



GeoSAR Mapping for Oil and Gas E&P



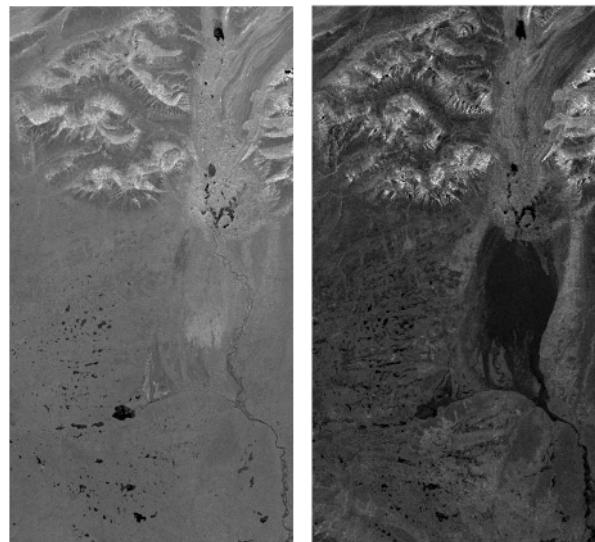
GeoSAR efficiently maps large expanses, regardless of clouds, foliage, or terrain. Whether projects are located in high latitudes or in equatorial zones, in remote regions or in developed areas, GeoSAR provides the high accuracy mapping needed for critical oil and gas E&P activities.

GeoSAR Applications for Oil and Gas

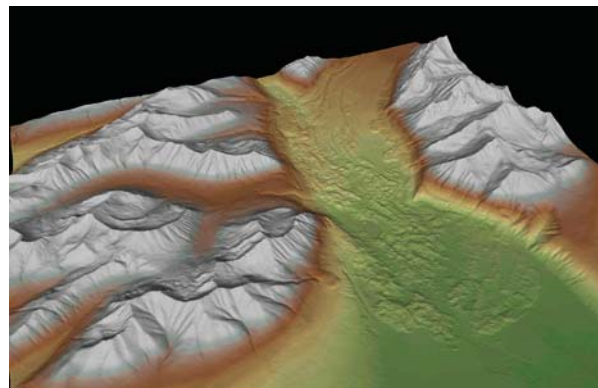
Mapping the Impossible. As exploration projects increasingly push into remote areas with dense vegetation, persistent clouds, or extreme terrain, traditional airborne and satellite mapping systems are unable to efficiently provide the detailed geospatial information needed by E&P engineers. GeoSAR overcomes these challenges, delivering high resolution 3D terrain and supporting mapping data anywhere in the world, quickly and accurately.

GeoSAR Advantages

- **Geological interpretation.** Map fault patterns, fractures, rock outcrops, and soil variations from GeoSAR imagery for initial and structural interpretation of surface geology.
- **Seismic mission planning.** Study slope, drainage, and tree heights from GeoSAR 3D surface data and identify standing water below dense canopy, water bodies, and existing infrastructure from GeoSAR multi-band imagery for informed logistical planning.
- **Well site selection.** Pinpoint the best possible well site locations from a combined GeoSAR terrain and land-cover information; perform infrastructure planning based on GeoSAR 3D terrain data.
- **Pipeline routing.** Determine best-possible routing for pipeline construction from GeoSAR 3D elevation models.
- **Environmental impact assessment.** Classify vegetation types, map soil variations, estimate biomass, and even locate environmentally sensitive ecosystems using GeoSAR imagery and 3D terrain data.



GeoSAR's X-band (left) and P-band (right) glacier images.



3D perspective view of GeoSAR elevation data, useful for decision-support and engineering planning during well site selection and pipeline routing.

GeoSAR Mapping for Oil and Gas E&P

About GeoSAR Radar Mapping

GeoSAR is an airborne radar mapping system that produces 3D terrain data and imagery for generation of topographic maps and other derived products.

The system uses a technology known as interferometric synthetic aperture radar. Widely referred to as IFSAR, this technology is the radar equivalent of stereo vision in photogrammetry. GeoSAR is the world's only radar mapping system that simultaneously maps the ground beneath foliage (using P-band) and the surface features above the terrain using (X-band), in a single pass. The system's dual-band, dual-sided configuration rapidly acquires high resolution elevation data and radar imagery over regions previously considered inaccessible due to extreme weather and/or rugged terrain. GeoSAR is available worldwide exclusively from Fugro.

GeoSAR Advantages

- **Mapping through clouds and forests.** GeoSAR penetrates clouds and foliage to simultaneously collect detailed 3D surface and ground feature information, even in regions of perennial cloud-cover and dense tropical or boreal forests.
- **Combined terrain and thematic data.** Along with accurate 3D terrain data, GeoSAR delivers cloud-free, multi-band imagery that can be analyzed to accurately map local land cover and infrastructure.
- **Accuracies for 1:50,000 and 1:25,000 scale mapping.** GeoSAR is capable of working in all types of climates and terrain to deliver the high accuracy imagery and elevation data required for new or updated topographic mapping over large coverage areas.
- **Low-risk/high-efficiency operations.** GeoSAR operates at very high altitudes and incorporates a LiDAR terrain profiler for in-air ground control. This makes it both safe and reliable for rapid mapping over rugged landscapes and dangerous environments.



Fugro EarthData, Inc.
7320 Executive Way
Frederick, MD 21704
+1 301 948 8550
+1 301 963 2064
www.fugroearthdata.com