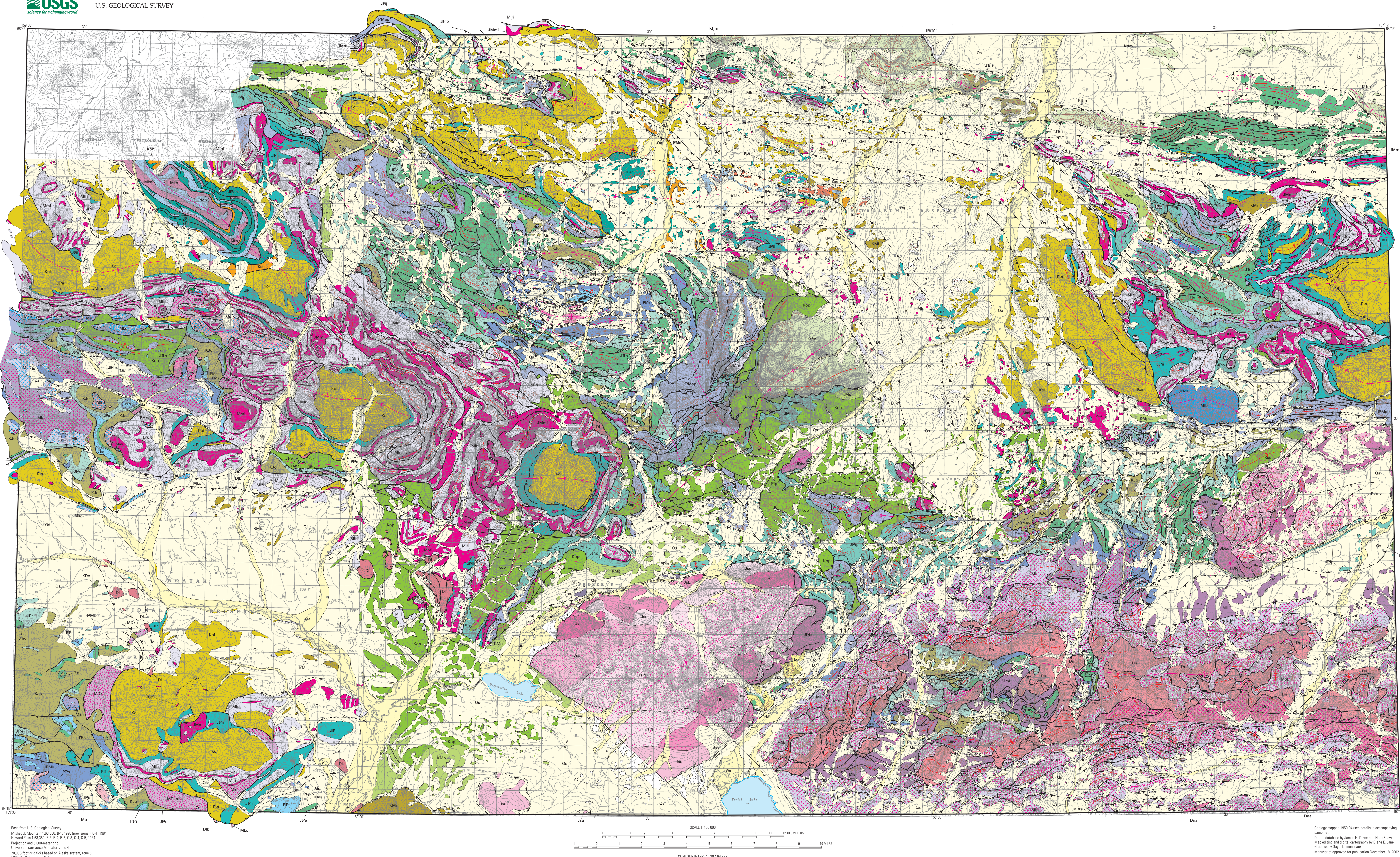




- LIST OF MAP UNITS
- SUBICIAL MATERIALS (QUATERNARY)
- Qa Main stream alluvium
 - Qs Surficial deposits, undivided
 - Qp Glacial deposits, undivided
- FOREDEEP DEPOSITS OF THE COVILLE BASIN (LOWER CRETACEOUS)
- Kfm Tonk Shale and Fortness Mountain Formation, undivided (Alban and Aptian)
- ENDICOTT SEQUENCE (LOWER CRETACEOUS TO DEVONIAN)
- Kls Rocks of the Endicott sequence, undivided (Lower Cretaceous (Neocomian) to Devonian)
 - Klsb Oglituk Formation (Lower Cretaceous (Valanginian) to Upper Jurassic (Pennsylvanian))
 - JPs Enikuk Group (Middle Jurassic to Pennsylvanian)
 - JPs Enikuk Formation (Middle Jurassic to Triassic)
 - PPs Skidupuk Formation (Permian to Pennsylvanian)
 - PPs Lihou Group (Permian and Mississippian)
 - PPs Volcaniclastic rocks (Pennsylvanian and Mississippian)
 - PPs Kana Formation (Lower Pennsylvanian and Mississippian)
 - PPs Kana Basin (Upper and Lower Mississippian)
 - PPs Rough Mountain Creek unit of Danudina and Harris, 1997 (Lower Mississippian)
 - PPs Endicott Group (Lower Mississippian and Upper Devonian)
- Key Creek facies
- Km Kana Shale (Lower Mississippian)
 - Lm Limestone unit of Kana Shale (Lower Mississippian)
 - Im Unit of Mull and Worden (1994) and Kana Shale, undivided (Lower Lower Mississippian)
 - Imv Volcanic-rich part of Im unit of Mull and Worden (1994) and Kana Shale, undivided (Lower Lower Mississippian)
 - MCs Kanayut Conglomerate and Nooka Sandstone, undivided (Lower Mississippian and Upper Devonian)
 - MCs Kanayut Conglomerate (Lower Mississippian) and Upper Devonian
 - Dn Nooka Sandstone (Upper Devonian)
 - Am Amuk River facies
 - Mi Unit of Mull and Worden (1994) (Lower Mississippian)
 - MCs Kanayut Conglomerate (Lower Mississippian) and Upper Devonian
