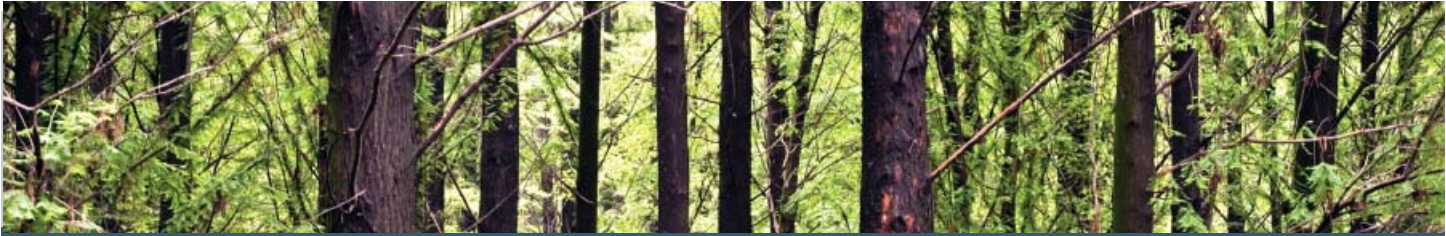




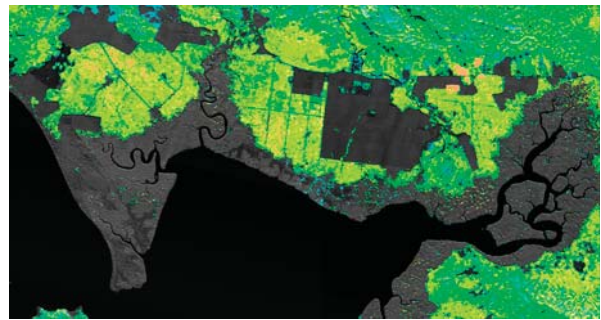
GeoSAR Solutions for Forestry



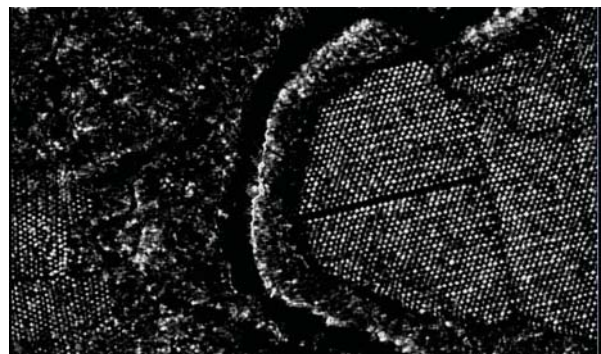
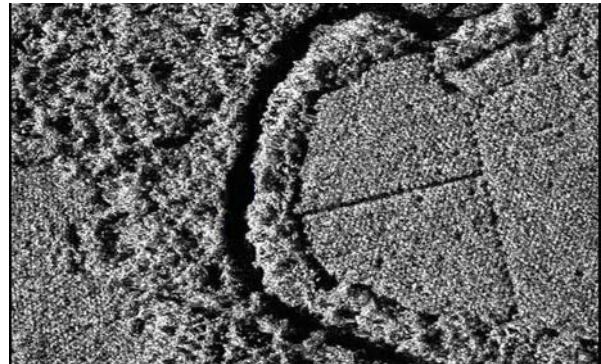
GeoSAR efficiently maps large expanses, regardless of clouds, foliage, or terrain. Obtain accurate inventory counts and estimate tree heights and crown diameter for efficient forest harvest management; examine spatial distribution and forest type for accurate fuel maps and fire modeling.

GeoSAR Forestry Advantages

GeoSAR is an airborne interferometric synthetic aperture radar (IFSAR) mapping system used to map the earth's surface above and below the canopy, through the clouds, day or night. GeoSAR's unique technology supports the collection, analysis, assessment and management of forests and carbon estimation on a country-wide basis. With its foliage-penetrating technology (P-band), GeoSAR is unique in its ability to derive detailed accurate terrain data in the thickest forests and densest jungles. The difference between the X-band and P-band data provides important information that is used to develop value-added data sets such as land use/land cover and biomass estimates.



Biomass estimation. The difference between GeoSAR's X-band and P-band data is used to calculate biomass estimation.



X-band (upper) clearly shows plantation organization and irrigation patterns. P-band data (lower) provides enough detail to clearly count each tree in the palm orchard.

GeoSAR Applications

- **Forest Inventory.** Analyze land cover land use and change, obtain wide-scale volumetric forest inventories, tree size, and crown volume.
- **Forest Carbon Estimation.** Forest carbon, or above-ground biomass estimation has traditionally been accomplished using forest inventory methods. GeoSAR's unique capabilities make it possible to estimate general tree height and forest biomass.
- **Fire Hazard Modeling.** Create detailed maps for hazardous fuels reduction, emergency response, and forest restoration or rehabilitation.
- **Environmental Impact Assessment.** Critical to sustainable forestry management is knowing the

GeoSAR Solutions for Forestry

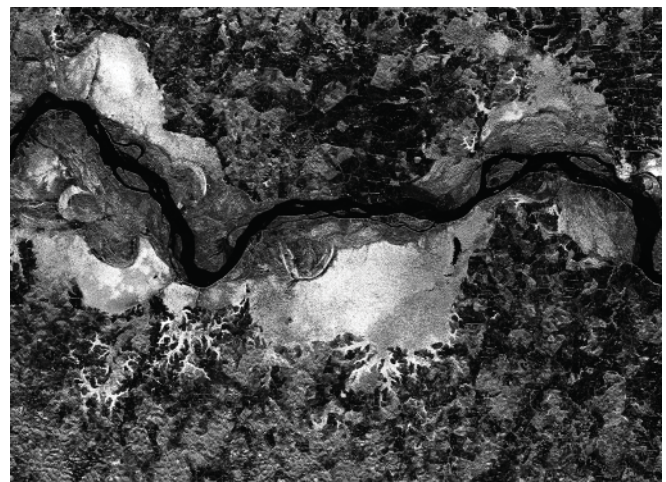
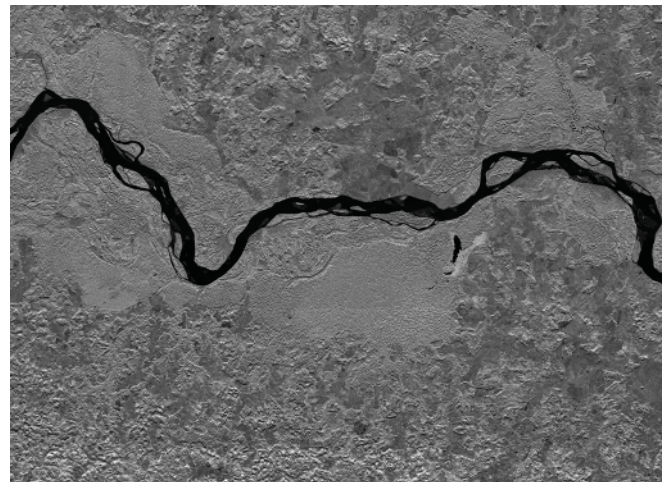
About GeoSAR Radar Mapping

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