



### EXPLANATION

The metamorphic scheme used to compile this map (Zwart and others, 1967, fig. 4, table 1) is based on pressure and temperature sensitive metamorphic minerals. Metamorphic rocks are divided into three facies groups based on increasing temperature: (1) low-pressure, low-temperature facies (LPT), shown in shades of gray and tan; (2) intermediate-pressure facies (IPF), shown in shades of green and yellow; and (3) high-pressure facies (HPF), shown in shades of red and purple. The LPT facies group is subdivided into low-pressure, low-temperature facies (LPL) and intermediate-pressure facies (LPI). The IPF facies group is subdivided into intermediate-pressure facies (IPI) and high-pressure facies (IPH). The HPF facies group is subdivided into high-pressure facies (HPH) and ultrahigh-pressure facies (HPU). The metamorphic facies are defined on the basis of pressure,  $P$ , in kilobars (kbar), and temperature,  $T$ , in degrees Celsius ( $^{\circ}C$ ).

### USE OF METAMORPHIC COLOR PATTERNS AND SYMBOLS

- GN (GN)** Metamorphic facies designation—Age or locality of metamorphism given in parentheses. Letters preceding ages, 1 km, or mile, or both, p. p. For example, GN (GN) indicates granulite facies metamorphism occurred sometime during middle Paleozoic to Early Cretaceous time.
- GN (GN)** Undifferentiated granulite and amphibolite facies
- GN (GN)** Undifferentiated intermediate and high-pressure granulite facies
- GN (GN)** Transitional between two facies groups—Lower grade facies shown first
- GN (GN)** Transitional between prehnite-pumpellyite and greenschist facies
- GN (GN)** Two phases—Color given first
- GN (GN)** Vertical sequence—Color given (GN) (GN)
- GN (GN)** Horizontal sequence—Younger phase (GN) (GN)

### GRANITIC AND OTHER ROCK SYMBOLS

- GN** Surface deposits (Quaternary)
- GN** Postmetamorphic granitic rocks—Late Tertiary, Tertiary, or Cretaceous
- GN** Early Tertiary, Tertiary, or Cretaceous
- GN** Cretaceous, Early Cretaceous, and Jurassic
- GN** Systematic and systematic granitic rocks
- GN** Jurassic
- GN** Ultramafic rocks—List may also include associated gabbroic rocks—Jurassic?, and Mesozoic and Tertiary

### LINE SYMBOLS

- GN** Contact on boundary between metamorphic facies—Dashed where approximately located
- GN** High-angle fault—Dashed where approximately located, dotted where concealed, quartered where unknown. Arrows show relative horizontal movement
- GN** Thrust fault—Dashed where approximately located, dotted where concealed, quartered where unknown. Swath on upper plate
- GN** Low-angle fault—Most recent movement is known to be or may have been extensional. Swath on upper plate
- GN** Contact metamorphic aureole—Approximately 1 km or more in width
- GN** UNIMAK 1:250,000-scale quadrangle—Boundary, name, and map reference number
- GN** Glacier—May be partly or completely shown with color of unit inferred to underlie glacier

### ABBREVIATED DESCRIPTION OF METAMORPHIC UNITS

(See text for more detailed information)

- GN (GN)** Amphibolite facies meta-igneous and metamorphic rocks that later were affected by a thermal disturbance, interpreted as granulite facies metamorphism—See unit description in Black and Alaska Mesozoic section
- GN (GN)** Greenish facies meta-igneous and metamorphic rocks—Foliated meta-igneous rocks, pelitic schist, calcareous schist, quartzite, amphibolite, and marble, all of probable Paleozoic age, and mafic metasedimentary rocks of Late Paleozoic to Early Cretaceous age
- GN (GN)** Greenish facies meta-igneous and metamorphic rocks—Phyllite, greenschist, pelitic and calcareous schist, quartzite, metabasite, and marble of Paleozoic and probable Paleozoic age; metabasite, metabasite, and marble of Paleozoic and Early Cretaceous age
- GN (GN)** Prehnite-pumpellyite facies meta-igneous and metamorphic rocks—Metabasite, metabasite, metabasite, metabasite, and marble of Late Tertiary and Early Cretaceous age
- GN (GN)** Intermediate and locally high-pressure greenschist facies meta-igneous and metamorphic rocks—Quartzite, schist, quartzite, phyllite, calcareous schist, and mafic metasedimentary rocks of Paleozoic and Early Cretaceous age, and metabasite, metabasite, and marble of Paleozoic age; metabasite, metabasite, and marble of Paleozoic and Early Cretaceous age
- GN (GN)** Prehnite-pumpellyite facies greenschist, metabasite, and altered mafic intrusive rocks—Protholite, metabasite, metabasite, metabasite, and marble of Paleozoic age

### CENTRAL AND SOUTHERN ALASKA RANGE AND ALASKA PENINSULA

- GN (GN)** Greenish facies gneiss, quartzite, schist, phyllite, metabasite, and metabasite—Protholite include Paleozoic and Tertiary Paleozoic and Cretaceous Paleozoic rocks
- GN (GN)** Prehnite-pumpellyite and (or) greenschist facies meta-igneous rocks, metabasite, metabasite, and metabasite—Protholite include Paleozoic and Tertiary Paleozoic rocks
- GN (GN)** Prehnite-pumpellyite facies meta-igneous rocks, metabasite, metabasite, and metabasite—Protholite include Paleozoic and Tertiary Paleozoic rocks
- GN (GN)** Greenish facies meta-igneous and metamorphic rocks, metabasite, and metabasite—Protholite include Paleozoic and Tertiary Paleozoic rocks
- GN (GN)** Undifferentiated greenschist and amphibolite facies meta-igneous and mafic meta-igneous rocks—Protholite include Paleozoic and Tertiary Paleozoic rocks
- GN (GN)** Lamprophyre facies meta-igneous and metamorphic rocks—Protholite include Paleozoic and Tertiary Paleozoic rocks

**METAMORPHIC FACIES MAP OF SOUTHWESTERN ALASKA AND THE ALASKA PENINSULA**  
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