REGIONALLY OPTIMIZED MERGER OF MODIS-AQUA and VIIRS CHLOROPHYLL ALGORITHMS

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ABSTRACT

The standard ocean chlorophyll (Chla) products from current satellite sensors MODIS-Aqua and VIIRS underestimate at medium and high *in situ* Chla concentrations and have approximately 9% bias between each other in the California Current. By using the regional optimization approach of Kahru et al. (2012) we minimized the differences between satellite estimates and *in situ* match-ups as well as between estimates of the two satellite sensors, and created improved empirical algorithms for both sensors. The regionally optimized Chla estimates from MODIS-Aqua and VIIRS are equivalent to standard *chlor\_a* estimates at low Chla but have higher retrievals at medium to high *in situ* Chla. The merged Chla datasets from MODIS-Aqua and VIIRS have no bias between each other and can be merged to improve the temporal frequency, spatial coverage and to extend the merged time series.