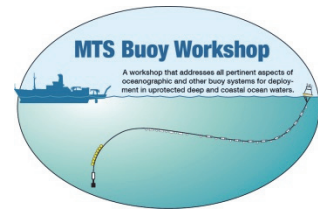




THE TWELFTH MTS BUOY WORKSHOP
April 9-12, 2018
MICHIGAN LEAGUE
UNIVERSITY of MICHIGAN
ANN ARBOR, MICHIGAN



PROGRAM OF SPEAKERS

MONDAY, APRIL 9

6:00 – 9:30PM **Icebreaker – Graduate Ann Arbor.** Appetizers with one free drink (cash bar open)
Workshop Registration Desk Open. Pick up your workshop badges

TUESDAY, APRIL 10

7:00 – 8:00 *Continental Breakfast and Beverages – In Lobby – Exhibit Area*
7:30 – 12:00 *Workshop Registration Desk Open, Michigan League*
7:30 – 5:30 *Exhibits Open*

Please plan to view exhibits only during morning and afternoon breaks & lunch

7:30 – 8:00 **WELCOME, ANNOUNCEMENTS, and HOUSEKEEPING:**

Rick Cole, Co-Chair, *RDSEA International, Inc.*
Don Peters, Co-Chair, *Woods Hole Oceanographic Institution (WHOI)*
Welcome to the Great Lakes, Ann Arbor and The University of Michigan:
Steve Ruberg and Tom Johengen

SESSION 1: THE GREAT LAKES, Part I

8:00 – 8:20 **Steve Ruberg: The Contribution of the Real-Time Coastal Observation Network to Great Lakes Understanding and Operational Decision Support.**
NOAA Great Lakes Environmental Research Laboratory (GLERL), Ann Arbor, MI

8:20 – 8:40 **Gregory Cutrell, Rebecca Pearson, Tad Slawecki, Edward Verhamme: Providing Real-Time Data for Real-Time Decisions.**
LimnoTech, Great Lakes Observing System (GLOS)

8:40 – 9:00 **Joeseeph Smith, Russell Miller, Ron Muzzi, Stephen Constant, Kyle Beadle, Danna Palladino, Tom Johengen, Steve Ruberg: Lake Erie Nutrient and Harmful Algal Bloom Buoy Data Acquisition and Dissemination System.**
Cooperative Institute for Great Lakes Research (CIGLR), NOAA GLERL

9:00 – 9:20 **Kristin Schrader, Kelli Paige: Funding observations creatively in the Great Lakes.**
The Great Lakes Observing System (GLOS)

9:20 – 10:00 **SESSION DISCUSSION – Panel Leader: Don Peters**

10:00 – 10:20 **BREAK – Lobby and Exhibit Areas**

SESSION 2: THE GREAT LAKES, Part II

- 10:20 – 10:40 Ed Verhamme, John Bratton, Becky Pearson, Bryan Stubbs: **Sustaining Long Term Observing Systems: Role of Industry and Local Organizations.**
LimnoTech, GLOS and the Cleveland Water Alliance
- 10:40 – 11:00 Emily Davenport, Kyle Beadle, Christina Mikulski, Greg Doucette, Tim Davis, Steve Ruberg, Henry Vanderploeg: **Implementation of ESP Technology for Particulate Microcystin Detection in Western Lake Erie.**
NOAA GLERL, CIGLR, NOAA National Ocean Service (NOS), Bowling Green State University
- 11:00 – 11:20 Katie Knapp, Anthony Weinke, Bopi Biddanda: **Observatory Tracks Ecosystem Metabolism and Reveals that a Great Lake Estuary is a Carbon Sink.**
Annis Water Resources Institute, Grand Valley State University
- 11:20 – 11:40 Thomas H. Johengen, Steve Ruberg, Russ Miller, Danna Palladino, D. Stuart: **Development of a Real-time Continuous Water Quality Monitoring Network to Evaluate Complex Spatiotemporal Variability in Nutrient Dynamics and Resulting Harmful Algal Blooms.**
Cooperative Institute for Great Lakes Research (CIGLR), NOAA GLERL
- 11:40 – 12:00 **SESSION DISCUSSION – Panel Leader: Rick Cole**
- 12:00 – 1:00 **LUNCH: Buffet in the Lobby**

