

Fugro Geospatial: Turning Spatial Data into Knowledge

Fugro Geospatial, GIS and Consultants Locations



fugro

Variety of Collection Platforms





Traditional Mapping



Traditional Mapping – Imagery

Photogrammetric Aerial Imagery

All Major Satellite Providers Leica Push-broom Sensors DMC Frame Based Sensors Digital Oblique Sensors

Products

Orthoimagery Topographic and Planimetric Mapping Land Use Land Cover Mapping Habitat Mapping Change Detection Environmental Studies GeoHazard Mapping Imperviousness Mapping Benthic Mapping





Traditional Mapping - Lidar

Tugro

Typical LiDAR Products Include:

- LAS Point Cloud
- Hydro Flattened DEM
- Hydro Enforced DEM
- Intensity Imagery
- Contours
- Hillshades
- GeoHazard Mapping
- Fault Line Delineation
- Change Detection
- Slope Analysis
- Lidar-grammetry (Mapping)
- View sheds
- Fire Fuel Analysis
- Biomass Calculation
- Aviation Obstruction
- Communication Tower Placement
- 3D Modeling
- Power line Assessment



www.fugro.com

Traditional Mapping - Geohazards

Identify, characterize and map geohazards

- Slope instability
- Active tectonics
- Landscape evolution
- Slope processes
- Sedimentology
- Surface fault rupture hazards
- Liquefaction
- Lateral Spread



<#>



Land and Property



Oblique Technology





Oblique Technology





ft \star 🛱

Oblique Technology







Oblique Imagery Digital Surface Models



Viewshed Analysis





Flood Management





Coastal Monitoring with Oblique Imagery Technology



fugro

Roames



Roames Overview



Roames maintains a 3-D virtual world repository from which it produces asset and environmental assessments.



Roames observations are guaranteed to contain the complete electrical network and surrounding environment including all vegetation, buildings, street-level features and objects.

Automatically extract and process data into a 3-D engineering quality model with feature and object detection at a high level of accuracy, timeless and functionality than current available in market.

Automatically model and simulate asset conditions and risk, e.g. vegetation management, network faults, and defects.

Web-based reporting and visualization tools enable users to visually inspect and assess features of interest.

Work program optimization achieved through a complete picture of the network and its condition.



Detailed Elevation Data for Mapping Networks





Detailed Modeling for Change Analysis









The GeoSAR System





X-band antennas

Antenna positioning measurement unit

P-band antennas

GeoSAR is an Interferometric Synthetic Aperture Radar System (IFSAR) that operates in two frequency bands. Employed from Fugro's Gulfstream G-II aircraft, it is a one-of-a-kind system, operational since 2003.

GeoSAR – X- and P-band Description



X-band (yellow) reflects off of the first surface Produces DSM and magnitude image of surface features **P-band** (vegetation, houses, roadways) X-band P-band (green) penetrates vegetation, ice, dry soil, to collect terrain features Basis for DTM and magnitude image of underlying features (paths, cultural features, fences, geologic features, most metallic features, wetlands)

GeoSAR Data Products

Orthorectified Radar Imagery (ORI)

- Radar surface reflectance
- Visualization, mapping,

Digital Surface Model (DSM) X-band

- Orthorectified intensity model
- Surface reflectance elevation
- Detailed visualization and analysis

Digital Elevation Model (DEM) P-band

- Represents near bare-earth
- Derived layers (e.g., slope, contours)

Digital Terrain Model (DTM) X/P Hybrid

Represents bare-earth









Roadware





TUGRO

This is the first ARAN to implement a 4K broadcast quality camera as the primary right-of-way imaging system, providing the clearest views of the highway.



MARYLAND SHA FIRST TO USE INNOVATIVE 4K BROADCAST QUALITY CAMERA IN FUGRO'S ARAN DATA COLLECTION VEHICLE

Off-shore Survey







High Resolution Orthoimagery

- CAPCOG
- FL DOR
- USGS
- USACE



QL2/QL1 Lidar Data

- TNRIS
- Rapid City, SD
- USGS 3DEP
- USACE



Planimetric Mapping

- City of Austin
- City of North Myrtle Beach
- CAPCOG
- City of Edmond (COAGA)





PG&E Power Distribution Line Mapping



PanoramiX – High Resolution Oblique Imagery Program



Vegetation Related Mapping Projects

- USDA FIA Plots
- Fort Bragg Tree Classification





California Coast



Coastal Data Merge



Sea grass Mapping









Search for MH370

ROCIS – Ocean Current Monitoring Remote Ocean Current Imaging System

Alaska GeoSAR



Thank you! Keith Owens – Technical and Business Development Manager (301) 948-8550 | kowens@fugro.com