GeoSAR And PurVIEW: A new solution for efficient and accurate large-area topographic mapping
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Fugro’s Mission

Our mission is to be the world's leading service-provider in the collection and interpretation of data relating to the earth’s surface and sub-surface, and in the support of infrastructure developments on land, at the coast and on the seabed.
Fugro Global Network

Fugro delivers these services from a global network of offices and facilities. Localized services are backed by an internationally acclaimed knowledge base and resource provision.

GeoSAR System

GeoSAR is an Interferometric Synthetic Aperture Radar System (IFSAR) that operates in two frequency bands.
GeoSAR’s Collection Profile

Collection Height:
10 to 12.5 km MSL

GeoSAR operates day or night through most weather conditions looking through cloud cover and dense vegetation.

GeoSAR’s X and P-band RADAR Technology

X-band reflects off the surface (i.e. vegetation, houses, roadways), producing a DEM and image. P-band penetrates vegetation and produces a 3D terrain map and image that reveals underlying features.
GeoSAR’s data facilitates the mapping of geologic structures in areas where forest canopy obscures the underlying terrain.

P-band shows objects below canopy and surface foliage, and completes planimetric feature capture and maps. It detects objects and features hidden beneath foliage (i.e. cultural features, trails, roads, fences, wires).
ESRI PurVIEW

PurVIEW is a **GIS-integrated 3D stereoscopic mapping tool** that can be used for image interpretation and feature extraction.

ESRI PurVIEW

Using PurVIEW, GeoSAR analysts compile **large-area TLMs using precise orthorectified radar image mosaics and DEMs**. The feature data are extracted directly into the geodatabase and incorporated into GIS applications.
PurVIEW’s 3D Display

PurVIEW simultaneously displays from the geodatabase – in 3D -- dual-band GeoSAR and vector feature data. ESRI’s ArcGIS database provides storage and dissemination of the image, elevation and feature data.

PurVIEW’s Fugro Toolbar

The Fugro Toolbar supports digitizing and query directly from GeoSAR data, and it provides access to important tools, including on-the-fly synthetic stereo display, 2D feature draping, a stereo cursor, and a data difference display.
PurVIEW/GeoSAR Geodatabase

PurVIEW can serve as a viewer, query, and analysis engine for GeoSAR data.

Topographic Line Mapping (TLM)

PurVIEW contributes to all phases of TLM development – including fieldwork, cartography and post-production management.
Fugro employs ISO9001:2008 standards for quality control, process improvement, and for assuring codes of practice.

The GeoSAR orthorectified images and surface and terrain models are imported into ESRI’s ArcGIS program. Using PurVIEW, a 3-D stereoscopic image is created that combines image and elevation raster files into one environment.
GeoSAR/PurVIEW's TLM Method

Feature extraction builds a **positional list of the cultural and physical features and objects of interest in a given area.**

When complete, **all of the features and objects appear in the proper physical relationship** to each other.
Many features have attributes which characterize information associated with the feature. A roadway might be depicted as line and could have attributes which describe its location, size, and the composition of its surface materials.

Metadata from the extracted vector features are created and the features and metadata are both written out to an enterprise-scale geodatabase.
Defense and Intelligence Applications

GeoSAR and PurVIEW are an excellent platform for the collection, interpretation and display of natural environments and infrastructure.

Geologic and Hydrologic Applications

PurVIEW and GeoSAR support geologic applications with features from crisp shaded relief models.
Land Management Applications

PurVIEW and GeoSAR are excellent tools for land management, forestry and agricultural applications. Tree height and crop volumes can be easily estimated and individual tree stems are visible in the 1.25m P-band image.

Land Use / Land Cover Classification Overlays

GeoSAR data can also be used to derive reliable land-use and land-cover classification products.
Carbon and Biomass Applications

This GeoSAR image shows a quantitative biomass estimate at high resolution for forest carbon calculation or forestry applications. The RGB image on the right shows an X- and P-band multichannel image (R:X, G:int, B:P).

Thank You

For more information on GeoSAR or PurVIEW
Visit http://www.geosar.com