U.S. Department of the Interior
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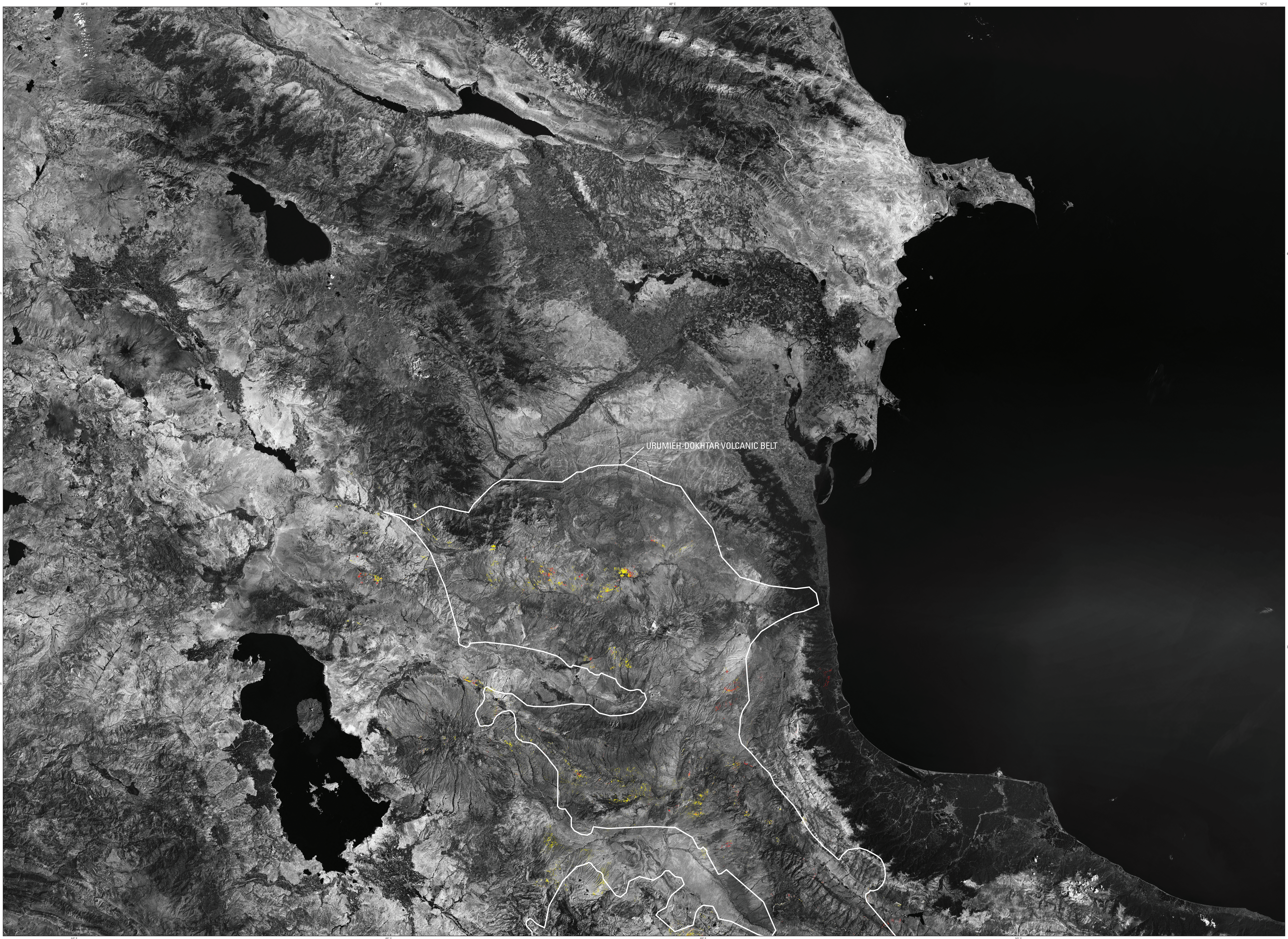
Scientific Investigations Report 2010–5090–O
Plate 2 of 10

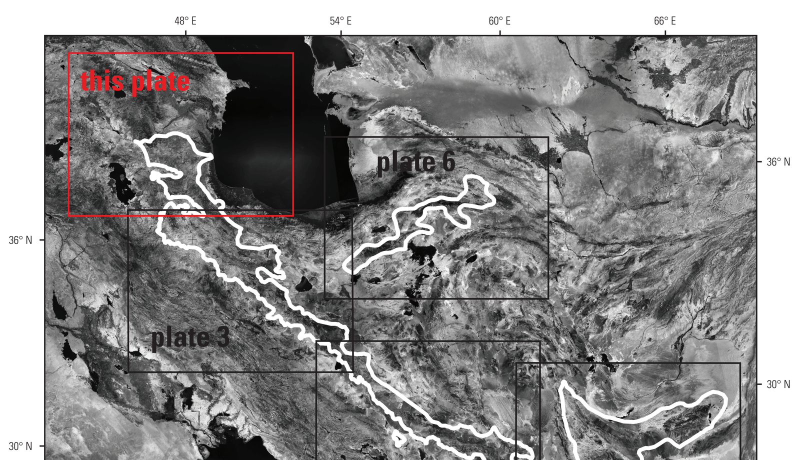


Base is Landsat Thematic Mapper, band 7 grayscale image (http://landsat.usgs.gov)
Universal Transverse Mercator projection

5 ½°
TRUE NORTH
MAGNETIC NORTH
APPROXIMATE MEAN DECLINATION, 2014

RATIO SCALE 1: 660,000
50 25 0 50 MILES
50 25 0 50 KILOMETERS
NATIONAL GEODETIC VERTICAL DATUM OF 1984

Advanced Spaceborne Thermal Emission and Reflection Radiometer (ASTER) data was used to map hydrothermal alteration, including argillic- and phyllic-altered rocks.



Index map showing location of this ASTER hydrothermal alteration map area (red outline), bordering map areas (black outlines), and volcanic belt boundaries (white outlines).

EXPLANATION

[NOTE FOR PLOT USERS: Small, isolated data areas may be difficult to see on plots; see files for detail (http://pubs.usgs.gov/sir/2010/5090/o/)]

Alteration units, mapped using ASTER data

- Phyllic-altered rocks
- Argillic-altered rocks
- Volcanic belt boundary

ASTER Hydrothermal Alteration Map of the Northwestern Urumieh-Dokhtar Volcanic Belt, Northwestern Iran

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This map was printed on an electronic plotter directly from digital files. Dimensional calibration may vary between electronic plotters and between X and Y directions on the same plotter, and paper may change size due to atmospheric conditions; therefore, scale and proportions may not be true on plots of this map.

For sale by U.S. Geological Survey, Information Services, Box 25286, Federal Center, Denver, CO 80225, 1–888–ASK–USGS

Digital files available at http://pubs.usgs.gov/sir/2010/5090/o/

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