

FROM MODIS TO CASI: A MULTISCALE APPROACH TO CORAL REEF MAPPING

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Although a lot of research has already been done on coral reefs and their degradation, Bryant *et al.* (1998, p.38) state that 'there is (still) a critical need for detailed monitoring and assessment of reef habitats in order to better document where and how coral reefs are threatened and to understand what measures are needed to safeguard them'. The ideal approach would be multilevel sampling (Bryant *et al.*, 1998) in which detailed, locally sampled information is extrapolated to wider areas using satellite imagery.

Remote sensing offers the opportunity to consistently gather information over vaster areas compared to traditional in situ survey methods. Remote sensing also allows monitoring the coral reefs' status more cost-effective. Basically, four categories of information concerning coral reefs are gathered using remote sensing, i.e. on the localisation and composition of the reef structures, the biophysical parameters of their environment and the changes over time of these elements (Phinn *et al.*, 2000).

The monitoring of the global marine environment was one of the first large-scale applications of remote sensing. Since the 1980s, sensors such as MODIS have been delivering information on sea surface temperature and phytoplankton concentration. High-resolution sensors such as Landsat, too, have shown their usefulness for coral reef studies (Vanderstraete *et al.*, 2005). The newest sensors either offer a higher spatial resolution, e.g. QuickBird, a higher spectral resolution, e.g. Chris/Proba, or both, e.g. CASI. These sensors allow a more detailed discrimination of bottom-types. Several examples of these remote sensing derived products are presented.

References

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