

Graduate Opportunities in HYDROGEOLOGY

EARTH AND PLANETARY SCIENCES

UNIVERSITY OF CALIFORNIA, SANTA CRUZ

I am considering admitting *one graduate student for each of these two areas* (two students in total) during the 2019-20 graduate admission cycle (students begin in summer/fall 2020):

- (1) Managed aquifer recharge, surface water – groundwater interactions, water quality, incentives for enhancing use of stormwater and floodwater for managed recharge; and
- (2) Subseafloor geothermics and hydrothermal systems on Earth and Ocean Worlds

Project descriptions:

(1) We are helping to design, create, and operate managed recharge systems to improve water supplies and water quality, conducting field and laboratory research, managing a novel recharge incentive program, and running models of coupled processes to understand these systems. We may also have opportunities in surface water - groundwater interactions in stream/river systems. Our work involves GIS, numerical modeling, field studies, and laboratory experiments, in collaboration with colleagues at other universities, agencies, NGOs, and in the region.

(2) We recently secured funding for two new projects, working as part of research teams: designing, building, and testing the next generation of marine geothermal measurement systems, including software for data processing, and developing numerical models of coupled fluid-heat-solute transport below the icy shells of ocean worlds. We are also preparing two- and three-dimensional simulations of subseafloor hydrothermal circulation on Earth, and looking for new opportunities to conduct surveys and experiments at sea.

Qualifications;

Successful applicants will have an *outstanding academic record* with a B.S./B.A. in some branch of Earth/Planetary Science, Hydrogeology, Engineering, Physics, Geochemistry, or a related discipline, including *considerable quantitative coursework*. Prior research experience is helpful, as will be *strong writing and/or coding skills*, interest in *reading and discussing* the scientific literature, enthusiasm for *discovery*, and *technical ambition*.

Other helpful skills/interests include: working with lab/field equipment, organizational skills, interest in working independently and as part of multidisciplinary teams, and ability to work long days in the field or lab. For field work: transit to distant sites, working on uneven ground/ships, occasional heavy lifting, attention to safety and doing quality work.

Funding:

Hydrogeology students are funded with fellowships, research grants, and teaching assistantships. Research support for this work comes from federal, state, regional, and private sources.

Group status: As of Summer 2019, the UCSC Hydrogeology Research Group includes four Ph.D. students, three undergraduate students, and a junior specialist/researcher. We recently saw the departure of several degree recipients from our group (PhD, M.S. and BS), a junior specialist, and a postdoc – all have moved on to new jobs, opportunities, and adventures.

Please direct questions to Andy Fisher (Professor of Earth and Planetary Sciences, UCSC), afisher@ucsc.edu. More information on research activities within the UCSC Hydrogeology Group can be found at: <http://websites.pmc.ucsc.edu/~afisher>.