SESSION 3: CHALLENGING ENVIRONMENTS AND MODELING

- 1:00 – 1:20 Darryl Symonds: **If There Are No Scatterers in the Ocean, Will There be a Sound?**
Teledyne RD Instruments, San Diego, CA
- 1:20 – 1:40 Jeremy Lawrence, Eliisa Lotsari, Matt Stone, Jan Buermans, Keath Borg, Todd Mudge: **Challenges of Making Measurements from a Mooring in an Ice Infested River.**
ASL Environmental Sciences and the University of Eastern Finland
- 1:40 – 2:00 Dean Steinke: **Evaluation of Mooring Strumming in Tidal Passages Using Numerical Modeling and Experimentation.**
Dynamic Systems Analysis. Victoria, British Columbia
- 2:00 – 2:20 Mike Craig, Chris Meinig, Bob Dziak, Joe Haxel: **Challenger Deep Acoustic Moorings.**
NOAA Pacific Marine Environmental Laboratory (PMEL), Seattle, WA
- 2:20 – 2:40 **SESSION DISCUSSION – Panel Leader: Andreas Marouchos**
- 2:40 – 3:00 **BREAK – Lobby and Exhibit Areas**

SESSION 4: MEASURING WAVES

- 3:00 – 3:20 Rodney Riley, Randy Stewart, Richard Bouchard, Candice Hall: **NDBC Wave System Update.**
NOAA NDBC, Stennis Space Center, MS

- 3:20 – 3:40 Fabio Nascimento, Henrique P.P. Pereira, André Mendes, Paulo Almeida, Tobias Ferreira: **The Development of a Directional Wave Sensor.**
COPPE/UFRJ Oceanographic Instrumentation Laboratory, Atmosmarine, PETROBRAS, BMT NAVCON, and the Brazilian Navy Hydrographic Center, Rio de Janeiro, Brazil
- 3:40 – 4:00 James Behrens, Mark Bushnell, Julie Thomas: **Validation of Wave Observations Using the Check Factor; CDIP: A Long-Term Observing System Develops Industry Partnerships.**
The Coastal Data Information Program (CDIP), Scripps Institute of Oceanography, San Diego, CA
- 4:00 – 4:20 Harald Tholo, Emilie Dorgeville, Richard Butler: **MOTUS: Directional Wave Sensor Takes Wave Measurement to a New Level of intelligence; One Year of Data Collection.**
Aanderaa Data Instruments, Xylem
- 4:20 – 4:40 Tim Crandle, Edward Celkis, Marla Isenstein, Ed Verhamme: **Exploring the Possibilities and Practicalities of MEMS Sensors for Wave Measurements.**
SeaView Systems, Inc. Dexter, MI and LimnoTech, Ann Arbor, MI
- 4:40 – 5:00 John Lenters: **Small Buoys – Big Waves: Capturing a Record-High Wave Event on Lake Superior.**
Lentic Environmental Services, Lake Tomahawk, WS
- 5:00 - 5:20 **SESSION DISCUSSION – Panel Leader: Chug-Chu Teng**
- Return to Hotel: DINNER ON YOUR OWN – Enjoy Ann Arbor!**
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WEDNESDAY, APRIL 11

- 7:00 – 8:00 *Continental Breakfast and Beverages – Lobby – Exhibit Area*
7:30 – 12:00 *Workshop Registration Desk Open*
7:30 – 5:30 *Exhibits Open*

