[EE] Evening Poster | A (Atmospheric and Hydrospheric Sciences) | A-OS Ocean Sciences & Ocean Environment

[A-OS09]Marine ecosystems and biogeochemical cycles: theory, observation and modeling

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The ocean accounts for about 50% of global net primary production. This production is significant for carbon cycling and ecosystem functioning, and is related directly or indirectly to a variety of climatic and ecological phenomena. The responses to natural and anthropogenic environmental stressors that influence marine production and diversity can cause perturbations to marine ecosystems that alter trophic dependencies and interactions among organisms at a range of space and time scales. Quantification of the principal mechanisms driving spatio-temporal variability of marine ecosystem remains to be done, especially in terms of evaluation of uncertainty in responses. As a result, evaluating vulnerability of marine ecosystems to environmental change requires systematic and holistic approaches that integrate physics to ecology and are based in observations and modelling. This session aims to provide a venue for discussing recent advances in understanding marine biogeochemical cycles, ecosystems and their interactions. Observational and modeling studies that consider linkages between biogeochemical and ecosystem processes, biodiversity and biogeochemistry, and the effects of multiple stressors are especially encouraged.

[AOS09-P01]Improvement of the physical-biogeochemical-fish coupled model for the western North Pacific

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Generally, the western North Pacific is well known that it has the large volume of fish catches. Japanese food culture, that highly depends on seafood, is supported by the marine capture fishery in such region. However, it has been known that the amount of catch of many fish species in Japan showed multidecadal fluctuations, whose mechanism has been unclear. The authors are focusing on Jack mackerel, chub mackerel, and Pacific cod. To simulate transport and migration processes of those species, we have applied the Regional Ocean Modeling System (ROMS) coupled with North Pacific Ecosystem Model for Understanding Regional Oceanography For Including Saury and Herring (NEMURO.FISH) in the western North Pacific (hereafter: the model is referred as the ROMS-NEMURO.FISH). This model was driven by the two atmospheric forcings in order to compare with each other: one was Common Ocean Reference Experiment version 2 (COREv2), and the other is Japanese 55-years Reanalysis (JRA-55). Also, Simple Ocean Data Assimilation (SODA) was used as the initial and boundary conditions.