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Poster
Frequency and wavenumber spectra computed from altimetric sea surface height (SSH) anomalies are being compared with a hierarchy of MIT OGCM regional simulations performed for the Atlantic Ocean with spatial resolutions varying from 32 km (1/3 degree) to 4 km (1/24 degree). Also included in the comparison are results from the STORM-NCEP simulation, which is based on the MPI/OM model configured globally with close to 1/10 degree spatial resolution. All model runs are driven by fluxes computed with 6-hourly NCEP forcing fields and bulk formula. Results of the frequency spectra reveal that in some regions of the Atlantic the highest-resolution model simulation is capable of simulating observed SSH variability. However, there are many other regions where this does not hold, especially on periods smaller than 100 days. Discrepancies remain larger for wavenumber spectra, especially on scales smaller than the mesoscale eddy scales, over which model wavenumber spectra tend to fall off steeper than observed; nevertheless, showing a similar "noise tail" as observed by altimetry. A comparison is performed with respect to geostrophic zonal and meridional model velocity spectra, revealing a continuous increase in variability level with spatial resolution, especially on short time scales.
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