

# Nanga Parbat-Haramosh Massif

## Geological Map

### Map Units

- Glacier
- Unconsolidated sediment (outside main glacier bodies)
- Jalipur sandstone, conglomerate

### Kohistan-Ladakh Series Rocks

- Less-deformed mafic rocks: amphibolite, metabasite, metadiorite/gabbro, etc.
- Strongly foliated to mylonitic mafic gneisses of the Main Mantle Thrust shear zone
- from TM image interpretation - ultramafics/serpentine
- hornblende diorite/quartz diorite

### Rocks of the Indian metasedimentary "cover" and Himalayan mylonite zones

- Marbles, calc-schists, and pelitic schists, interlayered with large amphibolite/mafic gneiss sheets and boudins
- Metapelitic schists (typically garnetiferous) interlayered with lesser marbles, amphibolites, graphitic schists, and psammitic schists (the latter mostly in the upper part). Minor ultramafic and eclogite inclusions (melange). red diagonal lines - contains abundant deformed granite sheets
- Large amphibolite sheet in east Indus Gorge section. Local ultramafic rock at base. Possibly ophiolite-derived.
- Grey porphyroclastic mylonitic quartzofeldspathic gneisses (porphyroclasts sparse to moderate abundance, and small)
- Megacrystic feldspar-porphyroclastic garnetiferous mylonitic gneisses. Coarse and abundant megacrysts. Locally lower-strain (near Rama Valley)
- Planar-foliated, non-porphyroclastic, very highly strained mylonitic gneisses (quartzofeldspathic, pelitic)

### Plutonic Rocks of the Raikhot-Diamir and Rupal-Chhichi Shear Zones

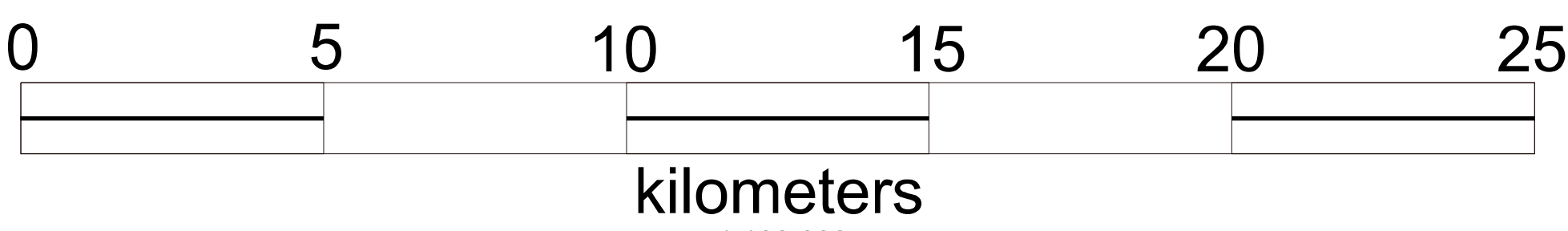
- K-feldspar porphyroclastic gneisses, mostly S/C mylonite fabrics (coarse and abundant porphyroclasts)
- Biotite Granite with abundant and distinctively clumped biotite aggregates (Jahari Granite). Much is moderately to strongly foliated, with asymmetric shear zone fabrics

