

Marine primary production estimates from ocean color: a comparative study of algorithms

Mary-Elena Carr and Marjorie Friedrichs

<mec@pacific.jpl.nasa.gov>

The Primary Production Algorithm Round Robin 3 (PPARR3) aims to compare models or algorithms that estimate marine primary production from satellite measurements of ocean color (PP models). It is a continuation of previous PPARR exercises, which compared in situ carbon-14 uptake rates with an estimate of primary production using satellite-accessible data. PPARR2 found that modeled primary production would be within a factor of two of the in situ rates if systematic offsets were corrected. PPARR3 aims to provide a forum to compare model output, improve parameterization, and help identify the source of biases. This community project presently counts with over twenty modeling groups who estimate primary production for input fields provided by the organizers. The PPARR3 exercise consists of 3 stages, the first stage is a comparison of monthly global primary production fields generated by the different algorithms. Stage 2 is a step-by-step sensitivity study of the different algorithms tracking the derivation of sub-products in a series of point value estimates. The third stage is similar to PPARR1 and PPARR2 and is a blind comparison to the quality-controlled database of carbon-14 measurements in the equatorial Pacific. We present here the results of the first stage, which compares the output of the models throughout an annual cycle, and preliminary results from the latter two.