Please plan to view exhibits only during morning and afternoon breaks & lunch

7:30 – 7:50 EARLY START AND ANNOUNCEMENTS

SESSION 5: OBSERVING SYSTEMS, Part I

- 7:50 – 8:10 Jamey Anderson, M. Abbott, G. Meadows, C. Pinnow: **Doing More with Less: Small Boats and Big Goals.**
Great Lakes Research Center (GLRC), Michigan Technological University
- 8:10 – 8:30 Aaron Fisk: **Real-Time Aquatic Ecosystem Observation Network (RAEON).**
Great Lakes Institute for Environmental Research, University of Windsor
- 8:30 – 8:50 Anthony Weinke, Scott Kendall, Bopi Biddanda: **Nuts and Bolts: The Muskegon Lake Observatory Buoy System, 2011-2017.**
Grand Valley State University

- 8:50 – 9:10 Ron Muzzi, Steve Ruberg, Stephen Constant, Kyle Beadle, R. Miller: **Real-Time Communications from Seafloor to Buoy to Home and Overcoming System Failures.**
NOAA GLERL and CIGLR
- 9:10 – 9:30 **SESSION DISCUSSION – Panel Leader: Rick Cole**
- 9:30 – 10:00 **BREAK – Lobby and Exhibit Areas**
- SESSION 6: OBSERVING SYSTEMS, Part II**
- 10:00 – 10:20 Yiing Jang Yang, Hung-I Chang, Chia-Ying Hsieh: **The NTU Buoy for High-Resolution Typhoon Observations.**
Institute of Oceanography, National Taiwan University, Taipei, Taiwan
- 10:20 – 10:40 Ching-Jer Huang, Dong-Jiing Doong, Yin-Pin Lin, Li-Chung Wu, Yang-Ming Fan, Chia Chuen Kao: **Recent Developments on Data Buoy in Taiwan and the Observations during Typhoons.**
Coastal Ocean Monitoring Center and Department of Hydraulic and Ocean Engineering, National Cheng Kung University, Tainan, Taiwan
- 10:40 – 11:00 Shoichiro Baba, Makito Yokota, Tatsuya Fukuda, Iwao Ueki, Yasuhisa Ishihara: **The Influence of a Cover Against Vandalism on Wind Speed Sensor on m-TRITON buoy.**
Japan Agency for Marine-Earth Science and Technology (JAMSTEC)
- 11:00 – 11:20 Ruth Perry, Pak Leung, Stephen Howden, Steve DiMarco, Marcus Ogle, Ben Williams, Barbara Kirkpatrick: **Utilizing an Industrial MetOcean Buoy as a Public-Private Deep Ocean Observatory Collaboration Platform in the Gulf of Mexico.**
Shell, USM, TAMU, Fugro and GCOOS.
- 11:20 – 11:40 Peter Jansen, Andreas Marouchos, Andrew Martini: **Sustaining Oceanographic Moorings in the Southern Ocean; Engineering and Design Challenges.**
CSIRO, Hobart, Tasmania
- 11:40 – 12:00 **SESSION DISCUSSION – Panel Leader: Chris Meinig**
- 12:00 – 1:00 **LUNCH: Buffet in the Lobby**
- SESSION 7: BUOY INSTRUMENTATION AND DATA, Part I**
- 1:00 – 1:20 Todd Nelson: **Algae Fuel Barge Conversion for HAB Detection.**
The Virginia Institute of Marine Science (VIMS)
- 1:20 – 1:40 Matthew Smith, Todd Miller: **Constructing Low Cost Systems for Real Time Aquatic Sensing.**
University of Wisconsin Milwaukee, School of Freshwater Sciences, University of Wisconsin Milwaukee, Zilber School of Public Health
- 1:40 – 2:00 Jeff Smeltzer, Paul Hill: **Iridium NEXT CERTUS Broadband Satellite Service – Coming to a Buoy Near You.**
MetOcean Telematics, Dartmouth, Nova Scotia, Canada
- 2:00 – 2:20 Drew Lucas, Rob Pinkel: **Past, Present and Future of the Wirewalker Wave-Powered Profiling System.**
Scripps Institute of Oceanography and Del Mar Oceanographic, LLC, San Diego, CA
- 2:20 – 2:40 **SESSION DISCUSSION – Panel Leader: Craig Cumbee**

