



# Colloquium

## **Imaging and Quantifying Black Smoker and Diffuse Flow from Seafloor Hydrothermal Fields**

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Black smokers, clouds of metallic mineral particles that discharge from hot vents in seafloor hydrothermal fields, are among the most spectacular phenomena in nature. Our team from Rutgers and the Applied Physics Lab-University of Washington is developing innovative methods using sound and light to image and measure flows from black smokers and from less conspicuous diffuse discharge of hydrothermal solutions from areas of the seafloor to determine the impact of these flows on the ocean. We partnered with Hollywood to image the smokers in the current IMAX film, *Volcanoes of the Deep Sea*, using high-intensity lighting and high-resolution cameras developed for the film industry. We are using sound to extend the range beyond that of light to image and measure the turbulent rise of buoyant plumes from black smokers and to map diffuse flow largely invisible to light. The results so far indicate that diffuse flow exceeds black smokers in transferring heat into the ocean.

**Wednesday, November 29, 2006**

**4:15 P.M. (Refreshments at 4:00 P.M.)**

**Lyman Spitzer Building, M. B. Gottlieb Auditorium**