MATE
INTERNATIONAL
ROV COMPETITION
2018
JET CITY:
AIRCRAFT
EARTHQUAKES
AND
ENERGY
JUNE 21 - 23, 2018
WEYERHAEUSER KING COUNTY
AQUATIC CENTER
FEDERAL WAY, WASHINGTON, USA
MTS
marine technology society
ROV
NSI
NOAA
OCEANEERING
UNIVERSITY of
WASHINGTON
TACOMA
SOUTH SOUND
SPORTS COMMISSION

The MATE Competition at a Glance

MATE uses underwater robotics (also known as remotely operated vehicles or ROVs) to inspire and challenge students to learn and creatively apply scientific, engineering, and technical skills to solving real-world problems. Working in partnership with the Marine Technology Society's ROV Committee, MATE created the competition as a way to:

- Expose students to careers
- Provide access to materials and technical expertise that support student learning
- Strengthen students' critical thinking, collaboration, entrepreneurship, and innovation

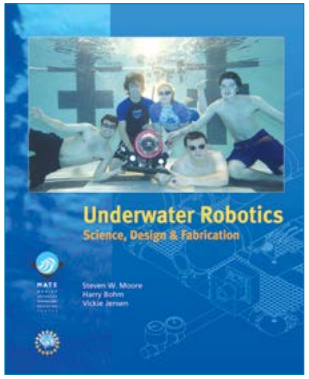
The MATE competition challenges K-12, community college, and university students from all over the world to tackle missions based on scenarios from the workplace. The competition's class structure of beginner, beginner-intermediate, intermediate, and advanced complements the educational pipeline by providing students with the opportunity to build upon their skills as they engineer increasingly more complex ROVs for increasingly more complex mission tasks.

The MATE competition requires students to think of themselves as entrepreneurs and transform their teams into companies that manufacture, market, and sell "products." In addition to engineering their ROVs, the students prepare technical reports, poster displays, and presentations that are delivered to working professionals who serve as competition judges.

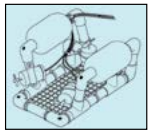
The MATE competition encourages students to work together, network, and learn from technical professionals and each other. MATE's philosophy is that collaborative learning experiences best simulate the real world and will serve students – and their future employers – well in the workplace.

Other MATE underwater robotics educational products include:

- *Underwater Robotics: Science, Design and Fabrication* [ISBN 978-0-9841737]
- Knowledge and Skill Guidelines for prospective ROV professionals
- Curriculum and videos
- Workshops for teachers and students
- Internships for college students
- All levels of DIY Kits and free open source plans
- Microcontrollers for thrusters and sensors



The History of the MATE ROV Competition



2002
Rime of the Ancient Buccaneer
NASA Kennedy Space Center
and Brevard Community College
Cape Canaveral, Florida
May 20-22, 2002

2003
Lost on the Titanic: Rusticles or Bust
Massachusetts Institute of
Technology
Cambridge, Massachusetts
June 19-21, 2003

2004
NOAA's National Marine Sanctuary Program:
The Adventure of Mystery Reef
University of California Santa Barbara
Santa Barbara, California
June 25-27, 2004

2005
From the Depths of the Oceans to the Far Reaches of Outer Space
Neutral Buoyancy Laboratory
@ NASA Johnson Space Center
Houston, Texas
June 17-19, 2005

2006
Ocean Observing Systems: Tools for Tomorrow's Science & Technology Workforce
Neutral Buoyancy Laboratory
@ NASA Johnson Space Center
Houston, Texas
June 23-25, 2006

2007
Celebrating the International Polar Year: Science & Technology Under the Ice
Memorial University and the
Institute for Ocean Technology
St. John's, Newfoundland, \Canada
June 22-24, 2007

2008
Diving to the Deep: Uncovering Mysteries of Mid-Ocean Ridges
Scripps Institution of Oceanography–
University of California, San Diego
San Diego, California
June 26-28, 2008

2009
ROVs: The Next Generation of Submarine Rescue Vehicles
Massachusetts Maritime Academy
Buzzards Bay, Massachusetts
June 24-26, 2009

