Joint Oceanography Seminar

Lisa Hahn-Woernle

Post-Doc
Department of Oceanography
University of Hawaii at Manoa

"A high-resolution modeling study of a Western Antarctic Fjord"

In the Western Antarctic Peninsula (WAP), fjords make up most of the interface between the ocean and the cryosphere and they are hotspots of biological productivity and biodiversity. Aiming to deepen our understanding of a complex and scarcely observed coastal environment, we built a high-resolution numerical model (350 m) of a WAP fjord, Andvord Bay, using the Regional Ocean Model System (ROMS). As a first step, we aimed to identify the current key drivers and potential future contributors to the upper ocean (<50m) heat content, H_f, of the fjord using the adjoint sensitivity method. Especially in the context of a warming Antarctic, changes of H_f could directly affect primary productivity and melting of icebergs and glacial fronts. We will present results of the sensitivity study with which we could identify key atmospheric forcing and remote water masses impacting H_f, as well as potential consequences for H_f due to future climate warming. The presentation will conclude with an insight into preliminary planktonic ecosystem modeling results achieved with the Carbon, Ocean Biogeochemistry and Lower Trophics (COBALT) marine ecosystem model.

*Lisa is finishing her project at SOEST in April and will be moving back to Europe. We therefore invite you all to join us on the MSB lanai at 4:30 pm to talk story and have some pupus. Looking forward to seeing you there!

Thursday March 28th, 2019 3:00p.m. MSB 100

Joint Oceanography Seminar

Tobias Friedrich

Post-Doc
IPRC - Department of Oceanography
University of Hawaii at Manoa

"Regional, physical-biogeochemical modeling of the main Hawaiian Islands"

The oceanic circulation around the main Hawaiian Islands is subject to substantial meso- and submesoscale activity. Using the regional ocean model ROMS and the planktonic ecosystem model COBALT with a 4km resolution, our physical-biogeochemical simulations aim at investigating how meso- and submesoscale processes control the spatial and temporal variability of the marine carbon cycle and the ecosystem. Based on decadal state-estimate reanalysis of the ocean physics, we have recently completed a simulation of the period 2010-2017 using ROMS/COBALT. First model results exhibit promising agreements of numerous biogeochemical parameters simulated by the model and observations at Station ALOHA. We will present a preliminary analysis of the mechanisms driving surface ocean partial pressure of CO2 and we will provide a first outlook on the characteristics of future ocean acidification around the main Hawaiian Islands.

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