

Catalog of Analogs: Terrain Similarities between the U.S. Army Yuma Proving Ground and central southwest Asia

The goal was to provide a best match between sites on the Yuma Proving Ground (YPG) with other desert areas worldwide that can be used for maximum realism in the research, development, test and evaluation (RDTE) of military materiel and equipment. The reason for this project was that it fit within overall goals to include eventual expansion of more southwestern U.S. sites as possible analogs to other desert terrain worldwide. Our results were a mapped region of central southwest Asia, which encompasses nine countries and an area more than 1,500,000 mi², reported in 2008. Our results produced much needed updates which provided consistent data that had been quite individualized prior to our effort, dating back to the 1940s.

Summary of Project Details: Our approach was to map and discuss the landforms in Afghanistan, Iran, Israel and adjacent territories, Iraq, Jordan, Kuwait, Lebanon, Pakistan, and Syria. We created these maps using expert-based identification of landforms using satellite imagery and digital elevation model data. We produced landform maps of each country in the region with 12 landform types; slope maps; and soil maps of the upper 2.0 ft of those landforms. The standardization of terrain normally found throughout deserts around the world was a major improvement.

Management Implications: Our landform analysis between YPG and southwest Asia showed that there is similar analogous terrain between the two, but YPG represents only a subset of the variability of terrain in southwest Asia. This is not surprising given the difference in total area between the two study areas. We recommended that further efforts be focused on evaluating the landforms that were not represented at YPG, to locate other areas that might encompass those landforms, and to determine if those landforms are relevant to RDTE. We recommended expanding the current map extent. We also recommended integrating advanced remote sensing techniques into the geomorphic maps for additional levels of detail.

