

Evolution des mesures optiques et de la couleur de l'océan depuis le 18ème siècle

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Ocean Color Radiometry (OCR) looks at the interaction of the sun light with the optically-active marine particles, such as phytoplankton, suspended particulate matter or colored dissolved organic matter. The study of the ocean color dates back to the 17th century. The first observations were on-board commercial and discoveries ships with description of changes in the color of the surface's ocean and tentative empirical explanations of these changes. But no instruments were used to describe the variation of the ocean color. One big step is the creation of the Secchi Disk in the mid-19th century. It is still widely used in the ocean color community. At the end of the 19th François Alphonse Forel invented, in 1890, the Forel scale which covered the colour shades of seawater between blue and yellow-green in 11 steps. Two years later the German Willi Ule expanded the scale with green to brown colour shades in 10 additional steps. Combining both scales gave the Forel-Ule scale, its name and contains 21 glass tubes with mixtures of coloured chemical solutions. However, the mechanisms responsible for the coloration of seawater were exposed only in the early 20th century. The 20th century saw the development of radiometric instruments enabling the measurements of the spectra of the ocean color. Finally, in the second part of the 20th century, studies showed relationship between those spectra and the concentration of chlorophyll-a, opening new insights of the marine biomass. All those studies led to the first ocean color satellite in 1978 with the Coastal Zone Color Scanner, first of a long series with continuous space-borne observations of ocean color since 1997.