 - MCs Nooka Sandstone (Upper Devonian)
- PICNIC CREEK SEQUENCE (CRETACEOUS TO MISSISSIPPIAN)
- Klsb Rocks of the Picnic Creek sequence, undivided (Lower Cretaceous (Neocomian) to Mississippian)
 - Klsb Oglituk Formation (Lower Cretaceous (Valanginian) to Pennsylvanian)
 - JPs Inimukuk Chert of Enikuk Group (Jurassic to Pennsylvanian)
 - PPs Alutsk Chert of Lihou Group (Pennsylvanian and Mississippian)
- KELLY RIVER SEQUENCE (CRETACEOUS TO DEVONIAN)
- Klsb Oglituk Formation (Lower Cretaceous (Valanginian) to Devonian)
 - Lm Lihou Group (Mississippian)
 - PPs Kana Formation
 - PPs Unukuk Formation
 - PPs Limestone (Devonian)
- SPUNKY RIVER SEQUENCE (CRETACEOUS TO MISSISSIPPIAN)
- Klsb Rocks of the Spunky River sequence, undivided (Cretaceous to Mississippian)
 - Klsb Oglituk Formation (Lower Cretaceous (Valanginian) to Devonian)
 - PPs Tuff (Cretaceous)
- Made silt and dikes (Jurassic? to Mississippian?)
- Imv Inimukuk Chert of Enikuk Group (Jurassic to Pennsylvanian)
 - Mi Rm Basin unit of Lihou Group of Danudina and Harris (1993) (Mississippian)
 - Mi Kana Shale of Endicott Group (Lower Mississippian)
- SEQUENCE AFFINITY UNCERTAIN
- Lm Limestone (Devonian)
- NUKA RIDGE SEQUENCE (CRETACEOUS TO MISSISSIPPIAN)
- Klsb Rocks of the Nuka Ridge sequence, undivided (Cretaceous to Mississippian)
 - Klsb Oglituk Formation (Lower Cretaceous (Valanginian) to Pennsylvanian)
 - PPs Enikuk Group (Middle Jurassic to Pennsylvanian)
 - PPs Nuka Formation (Pennsylvanian and Mississippian)
 - Mi Kana Shale of Endicott Group (Lower Mississippian)
- COOPER PEAK SEQUENCE (CRETACEOUS TO DEVONIAN)
- Klsb Volcaniclastic rocks of Monowick Creek (Cretaceous? and Jurassic?)
 - MCs Basalt (Jurassic? to Devonian?)