SESSION 8: BUOY INSTRUMENTATION AND DATA, Part II

- 2:40 – 3:00 Craig Cumbee: **WireWalker Experiences with Two Navy Funded Systems Utilizing Iridium Communications.**
Naval Oceanographic Office, Stennis, MS
- 3:00 – 3:20 Yen-Pin Lin, Ching-Jer Huang, Sheng-Hsueh Chen, Chia Chuen Kao: **Development and Applications of a GNSS Buoy for Monitoring Tides and Ocean Waves in Coastal Areas.**
The Coastal Ocean Monitoring Center & Department of Hydraulic and Ocean Engineering, National Cheng Kung University
- 3:20 – 3:40 Doug Wilson, David Velasco, Sven Nylund, Robert Heitsenrether, Eric Breuer: **Improving the Quality of Current Profiles Collected from Dynamic Surface Buoys: Results from a Series of Field Experiments.**
Caribbean Wind LLC, Nortek AS, NOAA-NOS Center for Operational Oceanographic Products and Services (CO-OPS)
- 3:40 – 4:00 Doug Schillinger: **Mooring Data Systems: Collection, Storage, and Retrieval – From Seafloor to Surface.**
RBR, Ltd. Ottawa, Ontario, Canada
- 4:00 – 4:20 **SESSION DISCUSSION – Panel Leader – Doug Wilson**
- 4:20 – 4:40 **BREAK – Foyer and Lobby Exhibit Areas**

SESSION 9: NOAA UPDATES AND DEVELOPMENTS, Part I

- 4:40 – 5:00 Chris Meinig, Noah Lawrence-Slavas, Scott Stalin: **An update on NOAA-Pacific Marine Environmental Lab (PMEL) Mooring operations.**
NOAA-Pacific Marine Environmental Laboratory (PMEL), Seattle, WA
- 5:00 – 5:20 Robert Black, Craig Kohler, Eric Gay, Richard Dinoso, Brett Taft: **Second Generation Anti-Vandalism Buoy Camera Deployment.**
National Data Buoy Center (NDBC), Stennis Space Center, MS
- 5:20 – 5:40 Winston Hensley, Robert Heitsenrether: **Iridium Telemetry of ADCP Data from USCG ATON Platforms.**
NOAA NOS CO-OPS
- 5:40 – 6:00 **SESSION DISCUSSION – Panel Leader: Rick Cole**

GALA DINNER:

- 6:30 **Welcome Reception:** Rogel Ballroom (2nd floor) of the Michigan Union, 530 South State St. One complimentary drink ticket for registered attendees, cash bar. Local Michigan Craft Beers and Wine.
- 7:15 **DINNER:** Four entree options: fish, chicken, beef, vegetarian. Three desert options will be served buffet style.

THURSDAY, APRIL 12

- 7:00 – 8:00 *Continental Breakfast and Beverages – Lobby Exhibit Areas*
 7:30 – 12:00 *Workshop Registration Desk Open*
 7:00 – 1:00 *Exhibits Open*
 1:15 & 2:15 *Tours of GLERL*

