Fellowships in Geophysical Fluid Dynamics

at

Woods Hole Oceanographic Institution

June 21 to August 13, 2027

Since 1959 the GFD program has promoted an exchange of ideas among researchers in the many distinct fields that share a common interest in the nonlinear dynamics of fluid flows in oceanography, meteorology, geophysics, astrophysics, applied mathematics, engineering and physics. Each year, the program is organized around an eight-week course of study and research for a small group of competitively selected graduate-student fellows. The overall philosophy is to bring together researchers from a variety of backgrounds to provide a vigorous discussion of concepts that span different disciplines, and thereby to create an intense research experience. For the student fellows, the centerpiece of the program is a research project, pursued under the supervision of the staff. At the end of the program, each fellow presents a lecture and a written report for the GFD proceedings volume. Over its history, the GFD Program has produced numerous alumni, many of whom are prominent scientists at universities throughout the world. The interdisciplinary atmosphere of the Program is the ideal place for early career scientists to learn the habits of broad inquiry, of speaking to others with very different backgrounds and viewpoints, and of seeking answers in unfamiliar places.

The Program commences with a series of Principal Lectures focusing on a particular theme. For 2027, the theme is **"Fluid-Particle Interactions and Transport in Environmental Flows"**; the principal lecturers will be **Jim McElwaine** (WHOI) and **Rama Govindarajan** (International Centre for Theoretical Sciences). In estuaries and the coastal ocean, suspended particles interact with turbulence, significantly influencing the processes of sedimentation, resuspension, and transport. A mathematical understanding of interaction and transport processes remains elusive in all but the simplest circumstances. In the past decade there have been significant theoretical and numerical advances which are now giving insight into the microphysics of fluid-particle interactions. The lectures will start with the equation of motion of a single small spherical particle settling under gravity and then build in complexity by having more complex fluid flows, particles of different shapes and buoyancy, diluted and concentrated particle solutions, and finally, will explore the recently investigated possibility of aggregation of sediment and microplastics.

Up to twelve competitive fellowships are available for graduate students. Successful applicants will receive stipends of $9,500 and an allowance for travel expenses within the United States. Fellows are expected to fully participate (40 hours per week) for the full eight weeks of the Program. We welcome and encourage applications from individuals with varied perspectives and experiences. The GFD Program is committed to maintaining a respectful, supportive, and collegial environment where all members can contribute to advancing science. The application deadline is **February 5th, 2027**. Awards will be announced in March. We seek applicants from all areas of Geophysical Fluid Dynamics. Further information and application forms may be obtained at **https://gfd.whoi.edu** or by writing to: **gfd@whoi.edu**.

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