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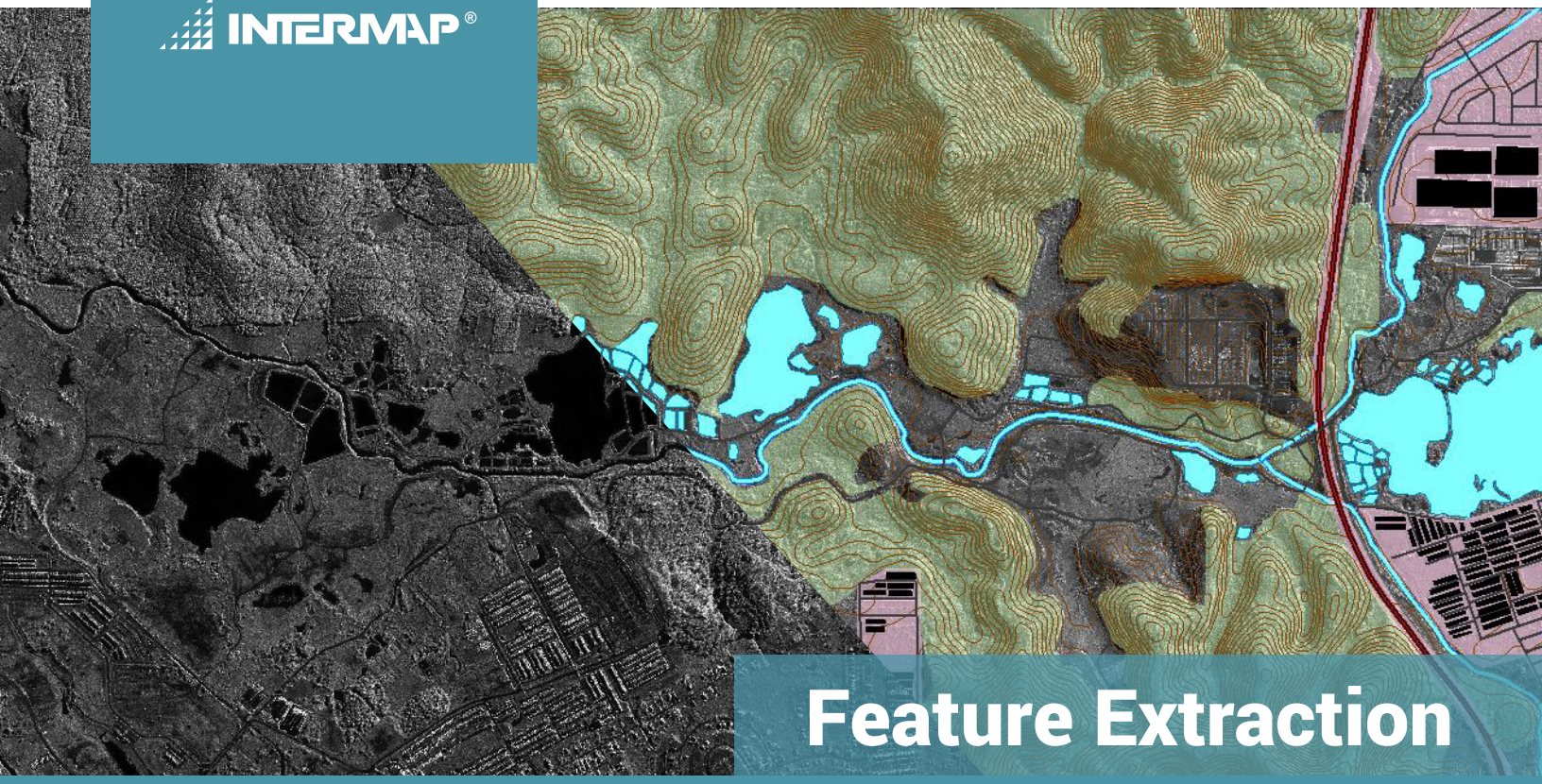


Feature Extraction

Making Data from Data

Radar Data for Feature Extraction

A growing range of applications including hydrology, forest inventory mapping, urban infrastructure modeling, change detection, and road mapping require detailed feature information. High-quality radar imagery can be produced in cloudy and hazy conditions, making it an excellent choice for feature extraction. Intermap boasts one of the most accurate and highest resolution commercial radar imaging systems currently available. With high-resolution imagery and accurate spatial accuracies, Intermap imagery can produce highly accurate features at a fraction of the cost of the leading providers of optical satellite imagery.

