

Graduate Student Opportunity:

I am seeking a highly motivated graduate student to join my **ocean biogeochemistry-climate research group** in the Department of Earth and Environmental Science at University of Pennsylvania (UPenn).

Applicants must be self-motivated and hard working with good written and verbal communication skills. A strong background in physics, chemistry, engineering, oceanography or atmospheric science is ideal. Past programming experience under the Linux environment (especially programming in Fortran, matlab or python) is highly desirable. The research will combine theoretical aspects with running climate change simulations and sensitivity studies (using a general circulation model) on the new state-of-the-art computer cluster we have recently acquired for our group.

Possible scientific research areas include (a) developing a theoretical understanding for what controls the oceanic sink for atmospheric CO₂; (b) studying large scale trends as well as decadal trends and variability in ocean phytoplankton ecology and ocean carbon cycle; (c) the role of ocean mixing and circulation in determining the ocean carbon uptake and the global scale oceanic distribution of nutrients and carbon dioxide; (d) changes in the hydrological cycle and resulting impacts on climate on decadal to millennial time scales.

A potential thesis topic is the future of the Southern Ocean carbon sink under a warming climate and the resulting implications for ecosystem ecology. This project will quantify future changes in phytoplankton growth and ecology by simulating future global climate changes in both a global climate model and regional ocean models of the Weddell Sea, Antarctic Peninsula and Ross Sea. From a technical point of view, the project will involve incorporating and testing biogeochemistry modules in regional models of the Southern Ocean.

The position starts in the summer or fall 2010. If interested please contact me at imarinov@sas.upenn.edu.

Please note that applications are due in December 2009. For details see the [PhD program page](#) at UPenn (<http://www.sas.upenn.edu/earth/graduate.htm>).

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