# Land Cover and Bathymetric Survey

Physical coverage of the Earth's surface has different types or classes and each class and their sub classes have different optical properties. Theses optical properties can be measured remotely using satellites or airborne vehicles to capture information of the constituents in a given area. Zone mapping and land cover retrieves spatial information on these different classes, e.g. forests, grasslands, croplands, lakes, wetlands. Zone and land cover maps primarily target detection and their changes, and to find optimal spatial boundaries for different land use classes. Feature extraction, clustering, and classification are important to identify boundaries for land cover using remote sensing. Moreover, in bathymetric surveys, the optical properties are primarily used to determine the depth of water bodies. In addition to that, satellite images of water bodies could be used to identify constituents subsumed in the water body.

Key results :

- Clustering, feature extraction, and classification algorithms for land cover and zone mapping using hyperspectral satellite images.
- Mapping of vegetation zones using hyperspectral data from the Hyperion sensor.
- Development and analysis of zone mapping algorithms for hyperspectral data.
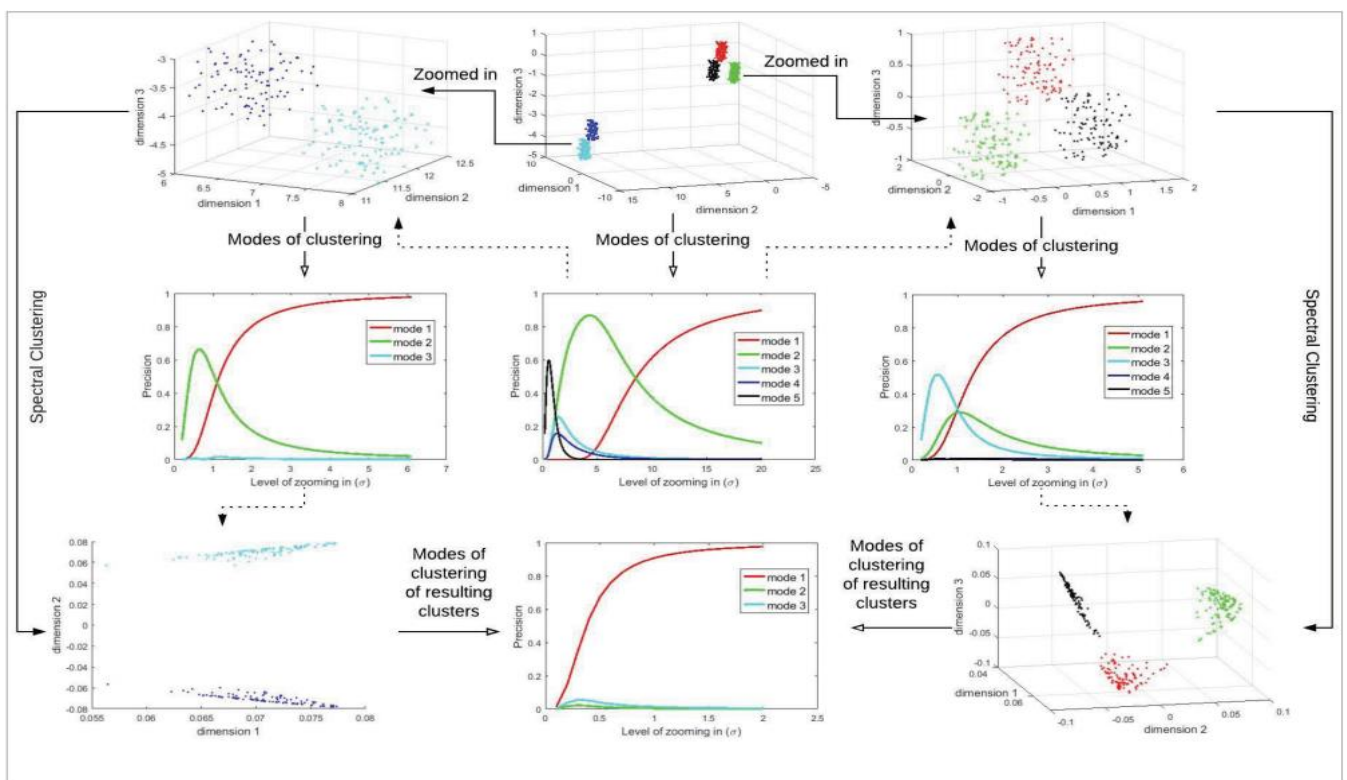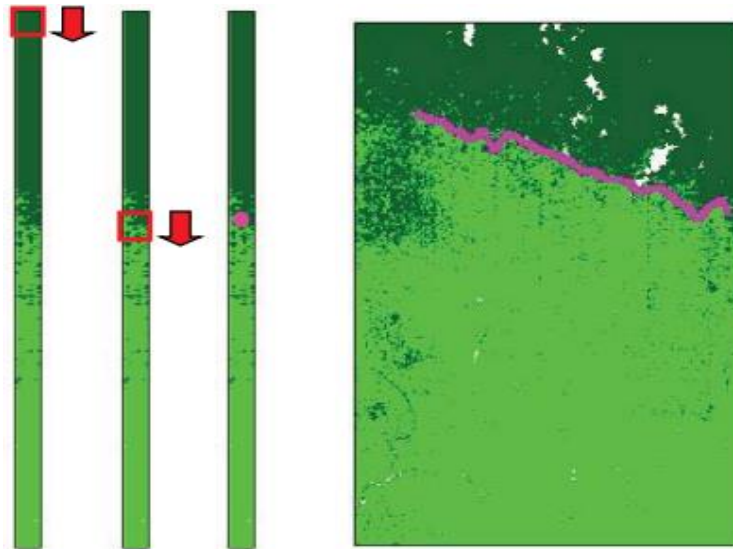
Beneficiaries of the research :

- Scholars/ researchers working on zone mapping using satellite images
- Bathymetric surveyors performing field surveys for bathymetry mapping

Outcomes :

- S.S.P. Vithana, E.M.M.B. Ekanayake, E.M.H.E.B. Ekanayake, A.R.M.A.N. Rathnayake, G.C. Jayatilaka, H.M.V.R. Herath, G.M.R.I. Godaliyadda and M.P.B. Ekanayake, "Adaptive hierarchical clustering for hyperspectral image classification: Umbrella Clustering", Journal of Spectral Imaging, Vol. 8, Article ID aa1 (2019), July, 2019.DOI: 10.1255/jsi.2019.a11

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