2010
ROVs in Treacherous Terrain: Science Erupts on Loihi, Hawaii's Undersea Volcano
University of Hawaii-Hilo
Hawaii's Big Island
June 24-26, 2010

2011
ROVs and the Offshore Oil & Gas Industry: Highlighting the Challenges that ROVs Faced During the Gulf of Mexico Oil Spill
Neutral Buoyancy Laboratory
@ NASA Johnson Space Center
Houston, Texas
June 16-18, 2011

2012
Diving into History: The Role of ROVs in Exploring WWII Shipwrecks
YMCA Aquatic & Family Center
Orlando, Florida
June 21-23, 2012

2013
Ocean Observing Systems: Launching a New Era of Ocean Science & Discovery
Weyerhaeuser King County
Aquatic Center
Federal Way, Washington
June 20-22, 2013

2014
Exploring the Great Lakes: Shipwrecks, Sinkholes, and Conservation in the Thunder Bay National Marine Sanctuary
Alpena, Michigan
June 26-28, 2014

2015
ROVs in Extreme Environments: Science and Industry in the Arctic
Memorial University and the Ocean,
Coastal, and River Engineering facility
St. John's, Newfoundland, Canada
June 25-27, 2015

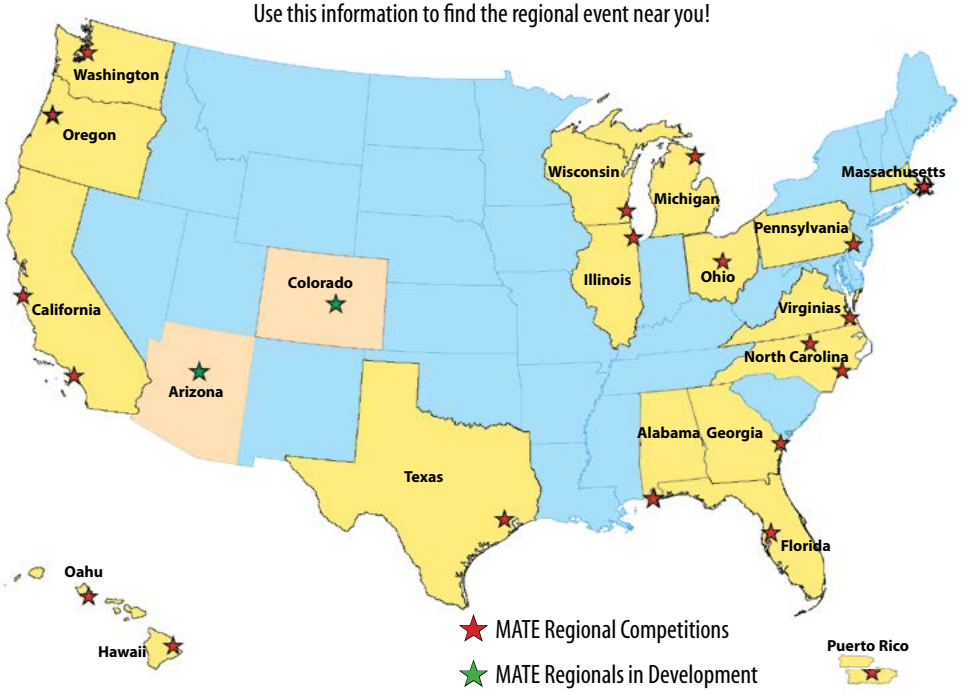
2016
From the Gulf of Mexico to Jupiter's Moon Europa: ROV Encounters in Inner and Outer Space
NASA's Neutral Buoyancy Lab
Houston, Texas
June 23-25, 2016

2017
Port Cities of the Future: Commerce, Entertainment, Health, and Safety
Long Beach City College
Long Beach, California
June 23-25, 2017

