

OCEAN OPTICS XXIV

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<https://oceanopticsconference.org>

Tuesday, October 9

Poster Session 2

10:30–12:30

Poster 82

OCEAN COLOUR GLOBAL TIME SERIES FOR USE IN CLIMATE STUDIES

Spectrally-resolved water-leaving radiance and chlorophyll concentration are recognised as Essential Climate Variables (ECV) by the Global Climate Observing System. Global time-series of these ECVs are key to studying phytoplankton dynamics at seasonal and inter-annual scales, and understanding the role of phytoplankton in marine biogeochemistry, the global carbon cycle and the response of marine ecosystems to climate variability. Generation of a long time-series of ocean-colour data is not a trivial task: there are a number of atmospheric correction and product retrieval algorithms; satellites have finite life-spans, so data from individual sensors from late 1997-date, with differing sensor characteristics, need to be merged without introducing artefacts. ESA's Ocean Colour Climate Change Initiative is undertaking research addressing these requirements, with support from NOAA, NASA and a large community of global climate researchers, marine ecosystem modellers and remote sensing scientists. Products are validated against fiducial reference measurements; uncertainty characteristics, quantified on a pixel-by-pixel basis, facilitate applications and interpretations consistent with the quality of the data. Continuity in ocean-colour ECV production is vital to support continued use by the scientific community and will be sustained through the European Copernicus Climate Change Service programme. This presentation will discuss the prospects to develop the ocean-colour ECV through: addition of new sensors, notably the Sentinel-3 OLCI series; potential increases in data resolution (e.g. spatially global 300m from OLCI and temporally through geostationary missions); and integration with in situ observing systems, notably the BioArgo programme to investigate the 3D structure of the ocean.

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