 - PPs Limestone (Permian and Devonian)
- MESHEGUK SEQUENCE (MIDDLE JURASSIC)
- MCs Igneous complex of Mesheguk Mountains, undivided (Middle Jurassic)
 - PPs Basalt (Jurassic? to Devonian?)
 - PPs Diabase
 - PPs Monowick gabbro
 - PPs Layered gabbro
 - PPs Dunitic and harzburgite
- CONTACT—Dashed where approximately located
- TRACE OF BEDDING—Interpreted from aerial photographs
- HIGH-ANGLE FAULT OF UNKNOWN TYPE OR HAVING PREDOMINANTLY VERTICAL MOVEMENT—Dot and bar on downthrown side; where relative displacement known, dashed where approximately located, dotted where concealed under surficial cover
- STRATIFORMLY SLIP-FAULT—Fault having predominantly left-lateral movement; arrows show sense of relative displacement. Dotted where concealed under surficial cover
- MAJOR SEQUENCE-BOUNDING THRUST FAULT—Scale thrust meeting base of major allochthonous stratigraphic wedge
- INTRASEQUENCE THRUST FAULT—Indicate thrust faults of variable displacement within a thrust sequence; interpreted to have formed mainly during allochthon emplacement and to merge with the side thrust of the sequence in which it occurs. Associated with overturned or recurrent folds, in places. Indicate faulting and associated folding according to appropriate internal shearing within most allochthonous sequences
- ASIAL TRACE OF MAJOR LATE CRETACEOUS OR YOUNGER FOLD THAT DEFORMS SEQUENCE BOUNDARIES—Arrows show direction of dip and plunge, where known; dotted where concealed under surficial cover
- SYNCLINE
- OVERTURNED OR RECURRENT SYNCLINE
- FORM UNCERTAIN
- ASIAL TRACE OF MAJOR EARLY CRETACEOUS OR OLDER INTRASEQUENCE FOLD—Arrows show direction of dip and plunge, where known; dotted where concealed under surficial cover
