

Ocean Sensing and Monitoring: Optics and **Other Methods (SPIE Press Tutorial Text** TT98) (Tutorial Texts)

By Weilin W. Hou



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This is an introductory text that presents the major optical ocean sensing techniques. It is suitable for professionals and managers in related disciplines, as well as students who are interested in exploring career paths in remote sensing of the ocean or ocean engineering.

The book starts with a brief overview of the main branches of ocean research. including physical, chemical, biological, and geological oceanography, as well as biogeochemistry. The basic optical properties of the ocean are presented next, followed by underwater and remote sensing topics, such as diver visibility; active underwater imaging techniques and comparison to sonars; ocean color remote sensing theory and algorithms; lidar techniques in bathymetry, chlorophyll, temperature, and subsurface layer explorations; microwave sensing of surface features including sea surface height, roughness, temperature, sea ice, salinity and wind; as well as infrared sensing of the sea surface temperature.

Platforms and instrumentation are also among the topics of discussion, from research vessels to unmanned underwater and aerial vehicles, moorings and floats, and observatories. Integrated solutions and future sensing needs are touched on to wrap up the text. A significant portion of the book relies on sketches and illustrations to convey ideas, although rigorous derivations are occasionally used when necessary.



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