Changes in Ocean Transport during Marine Heatwaves in the Northeast Pacific

ÉLISE BEAUDIN[1], EMANUELE DI LORENZO[1], CHRIS EDWARDS[2], MER POZO BUIL[2]

[1] *Brown University, Providence, Rhode Island, USA*

[2] *University of California in Santa Cruz, Santa Cruz, California, USA*

The Northeast Pacific has experienced a series of major marine heatwaves in the last decade, such as the The Blob in 2014-2016, the Strong 2015 El Niño, the 2019 Alaskan heatwave, and the 2020 marine heatwave. During those events, marine ecosystems have experienced dramatic shifts due to the compound effects of changes in ocean temperatures, eddy-scale dynamics, and ocean transport dynamics. We aim at studying the changes in ocean transport dynamics that occurred in the California Current System (CCS) and the Gulf of Alaska (GOA). We use the Regional Ocean Modeling System (ROMS), a hydrostatic, terrain-following, ocean model to simulate the ocean state from 1980 to present. Our goal is to understand the normal pathways of nutrients using passive tracers as a proxy within the model, and to describe the changes in ocean transport during the marine heatwaves. This work will help to quantify predictability of transport dynamics as the climate warms.