Key Benefits and Features

Features
Hydro vectors, contours, roads, land use classification, hill shade, etc.

Quality
Accurately defined roads, buildings, and other vectors in both 2D and 3D

Coverage
Seamless and homogeneous imagery unaffected by clouds and haze

Under Canopy Imagery
Use P-band radar imagery to extract features hidden under forest

Experience
Long history extracting hydrology and road vectors, contours, and more

Speed
Automation and a dedicated team of trained editors enable timely feature extraction

Imagery Types

Intermap has two types of radar imagery. X-band imagery is suitable for detecting first-surface returns such as forest canopies, while P-band imagery enables identification of features under foliage. This is useful to identify features such as settlements and waterbody boundaries in heavily vegetated areas. Further, change detection can be performed on P-band imagery collected at different times to identify new and removed features. Combined, the two imagery types provide the inputs for complete topographic line mapping.

Leveraging Elevation Data

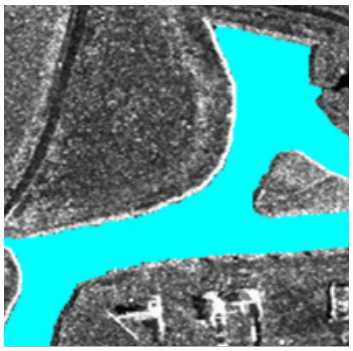
Intermap provides digital surface model (DSM) and digital terrain model (DTM). Elevation differences between the DSM and DTM can be leveraged to highlight features in agricultural regions, forests or dense urban areas and augment visual feature identification in the imagery. Intermap's elevation data and imagery are collected together and are perfectly geo-registered to save time and increase the geo-positional accuracy of extracted features. The data is optimized to ensure seamless and consistent results.

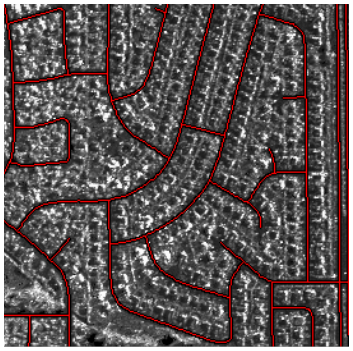
Wide-Area Mapping Through Target Data Resolutions

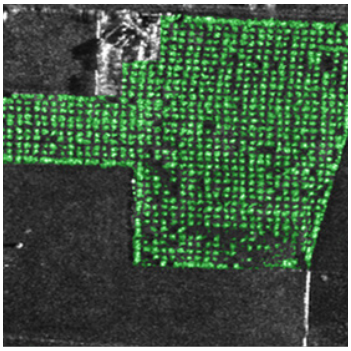
Intermap's feature extraction service can leverage multiple elevation and image datasets of differing resolutions and specifications to target high-value areas such as cities, corridors, and critical flood plains with higher spatial resolution data while providing wider area or rural coverage from NEXTMap® IFSAR data.

Potential applications include:

- **Hydrology network mapping** - Radar signals typically reflect off water surfaces providing sharp contrast between water and adjacent shorelines to enhance water feature collection
- **Transportation network mapping** - Extract features such as roads ranging from low traffic rural routes to major urban thoroughfares
- **Forestry inventory mapping** - Accurate forest stand delineation
- **Urban infrastructure mapping** - Imagery at 50cm resolution allows for identification of most urban and residential features







All features for topographic line mapping can be extracted from radar data, such as hydrology (left), roads (bottom left), and tree crowns (right)

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