

PurVIEW 3D Mapping from GeoSAR

Extracting 3D feature data layers from GeoSAR data in an ArcGIS environment



Fugro is a value-added reseller of the PurVIEW software suite. PurVIEW is a highly effective, affordable and easy-to-use ArcGIS plug-in that allows GIS users to generate topographic maps and framework data layers from GeoSAR and other remotely sensed data.

GEOSAR WITH PURVIEW

The combination of GeoSAR data and the PurVIEW 3D extraction software enables GIS users to perform large-area mapping and map updating directly in a GIS desktop environment. One of PurVIEW's functionalities is the Synthetic Stereo processing capability, which converts any two dimensional image with accompanying DEM into a 3D scene on the fly. This allows for easier exploitation and interpretation of GeoSAR imagery and elevation data, particularly for GIS professionals without specialized hardware or training in IFSAR and photogrammetric technology. Working within the ArcGIS environment, accurate vector data layers can then be easily compiled from GeoSAR data directly into a geodatabase, while accessing all the cartographic functionalities of ArcGIS. This allows users to create base maps from scratch at 1:25,000 and 1:50,000 scales and populate entire GIS systems with framework data layers such as contours, physiography, hydrography, man-made structures, transportation networks and vegetation types, all from the GeoSAR data set.

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 or InSAR, this technology is the radar equivalent of stereo vision in photogrammetry.

ABOUT PURVIEW

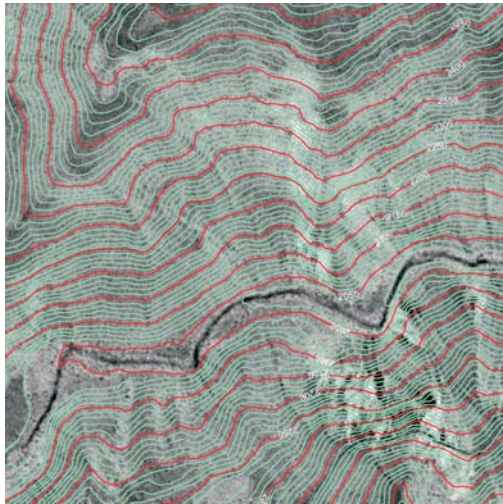
Developed by ESRI Canada, PurVIEW runs within ArcGIS 9.x and creates a dynamic stereo mapping environment for geo-referenced airborne or satellite imagery that allows users to easily identify and extract feature data layers in three dimensions.

THE PRODUCTS WE ARE LICENSED TO SELL:

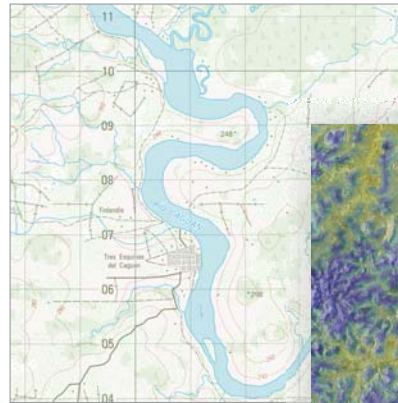
- **PurVIEW Explorer**- Stereo viewing, quality assurance, 2D editing, and Virtual-Z surface tracking
- **PurVIEW**- PurView Explorer plus 3D editing, and digitizing capabilities
- **PurVIEW MX**- PurVIEW plus intensive feature digitizing capabilities

THE COUNTRIES WE DISTRIBUTE TO:

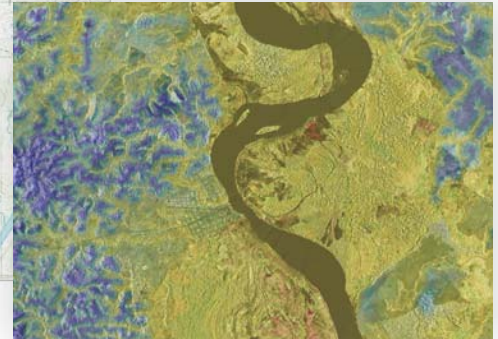
- Africa
- Europe
- South America (except Colombia)
- Middle East
- Caribbean
- Central America
- Australia
- Malaysia
- Indonesia
- Thailand
- Philippines
- Laos
- United Kingdom
- United States of America
- Canada



GeoSAR topographic mapping with PurVIEW provides accurate terrain details and land-cover information at 1:25,000 and 1:50,000 map scales. The image at left shows a 3 meter X-band orthorectified radar image with a 10 meter contour overlay, while the images below demonstrate use of combined GeoSAR digital elevation models and orthorectified imagery. The left-hand image shows a sample topographic map with water features,



forested areas, roads, and trails identified. The lower right image shows combined X- and P-band radar imagery merged with a P-band digital elevation model for thematic mapping.



GEOSAR MAPPING PRODUCTS

GeoSAR delivers the following 1:50,000 and 1:25,000 scale map products:

Value added mapping products

- Thematic maps: land-cover, slope, watershed delineation, wetlands, etc.
- Topographic maps: accurate contours and spot heights; custom land-cover.

Orthorectified radar imagery

- P-band imagery: 5 m pixel resolution data depicting ground features and structures hidden beneath foliage and very dry soils.
- X-band imagery: 3-5 m pixel resolution data depicting surface features above the ground.

Digital elevation models

- P-band DEM: 5 m post-spacing near bare-earth surface models with 5-10 m vertical accuracies (RMSE), depending on required map scale.
- X-band DEM: 2.5-3 m post-spacing reflective surface models with 2-5 m vertical accuracies (RMSE), depending on required map scale.

Higher resolution and accuracy data collects are available on a case-by-case basis.

GEOSAR AND PURVIEW 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 within PurVIEW to extract accurate land cover and feature data layers.
- Accurate 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 using PurVIEW.
- Efficient, affordable mapping in a desktop GIS environment. The combined GeoSAR and PurVIEW solution allows GIS users to develop their own customized framework data layers directly into a ESRI geodatabase format without the need for specialized hardware or training.
- 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.
Megan Blaskovich
+1 301 948 8550
mblaskovich@earthdata.com
www.fugroearthdata.com