Position for Sarah Gille, Bruce Cornuelle, and Matthew Mazloff

Contact Name: Professor Sarah Gille, Dr. Bruce Cornuelle, or Dr. Matt Mazloff
Contact Email: sgille@ucsd.edu, bcornuelle@ucsd.edu, mmazloff@ucsd.edu

Title of the Position: Postdoctoral Scholar-Employee

School or Division: Scripps Institution of Oceanography

Center, Institute, or other Organized Unit: Climate, Atmospheric Science and Physical Oceanography

Disciplinary Specialty of Research: Physical Oceanography

Description of the Position:

The postdoctoral researcher will focus on developing regional ocean state estimates with ~2 km grid spacing using 4-dimensional variational (4DVar) assimilation in the California Current using all available data. This is in support of the SWOT mission (https://swot.jpl.nasa.gov/mission/overview/). A central objective is fidelity at space and time scales relevant to this mission. Similarly, emphasis will be on analysis of data from the SWOT Cal/Val period and throughout the SWOT mission. A goal is to use the model dynamics and additional constraints to fill the spatio-temporal gaps between satellite observations. The California Current state estimation produced by the postdoctoral researcher will provide a dynamical framework in which to analyze SWOT data and understand the high-wavenumber processes in the ocean. We aim to provide a nurturing environment and engaged mentoring to support the postdoctoral researcher's professional development. Contact Sarah Gille (sgille@ucsd.edu), Matt Mazloff (mmazloff@ucsd.edu), or Bruce Cornuelle (bcornuelle@ucsd.edu) for further information.

Responsibilities include:

- Collaborate with SWOT Science Team, the ECCO consortium (https://www.ecco-group.org/), and the ongoing observational, modeling, and 4DVar assimilation research activities underway at Scripps Institution of Oceanography
- Produce state estimates of the California Current with model grid spacing of ~2 km using the MITgcm-ECCO software.
- Investigate the dynamical roles of balanced and unbalanced motions (including tides, internal waves, surface waves) at scales shorter than 100 km.

- Adapt innovations to the model and assimilation infrastructure as they are developed by the team.
- Analyze and interpret the state estimates in the context of SWOT observations.
- Disseminate research findings via presentations and peer-reviewed journals.
- Document, distribute, and publish state estimate output and any associated software development.

Qualifications Required and Preferred Academic Background:

Applicants should have 0-2 years of Postdoctoral experience, or be nearing completion of their Ph.D. (estimated within 3 months), and be self-motivated. Good written and verbal communication skills, including the ability to produce scientific publications and presentations and meet project milestones, are required. Also required is a strong analytical background with a Ph.D. in physical oceanography or a related field. Programming experience working in a Unix environment with experience in scripting languages such as Fortran, Python, and Matlab is highly desired. Other desired qualifications include experience with satellite observations, numerical modeling, assimilation, and data analysis (e.g. least squares, optimization, harmonic analysis, spectral analysis). A theoretical background in ocean dynamics at scales relevant to the SWOT mission (10km-100km) is also desired.

Appointment Length/Period: Initial appointment is for one year, with extension possible contingent upon candidate eligibility, performance, and eligibility of funding. Desired start date is September 1, 2020, or by mutual agreement.

Application Procedure: Please contact Professor Sarah Gille via email at sgille@ucsd.edu with a CV, a personal statement of the candidate's experience and career goals, and the names and email contact information for three referees.

The University of California, San Diego is an AA/EOE.

Application Closing Date MM/DD/YYYY or indicate open until filled: open until filled, with preference to applications received by July 31, 2020.