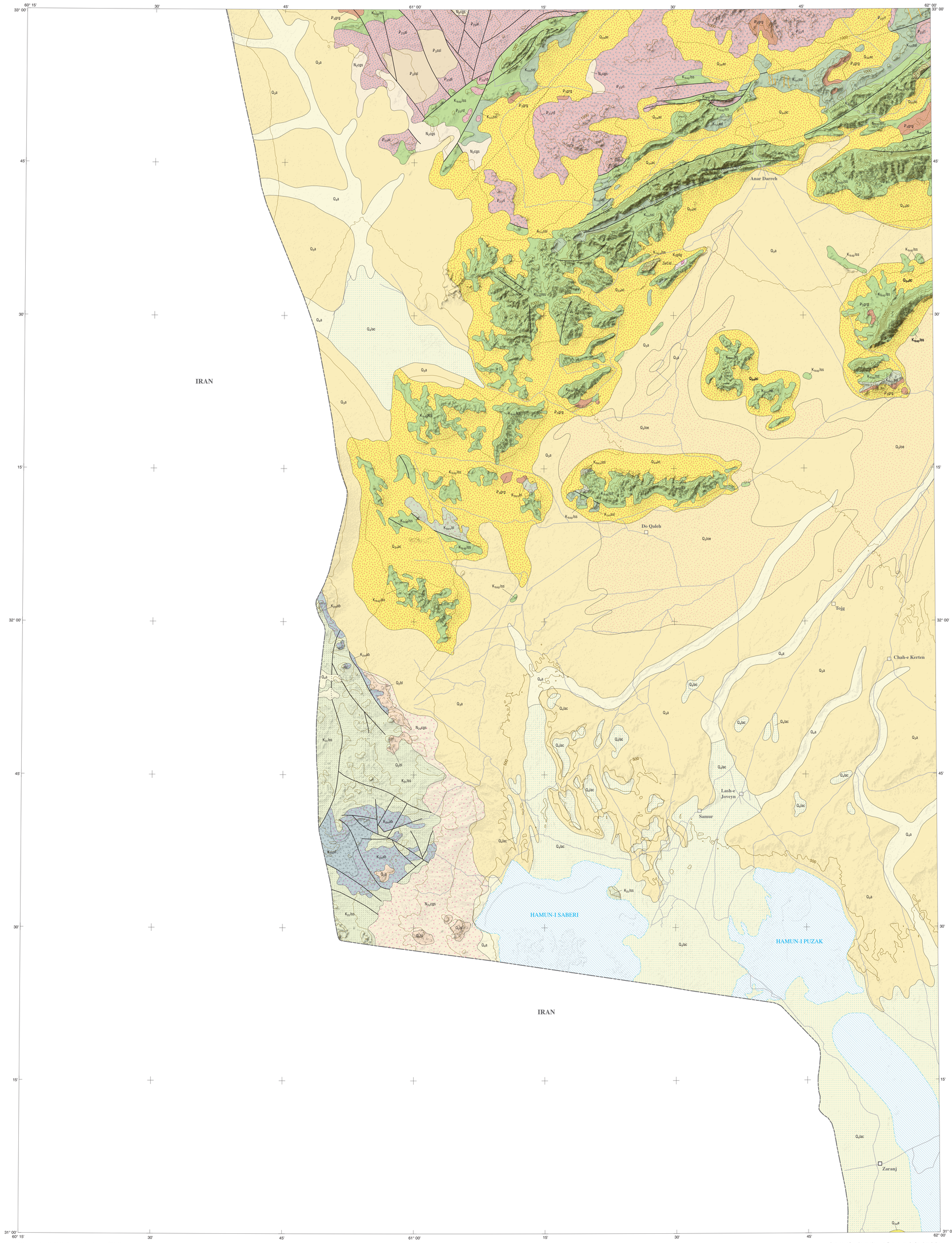
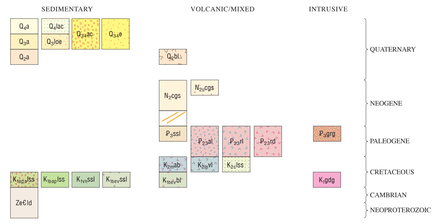
U.S. DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY

