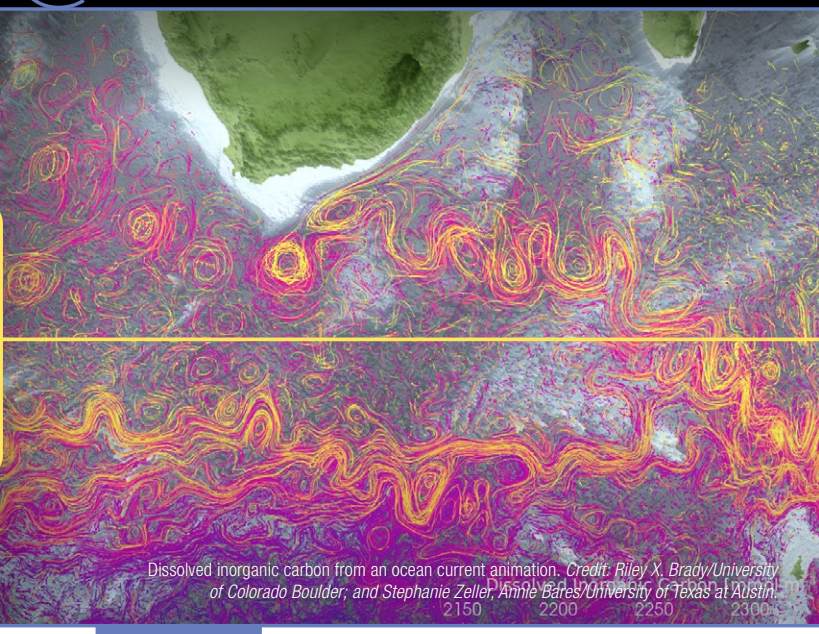
BUILDING THE COMPUTATIONAL WORKFORCE

The DOE Computational Science Graduate Fellowship



Dissolved inorganic carbon from an ocean current animation. *Credit: Riley X. Brady/University of Colorado Boulder; and Stephanie Zeller, Annie Bares/University of Texas at Austin.*

Thirty years ago, new computational scientists had to learn many skills on the job. To support and advance this evolving, interdisciplinary field, the Department of Energy's (DOE's) Advanced Scientific Computing Research (ASCR) program created the DOE Computational Science Graduate Fellowship (DOE CSGF) in 1991. This fellowship emphasizes multidisciplinary training and the use of high-performance computing (HPC) to develop leaders in computational science and engineering. The DOE CSGF encourages graduates to pursue national-lab careers and fosters collaborations with researchers at the labs, in academia and throughout industry.

DOE CSGF alumna Judith Hill assists fellows at an HPC workshop. *Credit: Krell Institute.*

INNOVATIONS

A NOVEL APPROACH TO TRAINING

ASCR recognized the need for interdisciplinary training in computational science early and created a unique graduate program to develop the workforce to realize this field's revolutionary potential.

- The DOE CSGF distinguishes itself from other graduate fellowships by requiring significant coursework across computation, mathematics, and science and engineering.
- Each fellow must complete a practicum at a DOE national laboratory, which provides access to advanced research, an expanded network of colleagues and mentors, the world's fastest supercomputers and forefront experimental facilities.
- DOE CSGF fellows participate in the annual program review, where they present research, learn about practicum opportunities, network with colleagues and participate in HPC training workshops.

IMPACT

A LEGACY OF LEADERSHIP

The DOE CSGF has supported more than 400 leaders in computational science and engineering who now have significant roles at the national labs, in industry and in academia.

- The vast majority (84%) of alumni remain employed as computational scientists or engineers, according to a 2017 study. Over their careers, 57% of alumni had been employed in academia, 36% in industry and 36% at a DOE laboratory.
- Alumni in academia are training the next generation of computational scientists, furthering the DOE CSGF's impact.
- Alumni serve in technical and management leadership roles within DOE and in industry; several alumni have founded technology companies.

TAKEAWAY

A WORLD-CLASS COMPUTATIONAL SCIENTIST PIPELINE

Through the DOE CSGF program, ASCR develops leaders in computational science and engineering. These efforts have placed the U.S. at HPC's forefront and have advanced HPC's role in science and engineering.

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