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"Regional scale assessment of coral reefs in the Caribbean using Landsat 7 imagery: the case of Panama, Mexico and Cuba"

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At the dawn of the new Millenium, coral reef scientists and managers seek to assess entire reef tracks and archipelagos rapidly, accurately, and in a comparative cost-effective way. Indeed, the recent demise of many coral reefs has prompted a number of investigations to assess the status of these fragile ecosystems over large scales. A basic prerequisite for large scale ecological and monitoring studies are synoptic habitat and geomorphology maps showing the extent and distribution of reef types. Despite several decades of coral reef explorations and studies, this basic knowledge is still lacking for many reef provinces in the Caribbean Sea, primarily because of their remoteness and historical difficulties in access. Therefore, remote sensing synoptic products are now being included in many ecological studies. Among the possible platforms, the Landsat 7 satellite launched in April 1999 provides an adequate solution due to its spectral, spatial and temporal resolution. Here, we summarize how Landsat data have been used to optimize sampling designs, provide inventories of marine ecosystems for entire reef tracks (San Blas archipelago, Panama), inventory of specific habitats (e.g. *Acropora palmata* crests in Southern Cuba) and detailed habitat mapping for pilot-sites (Chinchorro Bank and Yucatan fringing reefs, Mexico). The interest of comparing various Caribbean sites is to generalize habitat and geomorphology classification schemes, assess which image processing methods are the most effective and reproducible, and what level of accuracy can be achieved with relaxed sampling schemes. This regional remote sensing work also provides unique opportunities for building and strengthening international collaborations.