

Date: April 18

Time: 11:00 AM

Location: Ames 234

Speaker: Dr. Katja Fennel
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Title: "Functional diversity and multi-elemental cycling in ecological models"

Abstract

The whole generation of ecosystem models developed during the 90ies is typified by the Fasham model (Fasham et al. 1990) characterized by a simplified description of the pelagic food-web with a small number of highly aggregated functional groups, and assuming tight coupling of the cycles of essential nutrients. While these models have been used successfully in a number of applications, it was recognized end of the 90ies that some substantial improvements are necessary. Among other things, the representation of multi-elemental cycling and the lack of some key species has been found inadequate to capture the biogeochemical state of the ocean and to predict potential changes to anthropogenic perturbations. I will present two simple biological models that attempt to address these issues. The first model was developed for a site off Hawaii in the subtropical Pacific. The model includes a mechanistic description of N₂-fixation and allows an uncoupling of the nitrogen and phosphorus cycles. The second model was developed for the Southern Ocean and explicitly considers diatoms and the cycling of silica.