- SYNCLINE
- OVERTURNED OR RECURRENT SYNCLINE
- FORM UNCERTAIN
- LANDSLIDE—Fluctures point into the landslide deposit
- UNIDENTIFIED BEDROCK
- BETTE DEPOSIT—Occurs locally in Alutsk Chert of Picnic Creek sequence
- CORRECTION DEPOSIT—Occurs locally in Oglituk Formation of Endicott sequence

GEOLOGY

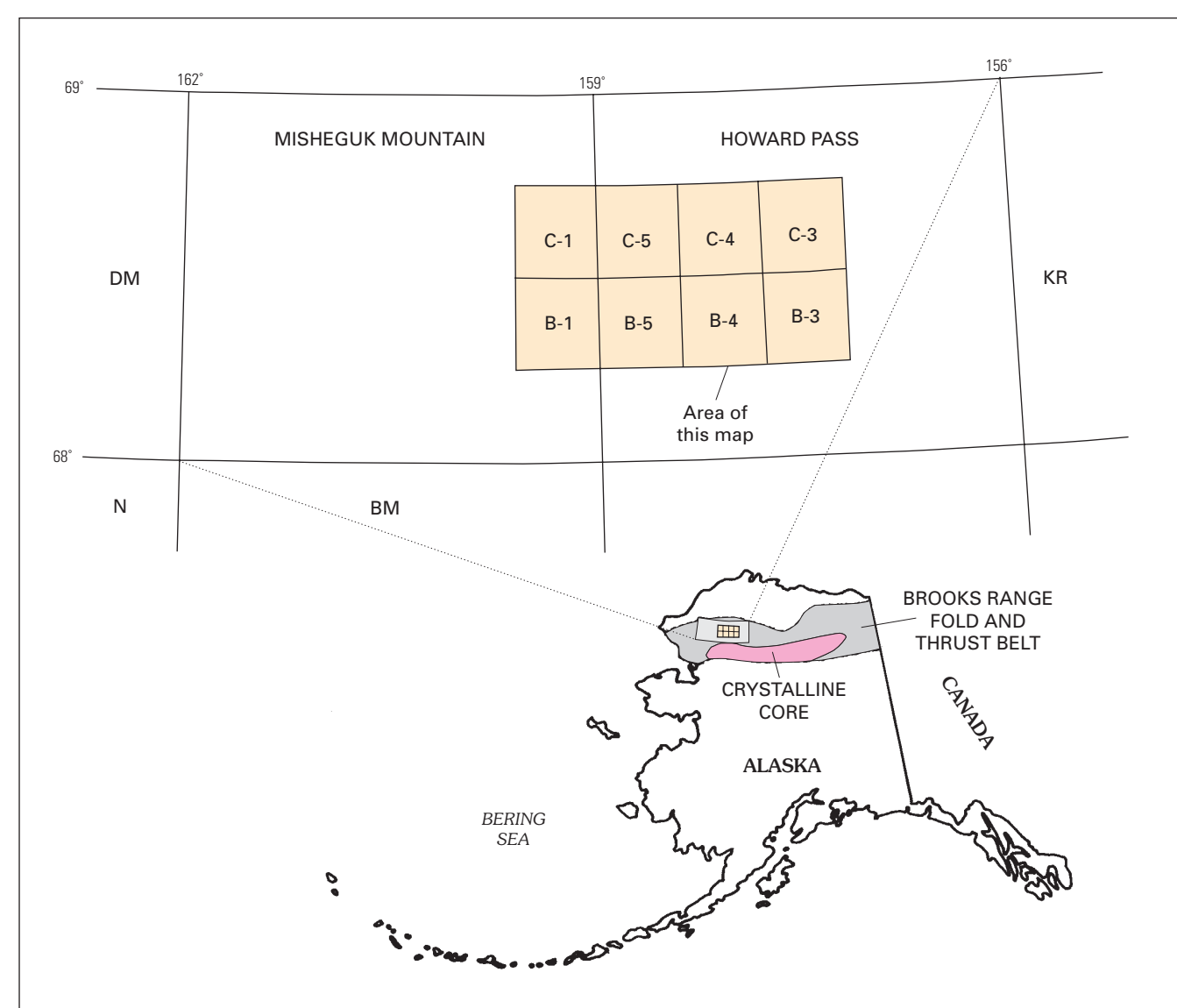


Figure 1. Location of map area, showing extent of the Howard Pass and Misheguk 1:250,000 quadrangles, the 1:63,360 quadrangles that make