

Interactive comment on “Phytoplankton blooms on the western shelf of Tasmania: evidence of a highly productive ecosystem” by J. Kämpf

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These comments relate to the second version of the paper, which is found online as supplementary material.

The Great Australian Bight is the site of a relatively unknown summer upwelling system, and this paper shows data that extend its eastern edge by several hundred kilometers onto the shelf of western Tasmania. All the data given are taken from satellite imagery, so there is considerable scope for ground-truthing at some point in the future. The data are taken from two periods, SeaWiifs data between 1/1/1998 and 12/31/2000, which are used for initial analysis, and MODIS data, at finer resolution, from 1/1/2005-31/3/2014. The author acknowledges that OCS data are not very good close to the coast, because of interference from dissolved colored matter and suspended sediment, but uses the

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relationship between OCS and fluorescence line height from the Bonney coast, an area without riverine input, to correct data from western Tasmania, where rivers are common but data on flow rates and chemical composition are few and far between. The corrected line heights are compared to the local upwelling index and wind stress, and it is suggested that in contrast to the Bonney coast region, where production depends on upwelling in summer, along the Tasmanian west coast there can also be enhanced production in austral spring, presumably fueled by input of nutrients from the rivers although the author doesn't say this.

The data analysis is based on 8-day snapshots of chlorophyll concentrations available from the CSIRO. One problem with the data set is that the satellite imagery for this region is affected by cloud cover a considerable percentage of the time, especially in winter, so there are numerous gaps in both sets of records from Tasmania (26% from 1998-2000 and 21% for the MODIS data). However, Fig. 10 certainly suggests enhanced upwelling along the western Tasmanian shelf during non-summer months, and this figure would be helped if both parts used the same vertical scale.

Using grouped data in this way means that the author has had to use non-parametric statistics, which makes some of his arguments about the relationship of blooms to potential controlling factors hard to follow in places. Overall, however, the argument seems compelling, although the estimates of the relative contribution of both regions to total production will have to wait until someone actually goes out and takes some measurements.

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