AFGHAN GEOLOGICAL SURVEY
Prepared in cooperation with the U.S. Geological Survey and the Afghanistan Geodesy and Cartography Head Office
Under the auspices of the U.S. Agency for International Development and the U.S. Trade and Development Agency

USGS OPEN-FILE REPORT 2005-1113-A
AGS OPEN-FILE REPORT (419/420/601/602) 2005-1113-A
USGS Afghanistan Project Product No. 016



CORRELATION OF MAP UNITS



DESCRIPTION OF MAP UNITS

Conglomerate and sandstone (Holocene)—Alluvium: shingly and detrital sediments, gravel, sand more abundant than silt and clay

Lake deposits (Holocene)—Lake (wet playa) deposit

Eolian deposits (Holocene and late Pleistocene)—Sand

Fan alluvium and colluvium (Holocene and late Pleistocene)—Fan alluvium and colluvium: shingly and detrital sediments, gravel, sand, clay

Conglomerate and sandstone (late Pleistocene)—Alluvium: shingly and detrital sediments, gravel, sand more abundant than silt and clay

Loess (late Pleistocene)—Loess more abundant than sand, clay

Conglomerate and sandstone (middle Pleistocene)—Alluvium: shingly and detrital sediments, gravel, sand more abundant than silt and clay

Basalt lava (middle Pleistocene)—Basaltic andesite and olivine basalt (Asparan Series)

Conglomerate and sandstone (late Pliocene)—Gray conglomerate, grit, sandstone more abundant than siltstone, clay, limestone, marl; gypsum, salt; acid to mafic volcanic rocks

Conglomerate and sandstone (Pliocene)—Gray conglomerate, grit, sandstone more abundant than siltstone, clay, limestone, marl; gypsum, salt; acid to mafic volcanic rocks

Andesite and diorite (Miocene)—Andesite, diorite more abundant than diabase porphyry, dikes and veins

Granite and granodiorite (Oligocene)—Granite, granite porphyry, granodiorite more abundant than quartz syenite, granosyenite

Sandstone and siltstone (Oligocene)—Sandstone, siltstone more abundant than clay, conglomerate, limestone, marl; acid and mafic volcanic rocks

Rhyolite and dacite (Oligocene and Eocene)—Rhyolite (liparite), dacite more abundant than granite porphyry

Rhyolite lava (Oligocene and Eocene)—Rhyolite lava more abundant than basaltic andesite, basalt, trachyte, dacite, ignimbrite, tuff; conglomerate, sandstone, siltstone, limestone

Andesite lava (Oligocene and Eocene)—Basaltic andesite, basalt, trachyte, dacite, rhyolite, ignimbrite, tuff; conglomerate, sandstone, siltstone, limestone

Andesite and basalt (Late Cretaceous (Maastrichtian))—Andesite, basalt, andesitic dacite, tuff, limestone, marl, sandstone, siltstone

Lava (Late Cretaceous (Maastrichtian))—Extrusive volcanic rocks of unknown composition, limestone, marl, sandstone, siltstone

Limestone and sandstone (Late Cretaceous (Campanian))—Limestone, sandstone more abundant than siltstone, marl, gravelstone, conglomerate, andesitic basalt, tuff and tuffaceous conglomerate

Granodiorite and granite (Early Cretaceous)—Granodiorite, granite

Limestone and sandstone (Early Cretaceous (Albian and Aptian))—Limestone, marl, sandstone more abundant than conglomerate

Limestone and sandstone (Early Cretaceous (Aptian and Barremian))—Limestone, marl, sandstone more abundant than conglomerate

Sandstone and siltstone (Early Cretaceous (Hauterivian and Valanginian))—Sandstone, siltstone more abundant than limestone, marl

Sandstone and siltstone (Early Cretaceous (Valanginian and Berriasian))—Sandstone, siltstone more abundant than limestone, marl

