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Vegetation Identification With Lidar
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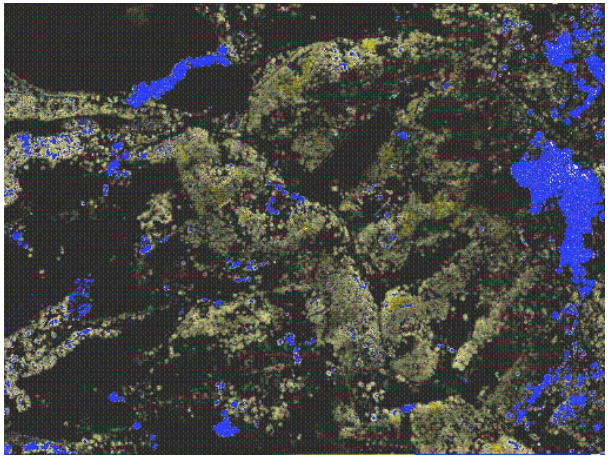
LIDAR data taken over the Elkhorn Slough in Central California are analyzed for terrain. The specific terrain element of interest is vegetation, and in particular, tree type. Data taken on April 12th, 2005, were taken over a 10 km × 20 km region which is mixed use agriculture and wetlands. Time return and intensity were obtained at ~2.5 m postings. Multi-spectral imagery from QuickBird was used from a 2002 imaging pass to guide analysis. Ground truth was combined with the orthorectified satellite imagery to determine regions of interest for areas with Eucalyptus, Scrub Oak, Live Oak, and Monterey Cyprus trees.



LIDAR temporal returns could be used to distinguish regions with trees from cultivated and bare soil areas.

Some tree types could be distinguished on the basis of the relationship between first/last extracted feature returns. The otherwise similar Eucalyptus and Monterey Cyprus could be distinguished by means of the intensity information from the imaging LIDAR. The combined intensity and temporal data allowed accurate distinction between the tree types, and task not otherwise practical with the satellite spectral imagery.

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