This map shows the spatial distribution of selected iron-bearing minerals and other materials derived from airborne hyperspectral survey of Afghanistan. The reflectance spectrum of each pixel of HyMap™ imaging spectrometer data was compared to the reference library of minerals, vegetation, water, and other materials to classify pixels into mineral classes. This map is one in a series of U.S. Geological Survey/Afghanistan Geological Survey collaborative products that has improved the spatial distribution of minerals and other materials in Afghanistan.

Minerals, especially those occurring at the surface or having unique spectral features, are easily detected and discriminated. However, some minerals having slightly different compositions but similar spectral features were less easily discriminated. Minerals occurring abundantly at the surface and those having unique spectral features were easily detected and discriminated. Differences may be present between adjacent flight lines. Variations in water vapor and dust content of the atmosphere, in solar angle, and in surface elevation complicated correction; therefore, some classification was not achieved. Minerals having very slight differences may not be visible at the publication scale of this map.

This version 2 map improved mineral classification, especially in areas having wet soils. The version 2 map more accurately represents the mineral distributions and iron-bearing minerals and other materials (Kokaly and others, 2013). This version 2 map improved mineral classification (Kokaly and others, 2008). This map is one in a series of U.S. Geological Survey/Afghanistan Geological Survey collaborative products that has improved the spatial distribution of minerals and other materials in Afghanistan.

HYPERSONIC SURFACE MATERIALS MAP OF QUADRANGLE 3260, DASHT-E-CHAH-E-MAZAR (419) AND ANAR DARAH (420) QUADRANGLES, AFGHANISTAN, SHOWING IRON-BEARING MINERALS AND OTHER MATERIALS

By
Trude V.V. King, Todd M. Hoefen, Raymond F. Kokaly, Keith E. Liva, Michaela R. Johnson, and Stuart A. Giles