### Other Plutonic Rocks

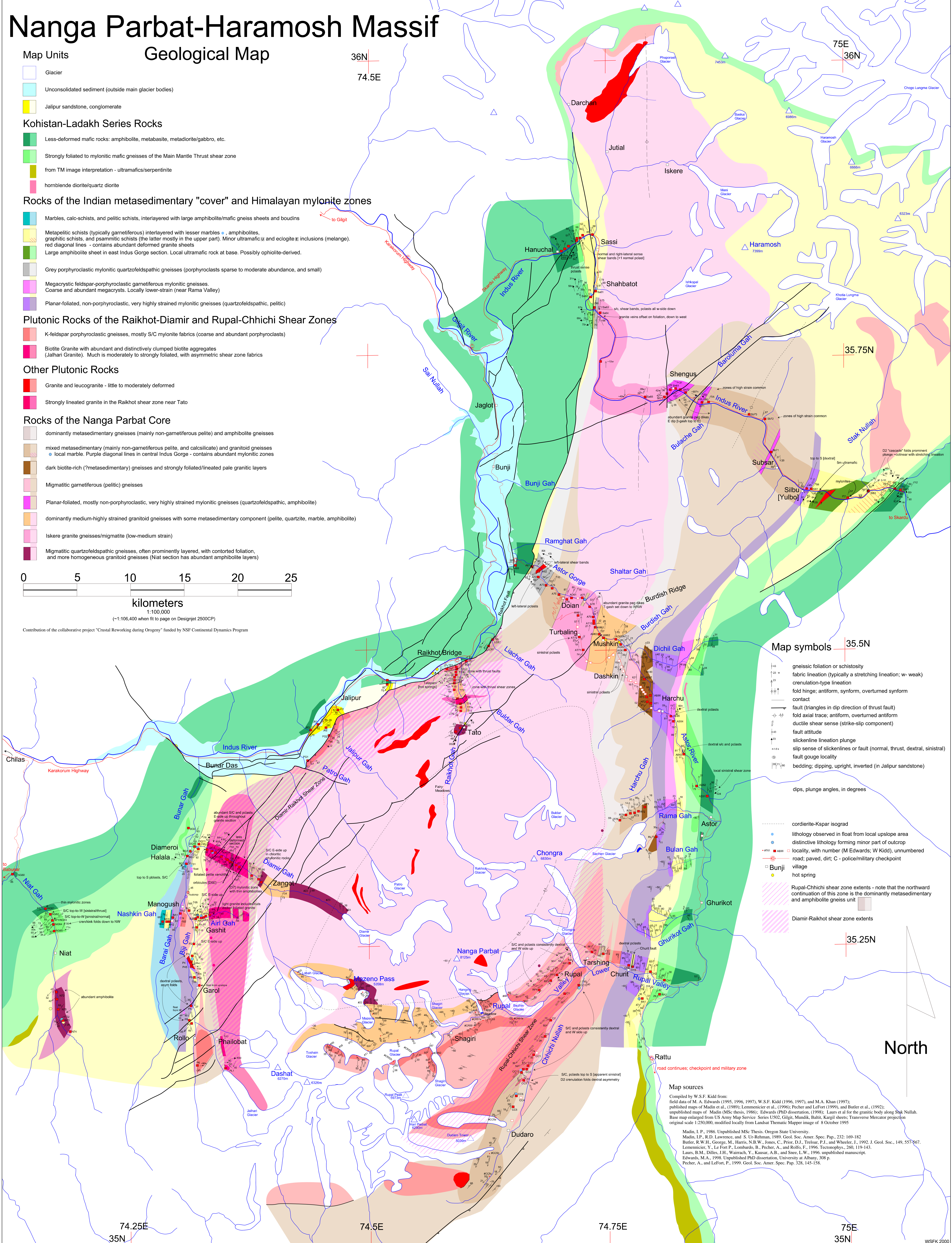
- Granite and leucogranite - little to moderately deformed
- Strongly lineated granite in the Raikhot shear zone near Tato

### Rocks of the Nanga Parbat Core

- dominantly metasedimentary gneisses (mainly non-garnetiferous pelite) and amphibolite gneisses
- mixed metasedimentary (mainly non-garnetiferous pelite, and calc-silicate) and granitoid gneisses
- local marble. Purple diagonal lines in central Indus Gorge - contains abundant mylonitic zones
- dark biotite-rich (?metasedimentary) gneisses and strongly foliated/lineated pale granitic layers
- Migmatitic garnetiferous (pelitic) gneisses
- Planar-foliated, mostly non-porphyroclastic, very highly strained mylonitic gneisses (quartzofeldspathic, amphibolite)
- dominantly medium-highly strained granitoid gneisses with some metasedimentary component (pelite, quartzite, marble, amphibolite)
- Iskere granite gneisses/migmatite (low-medium strain)
- Migmatitic quartzofeldspathic gneisses, often prominently layered, with contorted foliation, and more homogeneous granitoid gneisses (Niat section has abundant amphibolite layers)



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- ### Map symbols
- gneissic foliation or schistosity
  - fabric lineation (typically a stretching lineation; w- weak)
  - crenulation-type lineation
  - fold hinge; antiform, synform, overturned synform
  - contact
  - fault (triangles in dip direction of thrust fault)
  - fold axial trace; antiform, overturned antiform
  - ductile shear sense (strike-slip component)
  - fault attitude
  - slickenline lineation plunge
  - slip sense of slickenlines or fault (normal, thrust, dextral, sinistral)
  - fault gouge locality
  - bedding; dipping, upright, inverted (in Jalipur sandstone)
  - dips, plunge angles, in degrees
  - cordierite-Kspar isograd
  - lithology observed in float from local upslope area
  - distinctive lithology forming minor part of outcrop
  - locality, with number (M Edwards; W Kidd), unnumbered road; paved, dirt; C - police/military checkpoint
  - Bunji village
  - hot spring
  - Rupal-Chhichi shear zone extents - note that the northward continuation of this zone is the dominantly metasedimentary and amphibolite gneiss unit
  - Diamir-Raikhot shear zone extents

### Map sources

Compiled by W.S.F. Kidd from:  
field data of M. A. Edwards (1995, 1997), W.S.F. Kidd (1996, 1997), and M.A. Khan (1997);  
published maps of Madin et al. (1989); Lemmeniczer et al. (1996); Pecher and LeFort (1999); and Butler et al. (1992);  
unpublished maps of Madin (MSc thesis, 1986); Edwards (PhD dissertation, 1998); Laurs et al for the granitic body along Shak Nuliah;  
Base map enlarged from US Army Map Service Series U502, Gilgit, Muzik, Balti, Kargil sheets; Transverse Mercator projection  
original scale 1:250,000, modified locally from Landsat Thematic Mapper image of 9 October 1995

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Butler, R.W.H., George, M., Harris, N.B.W., Jones, C., Prior, D.J., Treloar, P.J., and Wheeler, J., 1992. J. Geol. Soc., 149, 557-567.  
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