A Statistical Index of Bio-Optical Seawater Types

Abstract:
Water type definition as a function of bio-optical properties has relevance for the exploitation of satellite ocean color data because it may provide a mean to optimize the atmospheric correction process, or select the most appropriate bio-optical algorithm for the determination of optically significant constituents in seawater. Within such a framework, this study defines a water type index assuming the existence of two extreme conditions. On one side there are waters with optical properties totally depending on the phytoplankton component. On the other side, waters characterized by fully unrelated bio-optical quantities. The index of intermediate water type is then defined on a statistical basis, and the resulting scheme applied to a set of experimental data collected in an optically complex coastal region. Finally, in view of supporting remote sensing applications, a neural network algorithm is implemented to identify water types using the normalized water leaving radiance.

Authors:
D'ALIMONTE Davide
ZIBORDI Giuseppe
BERTHON Jean-Francois

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