



Fleet Numerical Meteorology and Oceanography Center

Future Sub-seasonal to Seasonal Capabilities

presented at Workshop on Metrics, Post-Processing, and Products for S2S
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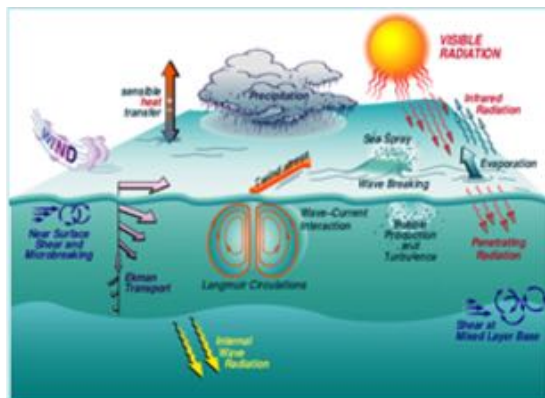
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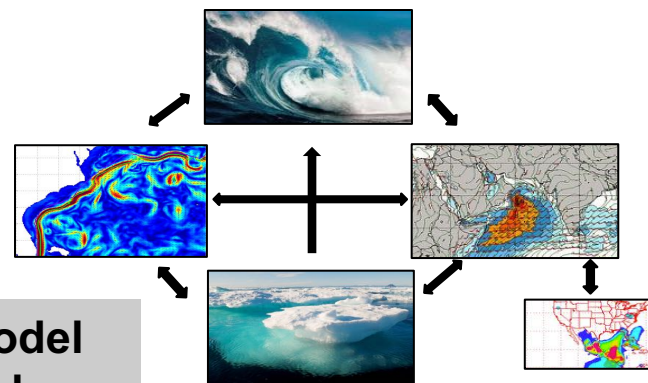


Future USN Earth System Prediction Capability (ESPC)

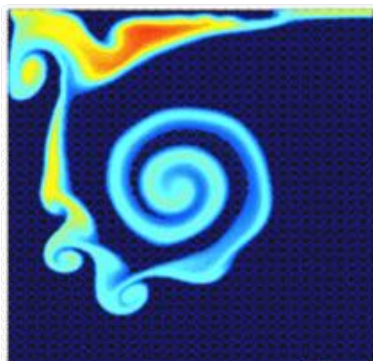
Energy-conserving coupled physics



Air-Ocean-Land-Ice environmental coupling

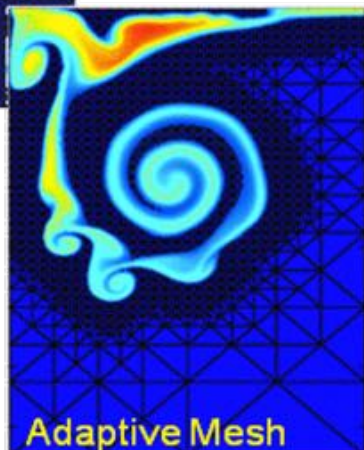


Navy's best environmental model driving full breadth of Naval Operations



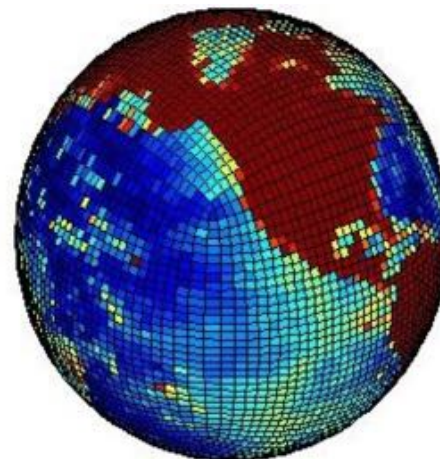
Uniform Mesh

Higher resolution near items of interest



Adaptive Mesh

Cubed-sphere calculations





ESPC Acceptance Criteria

Emphasis

Atmosphere- extended range ensemble performance and **ocean surface fluxes**

Ocean- **High resolution, ensemble** predictions of ocean fronts and eddies, acoustics

Ice- prediction of **ice edge**

Key Parameters

Atmosphere- 500 hPa AC, sfc mom/heat flux (using bulk estimates at buoy locations), solar flux (using NASA satellite observations as verification), indices for large-scale phenomena (MJO, AO, AAO)

Ocean- temp, salinity profiles; surface drifter (currents), mixed layer depth, acoustic proxies (sonic layer depth, below layer gradient, true/false/positive/negative trapping prediction), frontal placement relative to SSH observations

Ice- concentration (satellite observations), ice velocity (drifters), ice edge relative to NIC analysis

McLay et al. 2016: "Validation Test Report NAVGEM 42d Intra-Seasonal Ensemble Forecast System (EFS)", unpublished NRL report