up the topographic base for this map, and the Brooks Range origin in northern Alaska. Adjacent 1:250,000 quadrangles: BM, Bent Mountains; DM, Delt Mountains; KR, Kana River; N, Nooka.

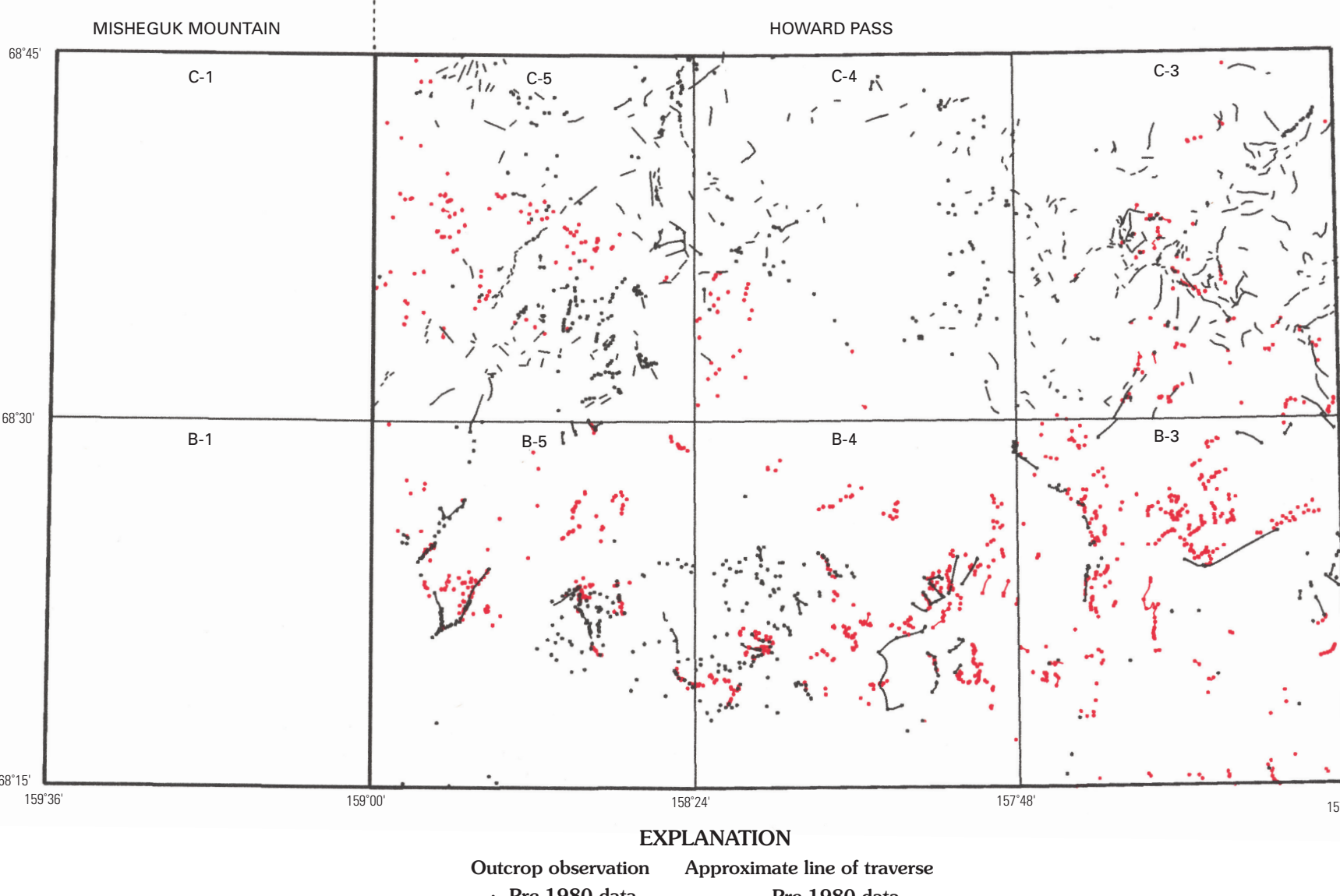


Figure 2. Distribution of field stations in the Howard Pass B-3-B-5 and C-3-C-5 quadrangles (scale 1:63,360). Mapping shown in Misheguk Mountain B-1 and C-1 quadrangles based on Miller (1984).

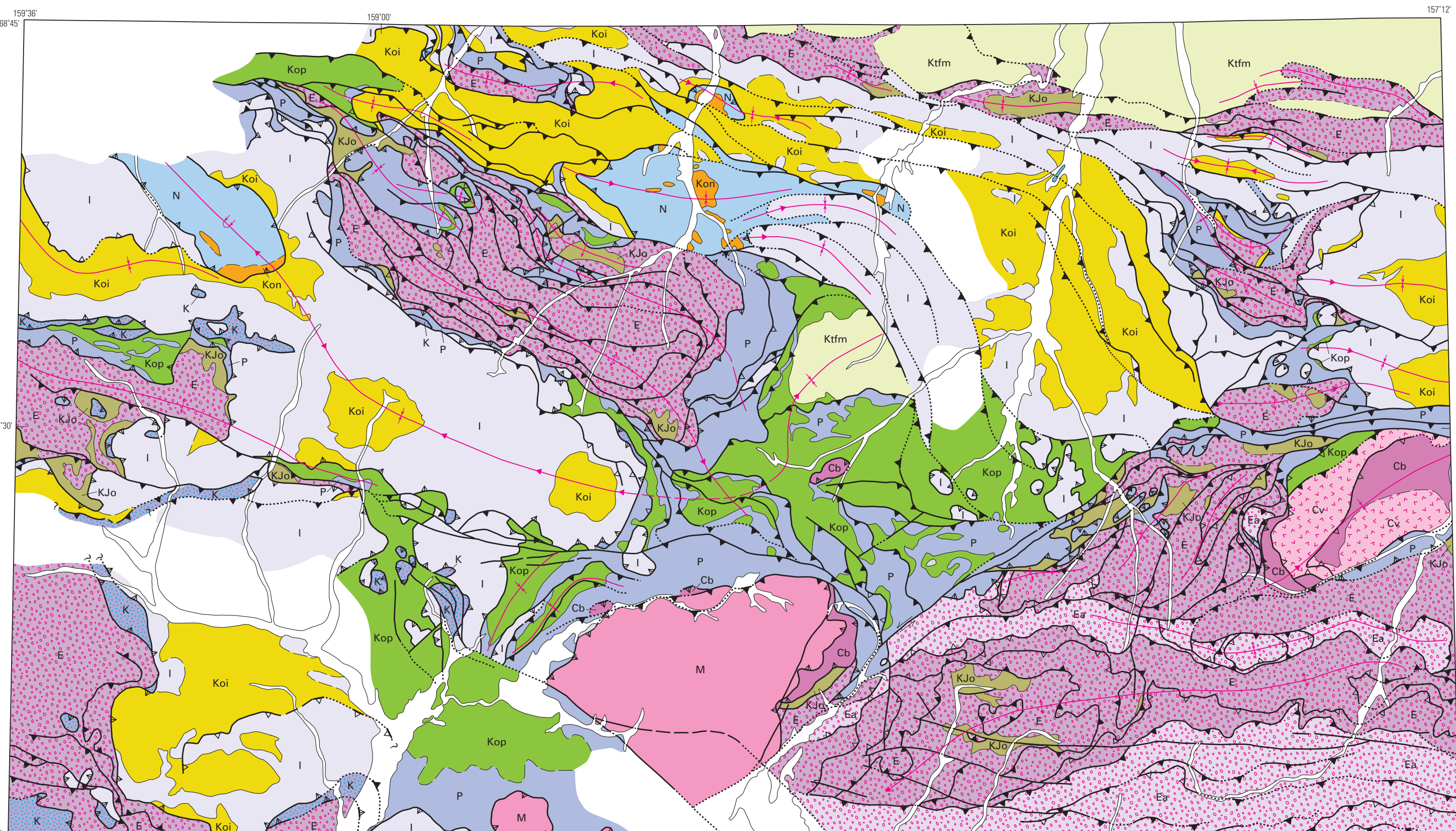


Figure 3. Simplified tectonic map showing distribution of thrust sequences. Smaller map shows major structural features.

