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OIST Researcher Dr. Satoshi Mitarai to receive ESA Award for Outstanding Published Paper in Ecological Theory

Okinawa, Japan, April 15, 2011 — Dr. Satoshi Mitarai, Independent New Investigator of the Marine Biophysics Unit at the Okinawa Institute of Science and Technology (OIST), has been selected as one of the recipients of the 2011 annual award for an outstanding published paper in ecological theory, sponsored by the Theoretical Ecology section of the Ecological Society of America (ESA).

Together with Heather Berkley, Bruce Kendall, and David Siegel, Dr. Mitarai published the paper, entitled "[Turbulent dispersal promotes species coexistence](#)," in *Ecology Letters* in March 2010 (13:360-371). Simple ecological models predict that species competing for shared resources cannot coexist: the “superior competitor” will eventually drive all other species to extinction. But, in real life, many species coexist. The paper demonstrates a novel coexistence mechanism called “turbulent coexistence,” in which complex larval dispersal of marine species in shallow-water environments enables an inferior species to coexist with a superior one. Many marine species do not move from place to place when they are adults, but their larvae do, with the help of oceanic turbulence. The larval dispersal pattern is highly variable, and differs among species, depending upon their spawning timing (You can watch the movie at the OISTedu YouTube channel). The theory illustrates how the “randomness” in larval supply can help inferior species survive, and drive long-term community dynamics.

Movie: www.youtube.com/user/oistedu#p/a/u/0/AgRKIgWGjO4

Simulated larval dispersal patterns from an offshore island in the Southern California Bight (Mitarai et al., 2009).

The Ecological Society of America (ESA), founded in 1915, is a nonpartisan, nonprofit organization of scientists with a membership of over 10,000. Its purpose is to:

- promote ecological science by improving communication among ecologists;
- raise the public's level of awareness of the importance of ecological science;
- increase the resources available for the conduct of ecological science; and
- ensure the appropriate use of ecological science in environmental decision making by enhancing communication between the ecological community and policy-makers.

The Theoretical Ecology Section is one of the most rapidly growing organizations within the ESA. The Section was formed in 1993 to:

1. Foster theoretical research in all areas of ecology;
2. Sponsor meetings for the presentation of results;
3. Foster communication and research collaboration between theoreticians and experimental/field ecologists;
4. Encourage the application of ecological theory to the resolution of societal problems.

Dr. Mitarai received a Ph.D. at the University of Washington in the U.S.A. and conducted his postdoctoral research at the University of California, Santa Barbara, focusing on the role of ocean turbulence in regulating biological processes at varying spatial scales. In Okinawa, he aims to develop a forecasting system for the coastal ocean circulation processes in the Okinawan sea and quantify connectivity within coral reef systems and hydrothermal vent systems. Dr. Mitarai and his collaborators have been recently awarded the 2011 “Pursuit of Dreams Grant” by the Canon Foundation to study the mechanisms of dispersal of vent species in the Okinawa Trough.



Dr. Satoshi Mitarai

About OIST

The Okinawa Institute of Science and Technology (OIST) is a new graduate University. The purpose of OIST is to conduct world-class research and education in science and technology in Okinawa, to contribute to the self-sustaining development of Okinawa and to the advancement of science and technology worldwide. OIST currently has 29 research units (more than 180 researchers) carrying out multi-disciplinary research in neuroscience, molecular sciences, mathematical and computational biology, and environmental science. It has launched a program of international courses and workshops that have already achieved worldwide recognition. The Graduate University submitted an application to the Japanese Minister of Education, Culture, Sports, Science and Technology in March 2011 for accreditation to open in the fall of 2012.

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