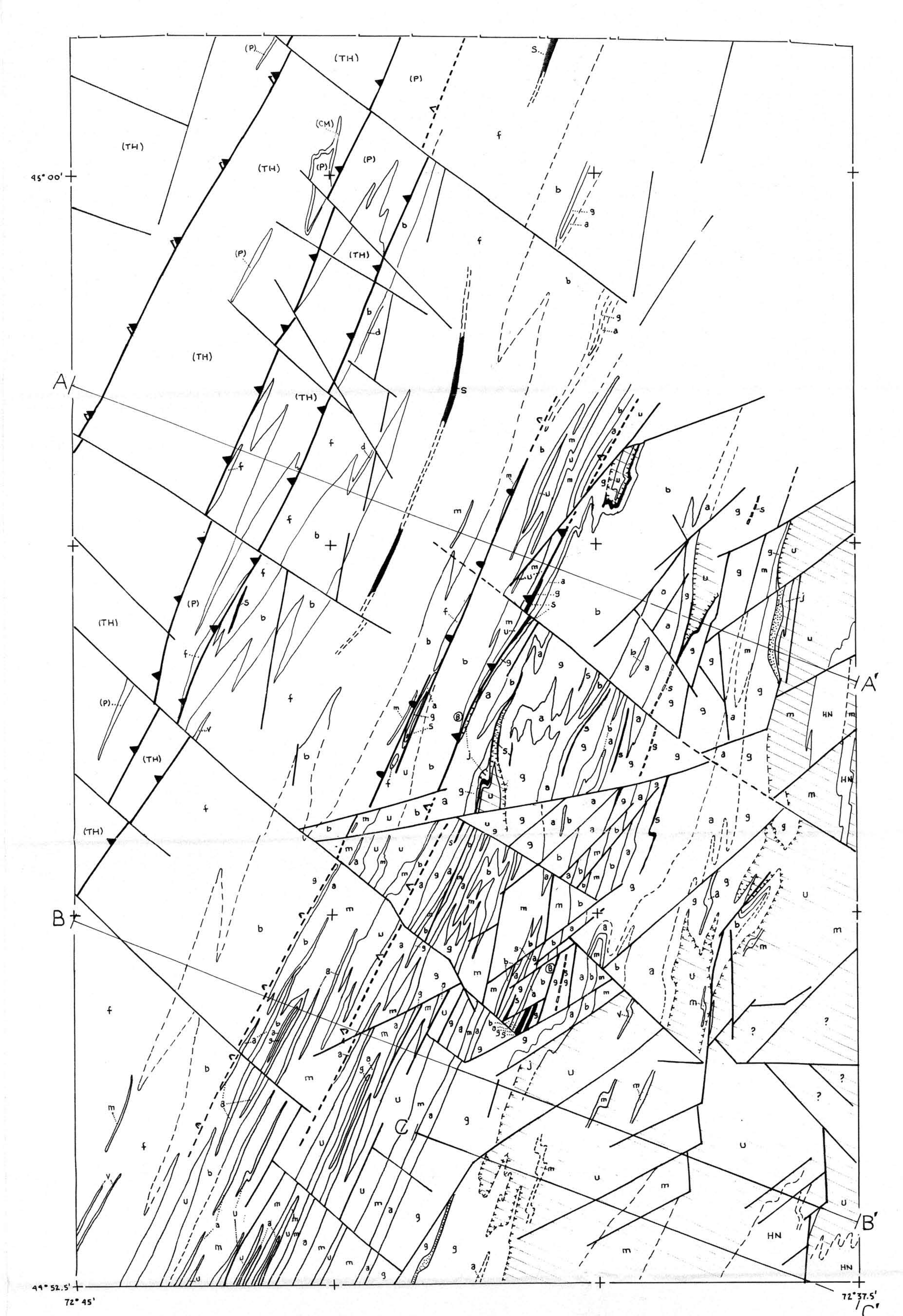
ELEVATION 30°




# GEOLOGY OF THE RICHFORD QUADRANGLE FRANKLIN COUNTY - VERMONT

# SECTIONS

ERIC ROSENCRANTZ 1997




GEOLOGY OF THE
RICHFORD QUADRANGLE
FRANKLIN COUNTY - VERMONT

OVERLAY 1

ERIC ROSENCRANTZ 1997

SCALE
0 1 2 KM

post D3 — FAULT AND/OR MASTER JOINT

D2 — BROME-WEST FLETCHER FAULT ZONE (Schoonmaker, 1997)