MATE Regional ROV Competition Network

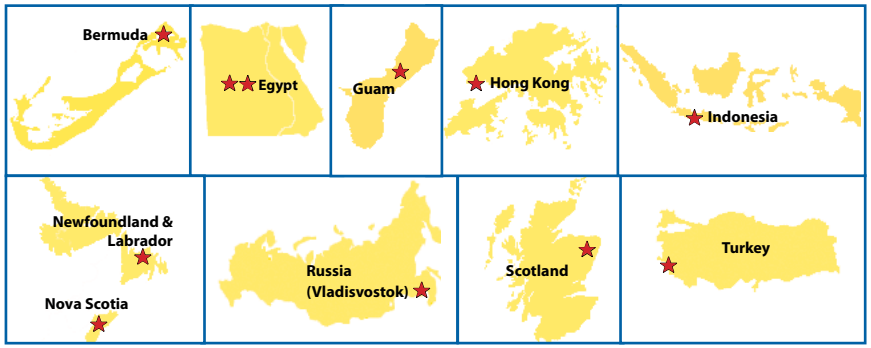
The MATE Competition Network began in 2001 and currently consists of 31 regional events that take place across the U.S. and around the world.

Use this information to find the regional event near you!



MATE International Regional Competitions:

Bermuda, Canada (Newfoundland & Labrador and Nova Scotia), Egypt, Guam, Hong Kong, Indonesia, Scotland, Russia, Turkey



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A Special Thanks to These Organizations and Individuals!

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ROBERT GORDON UNIVERSITY ABERDEEN
THE PAST FOUNDATION
BCC bristol community college
ALPENA COMMUNITY COLLEGE
NAUTICUS
THE UNDERWATER CENTRE
LONG BEACH CITY COLLEGE
Oregon State University

Return on Investments

Your contributions to MATE Inspiration for Innovation (MATE II) help to build a future skilled STEM workforce and ensure that all students have access to this unique learning opportunity.

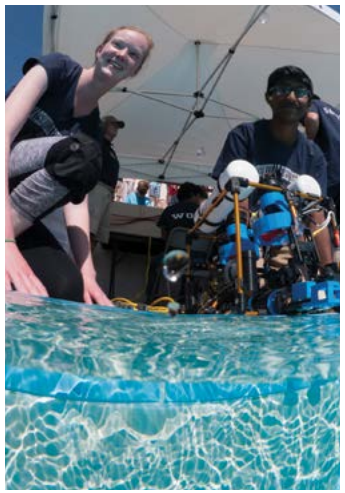
Sponsors provide:

- **Financial and technical support.** Funds cover student travel stipends and meals, while contributions of materials, equipment, mentoring time, and technical expertise support ROV building, promote skill development, and expose students to careers.
- **Recognition**. Award trophies, plaques, certificates of participation, event t-shirts and patches, gift certificates, and donations of equipment such as cameras, thrusters, and other hardware are ways to highlight both the winning teams and the sponsoring organizations.
- **Networking opportunities.** Funds cover the international competition's closing awards banquet, an event that provides opportunities to build peer and professional networks.

Sponsors also profit by:

- Increasing visibility through the MATE web site and conference presentations.
- Displaying logos on the competition materials, including banners at the events and advertisements in industry journals.
- Posting job announcements on the MATE Center's online job board at no cost.
- Using the competition's Inspiration for Innovation Exhibit Hall to increase exposure and recruit students for technical programs or job openings.
- Gaining access to a larger pool of talented students through MATE's partner colleges.

MATE II is tax exempt under Internal Revenue Service Code 501(c)(3). Tax I.D.: 81-4389131. Contact jzande@marinetech.org for more information.



Here's what people are saying about the MATE competition:

Students

- *I loved competing [...]! I learned both technical skills and leadership skills, and it inspired me to pursue a career in engineering.*
- *ROV has strengthened my ability to make connections and to work with other ideas/ opinions.*

Parents

- *He is driven and excited about ROV but also about his future. He knows he needs to excel in math and science to do what he wants to do in life.*
- *I believe programs like this are what will shape our young people and inspire them to a career field in science and engineering.*

Faculty/mentors

- *MATE engages our students with practical engineering in a way that no other program or organization offers.*
- *Wonderful program that teaches all the lessons needed to build a student's grit, problem solving, collaboration, teamwork, and technical skills.*

Working Professionals

- *This event is a fantastic in that it incorporates technology and engineering and design and couples with business acumen and team work. All essential skills for the work world!*
- *I am always impressed by the knowledge and ingenuity of the students who compete [...]!*

MARINE ADVANCED TECHNOLOGY EDUCATION CENTER

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