

SHUTTLE IMAGING RADAR APPLICATIONS IN GEOLOGY

FARR, T.G., EVANS, D.L. and PLAUT, J.J., Jet Propulsion Laboratory, California Institute of Technology, Pasadena, CA, US

The Shuttle Imaging Radar series, culminating in 1994 with SIR-C/X-SAR, provided experimental multi-channel radar images for a variety of scientific investigations. The geologic investigations included studies concentrating on: Weathering and erosional processes such as aeolian transport and deposition in the southwest US, desert pavement formation in northwest China, and glacial erosion in the southern Andes. Land degradation due to human activities and saline soils. Volcanic processes, including eruption history, size, and type at many of the UN-designated Decade Volcanoes, and comparisons with other planets. Tectonic processes, including fault locations and histories in northwest China and the southern Andes. Subsurface mapping of paleodrainages and tectonic shear zones in northeast Africa and Saudi Arabia. SIR-C/X-SAR was also operated for a short time in an experimental interferometric mode, providing digital topographic maps and topographic change maps of a few sites. The success of this technique has led to the development of the Shuttle Radar Topography Mission (SRTM), scheduled for late 1999 or early 2000 and dedicated to the production of a near-global digital topographic map using an additional antenna at the end of a 60 m mast. More details may be found at <http://southport.jpl.nasa.gov>. * work performed under contr