

Wave Dependent Momentum Fluxes in Operational Oceanography

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It is well known that ocean surface waves alter the air-sea fluxes of momentum and turbulent kinetic energy. For young wind sea a significant part of the momentum flux from the atmosphere forces wave growth at the expense of the wind driven currents. In practice, this means that (i) a significant part of the air-sea momentum and energy fluxes goes into the wave field and should not be used to force the ocean models directly, and, (ii) when the waves dissipate (e.g. when they break), they create a flux of momentum and energy. In the MyOcean project “Wave dependent momentum fluxes in operational oceanography” we aim at establishing the wave-induced surface stress as an end product for use in ocean general circulation models, and suggest a framework for including surface wave effects in open ocean ocean models. In this presentation we will i) give a outline of our framework for including wave forces in an ocean model, ii) give an example of an idealized case with a mid-latitude storm that force a) waves and b) an ocean model in an consistent way. Finally, the importance for drift trajectories will be discussed.