

Tuesday, October 9

Poster Session 2

10:30–12:30

Poster 126

A 55-YEAR TIME SERIES STATION FOR PRIMARY PRODUCTION IN THE ADRIATIC SEA: DATA CORRECTION, EXTRACTION OF PHOTOSYNTHESIS PARAMETERS, AND REGIME SHIFTS

In 1962, a series of in situ primary production measurements began in the Adriatic Sea, at a station near the island of Vis. To this day, the data set has accumulated over 55 years of monthly measurements through the photic zone. The measurements are conducted over a six-hour period around noon, and the average rate extrapolated linearly over daylength to calculate daily production. Here, a non-linear primary production model is used to correct these estimates for potential overestimation of daily production due to linear extrapolation. The assimilation numbers are recovered from the measured production profiles and subsequently used to model production at depth. Using the recovered parameters the model explained 87% of variability in measured normalized production at depth. The model is then used to calculate daily production at depth and it is observed to give on average 20% lower daily production at depth than the estimates based on linear extrapolation. Afterwards, watercolumn production is calculated and here the model predicted on average 26% lower watercolumn production. With the recovered parameters and the known magnitude of the overestimation, the time series of watercolumn production is then re-established with the non-linearly corrected data. During this 55 year period distinct regimes are observed, which are classified with a regime shift detection method. It is then demonstrated how the recovered parameters can be used in a remote sensing application.

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