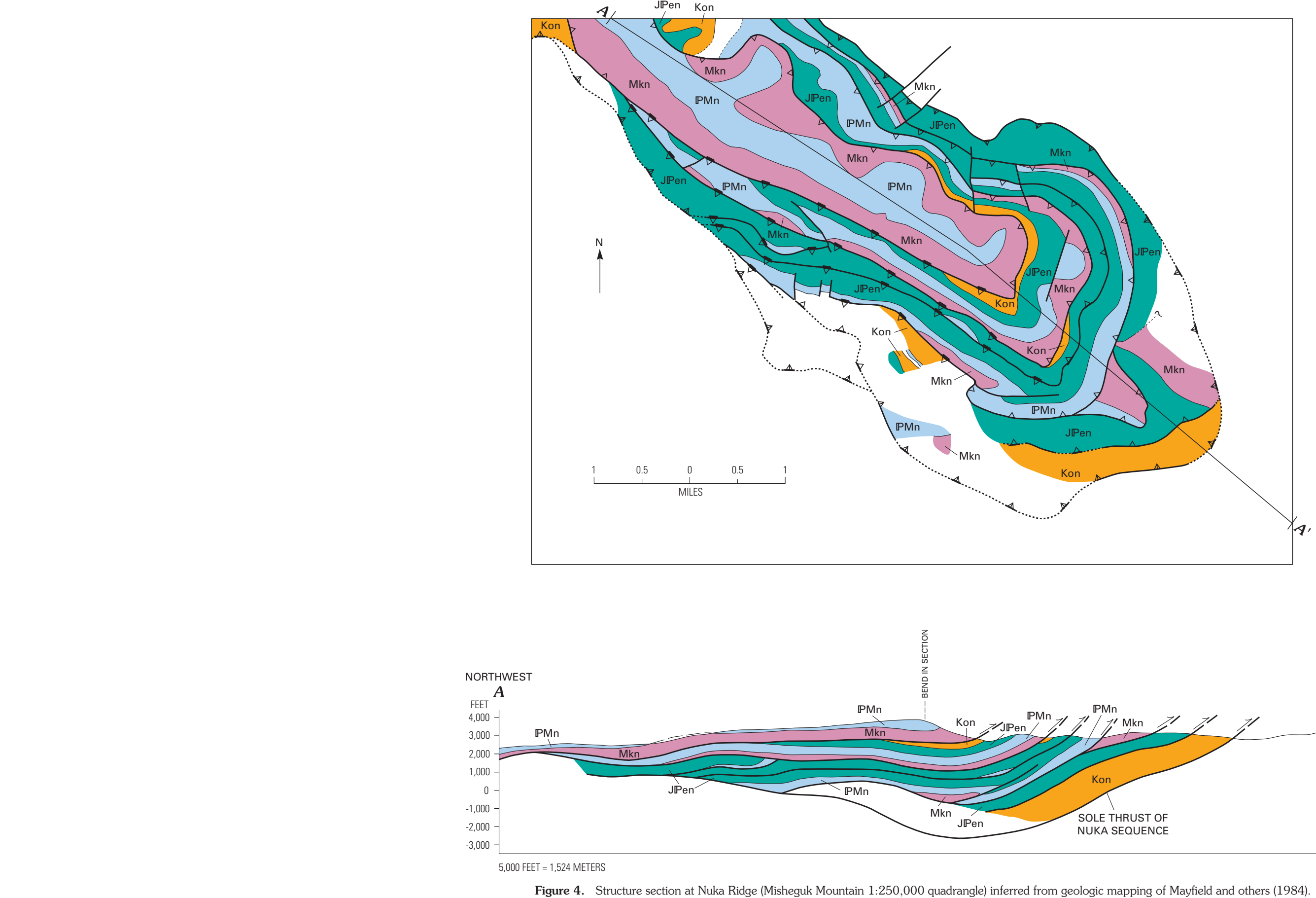
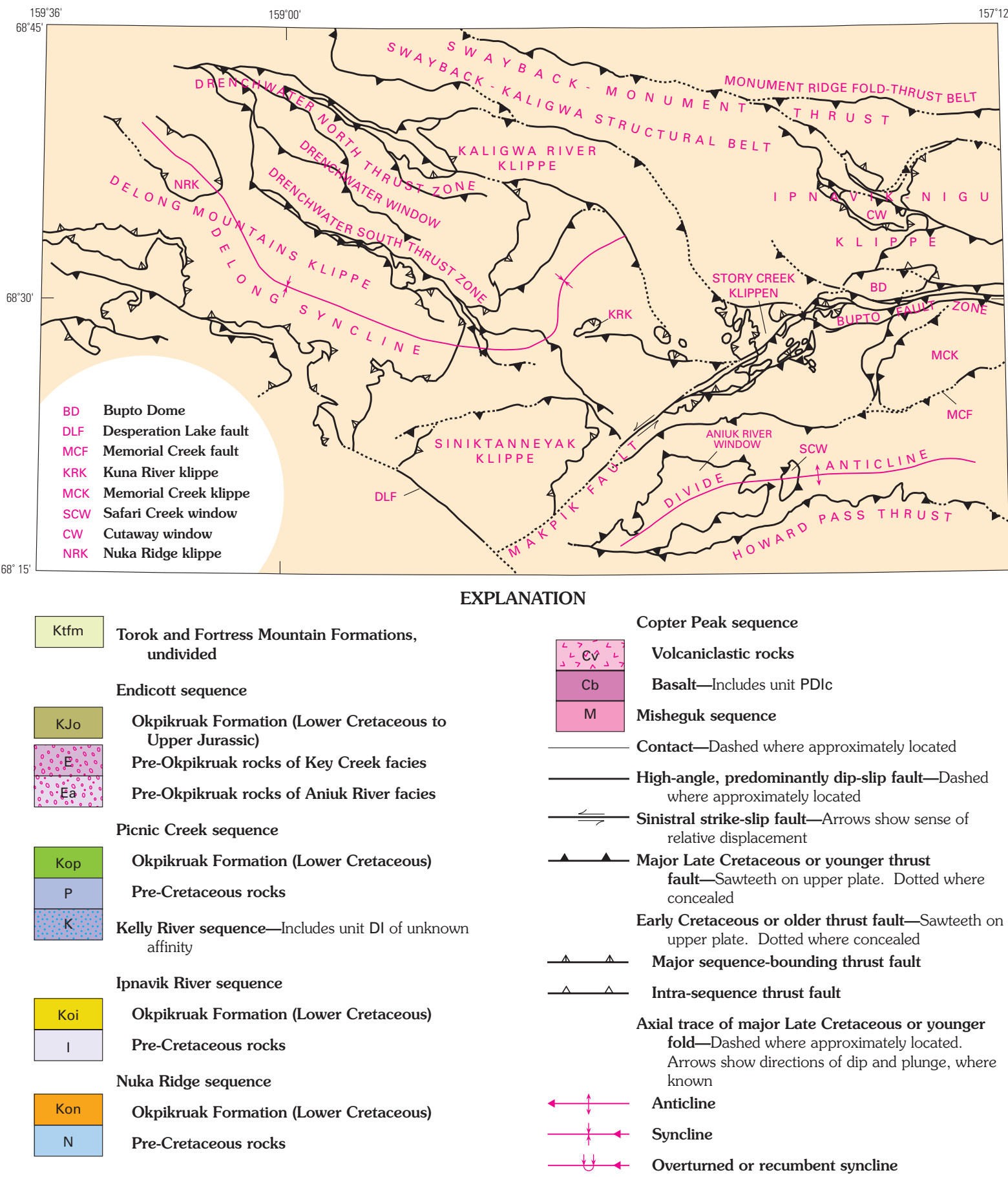
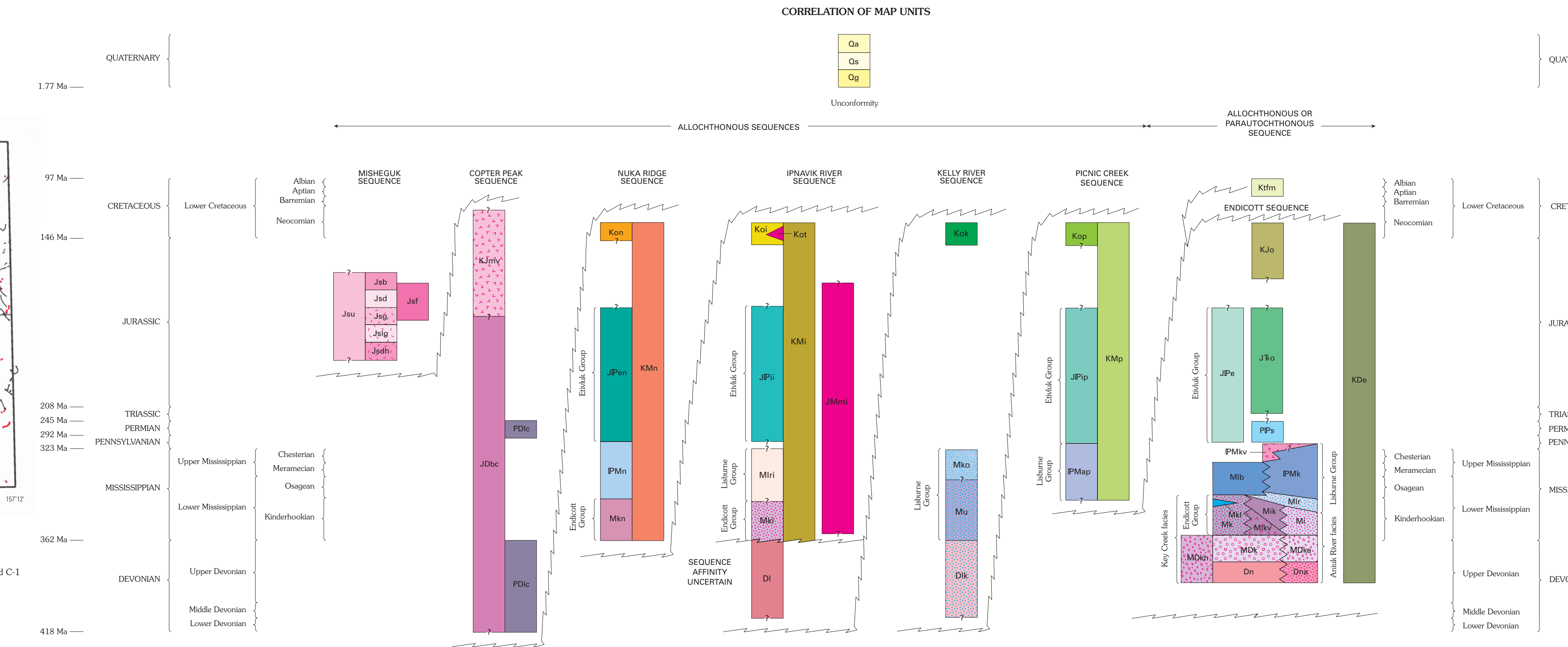


Figure 4. Structure section at Nuka Ridge (Misheguk Mountain 1:250,000 quadrangle) inferred from geologic mapping of Mayfield and others (1984).

GEOLOGIC AND FOSSIL LOCALITY MAPS OF THE WEST-CENTRAL PART OF THE HOWARD PASS QUADRANGLE AND PART OF THE ADJACENT MISHEGUK MOUNTAIN QUADRANGLE, WESTERN BROOKS RANGE, ALASKA

By James H. Dover, Irvin L. Tailleux, and Julie A. Dumoulin 2004