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Poster
Data-only products intend to provide information on ocean state without the presumption of a prescribed dynamical constraint. This is valuable for testing dynamical hypotheses to determine if the observations are consistent or if the observations invalidate the hypothesis. However, a regularly gridded dataset from irregularly spaced observations automatically presupposes a spatial relation. The gridding process is similar to applying a convolution integral to the observations with delta functions at their space/time locations. The most important aspect when using a regularly gridded product is to understand this convolution function, which can also be expressed as a filtering process. The filtering process imposes its own spectral response on the gridded data. In order to ensure proper conclusions are reached, the filter response function in the wavenumber/frequency domain of interest should be carefully considered.

Typically, spatial and temporal scales are prescribed and used in an optimal estimation process. In the past, such length scales have been estimated using historical altimeter observations through a binned space/time lagged autocovariance that is allowed to change over latitude and longitude. In the development process, the large scale sea surface height variations were removed so that the mesoscale characteristics would be estimated. It is possible to iterate this process. Using the mesoscale characteristics, the data may be interpolated and subtracted leaving the residuals. Residuals are subsequently used in a second time/space lagged autocovariance estimation of the next order length scales.

The results are the appropriate information to be used in a multiscale analysis, and this information may be used with either a data-only product or within a cycling numerical model assimilation system. The process of estimating the scales and application to a data-only analysis are examined in this presentation. Work is under way to use the scales in a cycling model assimilation system. The data-only analysis products from this multiscale analysis are now being generated and made available. These products include the regularly gridded information using both first mesoscale characteristics and the multiscale characteristics and both in a real time estimation and a reanalysis estimation for greater accuracy. A consistent reconstruction of the data-only products is under way.
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