



# SOCET GXP® At-a-Glance Spectral Capabilities

Imagery courtesy of DigitalGlobe®.

## Anomaly Detection

- » Gaussian mixture
- » Global
- » Local

## Atmospheric Correction

- » Dark subtraction
- » Internal average relative reflectance
- » Reflectance calibration (empirical line method)

## Band Composites

## Band Math

## Band Preview

- » Quickly cycle through all bands
- » Single button click for masking and color channel assignment

## Band Ratios

- » Customized band ratios
- » Normalized Difference Vegetation Index (NDVI)
- » Normalized Difference Water Index (NDWI)

## Band Statistics

## Change Detection

## Classification Raster Refinement

- » Includes real-time algorithms:
  - » Cluster
  - » Fill
  - » Filter

## Colorization (single band)

- » Dynamic look-up table creation

## Components Analysis

- » Independent components analysis
- » Minimum noise fraction
- » Principal components analysis
- » Spectral unmixing

## Convolution Filters

- » Edge detection
- » Sharpen
- » Smooth

## Decorrelation

## Generate Vectors

- » Customized auto-attribution (area, perimeter, etc.)
- » Supervised classifications and colorization bins

## Histogram Manipulation and Transforms

- » Adjusted linear %
- » Equalization
- » Fixed multiplier
- » Invert pixels (individual or all bands)
- » Linear %
- » Linear 2%
- » Linear fixed
- » Linear piecewise
- » Min/max
- » Normalization
- » Square root

## Image Enhancements

- » Brightness, contrast, gamma, saturation, and sharpness

## Dynamic Range Adjustment

- » (DRA)
- » Lock DRA
- » Pseudocolor/grayscale

## Image Pre-processing

- » Basic destripping

## Morphological Filters

- » Close
- » Custom
- » Dilate
- » Erode
- » Open

## Pan Sharpening

- » Includes real-time algorithms:
  - » Brovey
  - » Ehlers fusion
  - » Intensity, Hue, and Saturation (IHS)
  - » IHS Near Infrared (NIR)

## Scatter Plot

- » Color by frequency
- » Classify image from scatter plot
- » Dynamic class color adjustment

## Signal-to-Noise Ratio Calculations

## Spectral Band Masks

## Spectral Profiles

- » Arbitrary
- » Line
- » Point
- » Sample

## Supervised Classification

- » Point and polygon pixel selection
- » Real-time thresholding
- » Spectral signatures
- » USGS libraries included
- » Eight matching algorithms included:
  - » Absolute correlation
  - » Adaptive cosine estimator
  - » Adaptive matched filter
  - » Constrained energy minimization
  - » Mahalanobis distance
  - » Normalized Euclidean distance
  - » Spectral angle mapper
  - » Spectral similarity value

## Unsupervised Classification

- » Dynamic class color adjustment
- » Includes three algorithms:
  - » ISODATA
  - » K-means clustering
  - » Tasseled cap

## Xport Multiport

- » Real-time simultaneous exploitation of multiple band combinations and spectral algorithms
- » Up to 16 different views of the image

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