D2 — HIGH ANGLE REVERSE FAULT

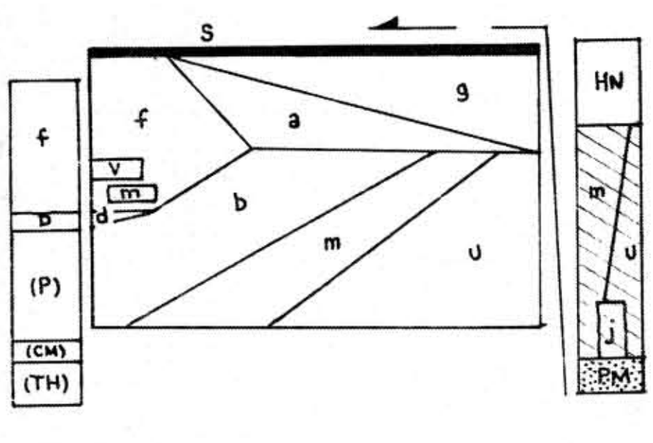
D2 — HIGH ANGLE REVERSE SHEAR

pre D2 — TRACE THRUST HORIZON

# LITHOLOGY/STRUCTURE

S - SWEETSBURG FORMATION
HN HAZENS NOTCH FORMATION
U - UNDERHILL FORMATION
- f - Fairfield Pond unit
- g - graphitic (albitic) unit
- a - albitic unit
- b - blue-gray phyllite unit
- m - magnetitic unit
- u - "undifferentiated" unit
- j - Jay Peak unit
- v - greenstone

D,d - sandy dolomite (WHITE BROOK FORMATION ?)
(P) - PINNACLE FORMATION equivalent (Schoonmaker, 1997)
(CM) - CALL MILL FORMATION equivalent (Schoonmaker, 1997)
(TH) - TIBBIT HILL FORMATION equivalent (Schoonmaker, 1997)
PM - Peaked Mountain greenstone complex
Ⓑ - biotite gneiss



45°00'

NO OUTCROP

NO OUTCROP

NO OUTCROP

44°52.5'

72°45'

72°37.5'

GEOLOGY OF THE
RICHFORD QUADRANGLE
FRANKLIN COUNTY - VERMONT

OVERLAY 2

ERIC ROSENCRANTZ 1997

# MAPPED OUTCROP

45°00'

44°52.5'

72°45'

72°37.5'

# GEOLOGY OF THE RICHFORD QUADRANGLE
FRANKLIN COUNTY - VERMONT

## OVERLAY 3

ERIC ROSENCRANTZ 1997

# $S_2$ SCHISTOSITY

45° 00'

44° 52.5'

72° 45'

72° 37.5'

# GEOLOGY OF THE RICHFORD QUADRANGLE FRANKLIN COUNTY - VERMONT

## OVERLAY 4

ERIC ROSENCRANTZ 1997

# $S_3$ CLEAVAGE

45° 00'

44° 52.5'

72° 45'

72° 37.5'

# GEOLOGY OF THE RICHFORD QUADRANGLE
FRANKLIN COUNTY - VERMONT

## OVERLAY 5

ERIC ROSENCRANTZ 1997

## LINEATION STRUCTURE

- 9 — TREND AND PLUNGE OF $F_3$ FOLD AXES
- 56 — TREND AND PLUNGE OF $F_2$ FOLD AXES
- 66 — TREND AND PLUNGE OF QUARTZ RODDING
- 32 — TREND AND PLUNGE OF LINEATIONS DEFINED BY THE INTERSECTION OF $S_2$ AND $S_3$ AXIAL PLANE FOLIATIONS
- 71 — TREND AND PLUNGE OF MINERAL LINEATION