

A Decade of Satellite Ocean Color Observations*

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Key Words

carbon cycle, chlorophyll *a*, marine ecosystems, satellite calibration and
validation, SeaWiFS

Abstract

After the successful Coastal Zone Color Scanner (CZCS, 1978–1986) demonstration that quantitative estimations of geophysical variables such as chlorophyll *a* and diffuse attenuation coefficient could be derived from top of the atmosphere radiances, a number of international missions with ocean color capabilities were launched beginning in the late 1990s. Most notable were those with global data acquisition capabilities, i.e., the Ocean Color and Temperature Sensor (OCTS, Japan, 1996–1997), the Sea-viewing Wide Field-of-view Sensor (SeaWiFS, United States, 1997–present), two Moderate Resolution Imaging Spectroradiometers (MODIS, United States, Terra/2000–present and Aqua/2002–present), the Global Imager (GLI, Japan, 2002–2003), and the Medium Resolution Imaging Spectrometer (MERIS, European Space Agency, 2002–present). These missions have provided data of exceptional quality and continuity, allowing for scientific inquiries into a wide variety of marine research topics not possible with the CZCS. This review focuses on the scientific advances made over the past decade using these data sets.