**UNCERTAINTY ESTIMATES FOR REMOTE SENSING REFLECTANCE DERIVED FROM THE COMPARISON BETWEEN MISSIONS**

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Assigning uncertainty to ocean-color satellite products is a requirement to allow an informed use of these data. To answer this, uncertainty estimates are derived using the comparison of coincident daily records of the remote sensing reflectance RRS derived from three missions, MERIS, MODIS and SeaWiFS, with the same processing chain. The approach is spatially resolved and produces the part σ of the RRS uncertainty budget not affected by biases. The global average of σ decreases with wavelength from approximately 0.7-0.9 10-3 sr-1 at 412 nm to 0.05-0.1 10-3 sr-1 at the red band. The distribution of σ shows a restricted spatial variability and small variations with season, which makes the multi-annual global distribution of σ an estimate applicable to all retrievals of existing missions. The comparison of σ with other uncertainty estimates derived from field data or with the support of algorithms provides a consistent picture. When translated in relative terms, the distribution of σ suggests that the objective of a 5% accuracy is fulfilled between 412 and 490 nm for oligotrophic waters (chlorophyll-a concentration below 0.1 mg m-3). This study also illustrates comparison statistics. The mean absolute relative difference shows a characteristic U-shape with both ends at blue and red wavelengths inversely related to the amplitude of RRS. On average and for the considered data sets, SeaWiFS RRS tend to be slightly higher than MODIS RRS, which in turn appear higher than MERIS RRS. Biases between mission-specific RRS may exhibit a seasonal dependence, particularly in the subtropical belt.

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