

OCEAN OPTICS XXIV

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Wednesday, October 10

Poster Session 3

16:00–18:00

Poster 139

PROCESSING OF CHRIS-PROBA HYPERSPECTRAL IMAGES TO RETRIEVE WATER QUALITY INFORMATION

The Compact High Resolution Imaging System (CHRIS) on the Project for On-Board Autonomy platform (PROBA-1) is an experimental hyperspectral satellite sensor which provides 13kmx13km images with 62 spectral bands from 415nm to 1050nm at a spatial resolution of 36m since 2001. To prepare the exploitation of hyperspectral data from future ocean colour remote sensing sensors and determine what extra information can be extracted, CHRIS images taken over different sites including inland waters, coastal waters and river months and plumes were processed to retrieve water reflectance and water constituents. CHRIS L1 data are affected by random noise but also by disturbance patterns characterized by a high degree of spatial and spectral coherence. The latter is inherent to the sensor itself and is partially reproduced from one image to another. As existing algorithms for CHRIS noise removal have focused mainly on vertical striping, we developed here a new algorithm which improves the quality of the reflectance spectra. An atmospheric correction algorithm originally developed for turbid coastal waters and high spatial resolution sensors was successfully adapted to CHRIS/PROBA data in order to retrieve hyperspectral water-leaving reflectance. Standard multispectral algorithms for chlorophyll-a and suspended particulate matter were applied to CHRIS data and compared with simultaneous images from multispectral sensors. The perspectives for retrieving new information about algae composition and suspended sediment characteristics (size/type) from the hyperspectral data are discussed.

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