Basaltic lava (Early Cretaceous (Valanginian and Berriasian))—Basaltic lava

Limestone and dolomite (Cambrian (Edicarian) and Neoproterozoic)—Limestone and dolomite

EXPLANATION OF MAP SYMBOLS

Contact

Fault—Dashed where approximately located; dotted where concealed

Intermittent lake

DATA SUMMARY

This map was produced from several larger digital datasets. Topography was derived from Shuttle Radar Topography Mission (SRTM) 85-meter digital data. Gaps in the original dataset were filled with data digitized from contours on 1:200,000-scale Soviet General Staff Sheets (1978–1997). Contours were generated by cubic convolution averaged over four pixels using TNTmips[1] surface-modeling capabilities. Cultural data were extracted from files downloaded from the Afghanistan Information Management Service (AIMS) Web site (http://www.aims.org.af). The AIMS files were originally derived from maps produced by the Afghanistan Geodesy and Cartography Head Office (AGCHO). Geologic data and the international boundary of Afghanistan were taken directly from Abdullah and Chmyriov (1977).

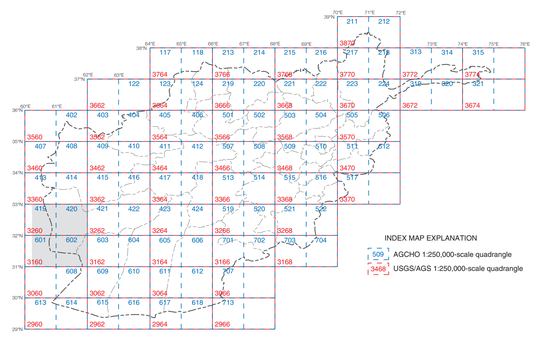
It is the primary intent of the U.S. Geological Survey (USGS) to present the geologic data in a useful format while making them publicly available. These data represent the state of geologic mapping in Afghanistan as of 2005, although the original map was released in the late 1970s (Abdullah and Chmyriov, 1977). The USGS has made no attempt to modify original geologic map-unit boundaries and faults; however, modifications to map-unit symbology, and minor modifications to map-unit descriptions, have been made to clarify lithostratigraphy and to modernize terminology. The generation of a Correlation of Map Units (CMU) diagram required interpretation of the original data, because no CMU diagram was presented by Abdullah and Chmyriov (1977).

This map is part of a series that includes a geologic map, a topographic map, a Landsat natural-color-image map, and a Landsat false-color-image map for the USGS/AGS (Afghan Geological Survey) quadrangles shown on the index map. The maps for any given quadrangle have the same open-file number but a different letter suffix, namely, -A, -B, -C, and -D for the geologic, topographic, Landsat natural-color, and Landsat false-color maps, respectively. The present map series is to be followed by a second series, in which the geology is reinterpreted on the basis of analysis of remote-sensing data, limited fieldwork, and library research. The second series is to be produced by the USGS in cooperation with the AGS and AGCHO.

REFERENCE CITED

Abdullah, Sh., and Chmyriov, V.M., eds., 1977, Map of mineral resources of Afghanistan: Kabul, Ministry of Mines and Industries of the Democratic Republic of Afghanistan, Department of Geological and Mineral Survey, V/O "Technoexport" USSR, scale 1:500,000.

[1]Geospatial analysis software developed by MicroImages, Inc., Lincoln, NE 68508-2010.



Base from Shuttle Radar Topography Mission (SRTM) 85-meter digital data

Cultural data from digital files from AIMS Web site (http://www.aims.org.af)

Projection: Universal Transverse Mercator, zone 41, WGS 84 Datum

SCALE 1:250 000
5 0 5 10 15 20 25 30 35 40 KILOMETERS
5 0 5 10 15 20 MILES
CONTOUR INTERVAL 100 METERS

GEOLOGIC MAP OF QUADRANGLES 3260 AND 3160, DASHT-E-CHAHE-MAZAR (419), ANARDARA (420), ASPARAN (601), AND KANG (602) QUADRANGLES, AFGHANISTAN

Compiled by
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2005

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