

**On behalf of the students and instructors, the MATE Center and the MTS ROV Committee thank the following organizations for their support of the 2009 event:**

- ▼ National Science Foundation
- ▼ Marine Technology Society
- ▼ NOAA
- ▼ Oceanering International
- ▼ IEEE Oceanic Engineering Society
- ▼ NOAA's National Marine Sanctuary Program
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- ▼ *UnderWater Magazine*
- ▼ University of Hawaii Seafloor Mapping Lab
- ▼ West Coast & Polar Regions Undersea Research Center
- ▼ VANTEC
- ▼ Veolia Environmental Services
- ▼ VideoRay LLC
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## ROVs in Treacherous Terrain: Science Erupts on Loihi, Hawaii's Undersea Volcano

**A competition that challenges students to design and build ROVs that explore the Loihi seamount off the coast of Hawaii's Big Island**



Courtesy of Steve Van Meter/VideoRay

*Members of the 2009 EXPLORER class champion team from Long Beach City College (California) demonstrate good safety practices - and good attitudes!*

### An exciting and educational competition for high school and college students that:

- ▼ facilitates connections among employers, technical professionals, students, and educators
- ▼ promotes the development of technical, problem solving, and teamwork skills
- ▼ increases the awareness of marine-related technical fields, employers, and careers
- ▼ highlights undersea volcanoes and the role that ROVs play in their science and exploration

### For more information on how you can participate, contact:

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Web site: [www.marinetech.org/rov\\_competition/index.php](http://www.marinetech.org/rov_competition/index.php)

Front Cover Photo: *The MATE competition puts students up to their elbows in ROVs.*



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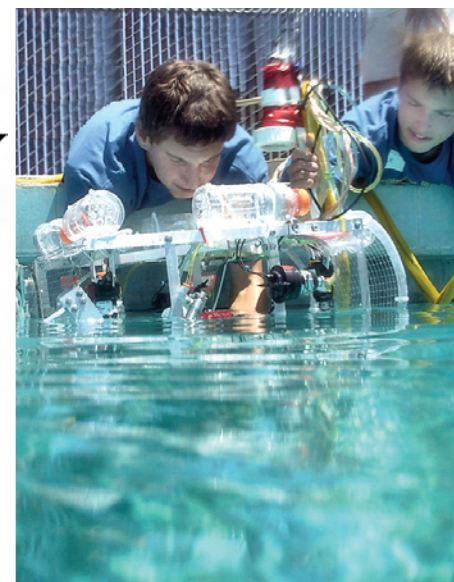
**MATE**  
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 EDUCATION  
 CENTER



UNIVERSITY  
 OF HAWAII  
**HILO**



Department of Research  
 & Development



Courtesy of the MATE Center

# 9th Annual International Student ROV Competition

*ROVs in Treacherous Terrain: Science Erupts on Loihi, Hawaii's Undersea Volcano*

University of Hawaii at Hilo  
 Hawaii's Big Island  
 June 24 - 26, 2010

# Putting Science, Technology, Engineering, and Math Skills to the Test

## What?

The Marine Advanced Technology Education (MATE) Center and the Marine Technology Society's (MTS) ROV Committee are organizing the 9th annual international student remotely operated vehicle (ROV) design and building competition. The competition will take place June 24-26, 2010 at the University of Hawaii at Hilo on Hawaii's Big Island.

## Why?

With the scientific exploration of underwater volcanoes as the theme, the competition goals are to increase the awareness of marine technical fields, help students develop the skills necessary for careers in marine technology, and connect students and educators with employers and technical professionals.

## Who?

Middle and high school, community college, and university students compete. Employers (including marine industries, research institutions, professional societies, and government organizations) and working professionals support the teams with funds, facilities, equipment, materials, and technical expertise.



Good concentration and attention to detail helped Heritage Collegiate (Newfoundland and Labrador, Canada) students pilot their team to second place in the 2009 RANGER class.

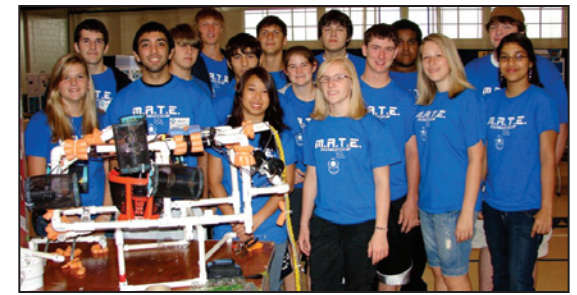
Courtesy of Steve Van Meter/Videoby

## Benefits for Students and Educators

- ▼ Educators can incorporate ROV projects into a variety of courses, after-school clubs, and outreach programs, including marine science, physics, electronics, engineering, construction technology, project management, and 4-H and Scout clubs.
- ▼ Students develop problem solving, leadership, critical thinking, project management, and teamwork skills.
- ▼ Teams design and build ROVs to perform tasks based on the marine technical workplace; submit and present technical papers that describe their vehicles; and create poster displays of their work.
- ▼ Students have fun, meet other students, and learn from each other and marine technical professionals.
- ▼ Students meet employers at the **Ocean Career Expo**, a regularly scheduled part of the international event.
- ▼ Students and educators increase their awareness of ocean-related fields, career opportunities, and employers.

## Support for Competing Teams

- ▼ The competition web site provides information on building materials, construction tips, examples of ROVs and technical reports from previous competitions, resource books, and more
- ▼ Sponsors provide free and discounted parts, equipment, and design software
- ▼ Students gain access to scholarship opportunities, industry mentors, and workshop facilities
- ▼ A variety of exciting prizes are awarded, including cash prizes, travel to conferences, books, equipment, trophies, plaques, and more
- ▼ Many meals at the international competition are provided, including dinners at the kick-off reception and awards banquet and lunches
- ▼ Teams can apply for funds to support travel and lodging



Courtesy of Steve Van Meter/Videoby

2009 was the M.A.T.E. Robotics team from Waltrip High School's (Texas) first trip to the MATE international competition.

## About the Organizers

The **Marine Advanced Technology Education (MATE) Center**, headquartered at **Monterey Peninsula College** in Monterey, California, is a national partnership of community colleges and other educational organizations, research institutions, professional societies, government organizations, marine industries, and working professionals. Established in 1997 with funding from the **National Science Foundation**, the Center's mission is to improve marine technical education in the U.S. and thereby prepare individuals for ocean occupations.

[www.marinetech.org](http://www.marinetech.org)

The **Marine Technology Society's (MTS) ROV Committee** was created in 1978. The Committee's mission is to promote interchange of technical information among industrial, academic, defense, and other organizations in the areas of ROVs, undersea robotics, and artificial intelligence; provide speakers to academic institutions to increase the participation of students in the society and areas of ROV and undersea technology; and produce technical publications related to ROV technology.

[www.mtsociety.org](http://www.mtsociety.org)  
[www.rov.org](http://www.rov.org)

## About the University of Hawaii at Hilo

The **University of Hawaii at Hilo**, with approximately 4,000 students, is located on the island of Hawaii. One of ten branches of the state-supported University of Hawaii System, UH Hilo offers 36 undergraduate, six master's and two doctoral degree programs. With the finest astronomical viewing site in the world, 266 miles of coastline, 11 of the world's 13 climate zones, abundant agricultural lands in diverse growing areas, active volcanoes, and unique species, the island of Hawaii serves as a natural learning laboratory for such programs as marine studies, astronomy, biology, environmental studies, geology, and Hawaiian studies.

[www.uhh.hawaii.edu](http://www.uhh.hawaii.edu)