Please plan to view exhibits only during morning and afternoon breaks & lunch

7:30 – 7:50 **EARLY START AND ANNOUNCEMENTS**

SESSION 10: NOAA UPDATES AND DEVELOPMENTS, Part II

- 7:50 – 8:10 Laura Fiorentino, Robert Heitsenrether: **Update on the Development of NOAA’s Hermit System Including Field Results During Hurricane Matthew.**
NOAA NOS CO-OPS
- 8:10 – 8:30 Eric Gay: **NDBC 2.1-Meter Buoy Development.**
National Data Buoy Center (NDBC), Stennis Space Center, MS
- 8:30 – 8:50 Robert Black, David Crawford, Brett Taft, Sean Robinson: **High-Latitude Self Contained Ocean Observing Payload.**
National Data Buoy Center (NDBC), Stennis Space Center, MS
- 8:50 – 9:10 Travis Singleton: **NDBC Smart Module Plus.**
National Data Buoy Center (NDBC), Stennis Space Center, MS
- 9:10 – 9:30 David Crawford: **NDBC Lithium Battery Storage and Handling.**
National Data Buoy Center (NDBC), Stennis Space Center, MS
- 9:30 – 9:50 James Elliott: **NDBC’s Auxiliary Payload and Real World Usage in Support of the Tropical Pacific Observing System.**
NOAA National Data Buoy Center (NDBC), Stennis Space Center, MS
- 9:50 – 10:10 **SESSION DISCUSSION – Panel Leader: Craig Kohler**
- 10:10 – 10:30 **BREAK – Exhibit Areas, Foyer and Lobby**

SESSION 11: WAVE ENERGY

- 10:30 – 10:50 Frederick Driscoll, Andrea Copping, Al LiVecchi: **Wave Energy.**
National Renewable Energy Laboratory, Golden, CO, and the Pacific Northwest National Laboratory, Seattle, WA
- 10:50 – 11:10 Alicia Gorton, Andrea Copping, Frederick Driscoll, and Al LiVecchi: **Transitioning Wave Energy to Serve Power Needs at Sea.**
The Pacific Northwest National Laboratory, Seattle, WA
- 11:10 – 11:30 H. Ming Chen, Donald DelBalzo: **Heave Enhanced, Circular-Sliding Wave Energy Converter.**
Wave Energy Technologies, Orlando, FL, and DelBalzo Tech Solutions, Orlando, FL

- 11:30 – 11:50 Frederick Driscoll, Eric Nelson, Mark Murphy and Robb Wallen: **Modular Ocean Instrumentation System (MOIS)**.
The National Renewable Energy Lab, Golden, CO, Teledyne Marine
- 11:50 – 12:10 **SESSION DISCUSSION – Panel Leader: Rick Driscoll**
- 12:10 – 12:30 **CLOSE OUT DISCUSSION – MEETING ADJOURNS**
- 12:30 – 1:15 **BOX LUNCH**
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Site Tour of GLERL Schedule

We will meet in the Michigan League lobby and separate into two groups for visits to a few of GLERL's working areas. Please let us know which group you would prefer, and we will do the best to accommodate you (divided evenly into 2 groups is best).

You may also drive your rental car or private vehicle from campus to the lab - there is plenty of parking. You may then depart to the airport or home after the tour.

Foreign national attendees are required to fill out the Foreign National Visitor (FNV) form online, and fax to Steve Ruberg's attention at [734-741-2263](tel:734-741-2263) as soon as possible. This will ensure that all will be cleared ahead of the tour. The first group departs from UM to GLERL at 1:15, the second at 2:15.

- 1:15 First bus departure from UM Campus to GLERL.
- 1:45 Welcome to NOAA GLERL in Lake Superior conference room; divide into groups of 15 each.
- Deborah Lee, Director, NOAA Great Lakes Environmental Research Laboratory.
- 2:00 Tour of Autonomous Vehicles (15 min), Ecosystem Buoys (15 min), Environmental Sample Processor Laboratory (15 min).
- 2:15 Second bus departure from UM Campus to GLERL with second group.
- 2:45 Welcome to GLERL in Lake Superior conference room for second group; divide into groups of 15 each.
- Deborah Lee, Director NOAA GLERL.
- 3:00 Tour of Autonomous Vehicles (15 min), Ecosystem Buoys (15 min), Environmental Sample Processor Laboratory (15 min).
- 3:00 First group returns to UM Campus.
- 4:00 Second group returns to UM Campus.
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END OF WORKSHOP

Thank you for attending and participating. See you in 2020!

****First MTS International Buoy Workshop, Hobart, Australia, April 2019****
