

## Ocean Sensing and Monitoring X

Tuesday - Wednesday 17 - 18 April 2018

### Conference Sessions At A Glance

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1: Remote Sensing of Ocean Environment  
 3: Harmful Algal Blooms (HAB)  
 4: Oil Spill Detection  
 5: In Situ Sensing  
 Posters-Tuesday  
 6: Underwater Imaging  
 7: Orbital Angular Momentum  
 8: Lidar Sensing I  
 9: Lidar Sensing II  
 10: Bioluminescence  
 Conclusion and Best Paper Award Presentation

### Important Dates

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Abstract Due:  
9 October 2017

Author Notification:  
11 December 2017  
Notifications will be sent no later than 12/15/17

Manuscript Due Date:  
21 March 2018

### Conference Committee

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#### Conference Chairs

[Weilin "Will" Hou](#), U.S. Naval Research Lab. (United States)  
[Robert A. Amone](#), The Univ. of Southern Mississippi (United States)

#### Program Committee

[Samir Ahmed](#), The City College of New York (United States)  
[Brandon Cochenour](#), Naval Air Warfare Ctr. Aircraft Div. (United States)  
[Fraser R. Daigleish](#), Harris Corp. (United States)

Program Committee continued...

[Chuanmin Hu](#), Univ. of South Florida (United States)  
[Linda J. Mullen](#), Naval Air Systems Command (United States)  
 James Sullivan, Florida Atlantic Univ.-Harbor Branch Oceanographic Institute (United States)  
[Michael Twardowski](#), Florida Atlantic Univ.-Harbor Branch Oceanographic Institute (United States)

TUESDAY 17 APRIL

[Show All Abstracts](#)

### Session 1: Remote Sensing of Ocean Environment

Tuesday 17 April 2018  
 8:30 AM - 10:30 AM  
 Location: Ballroom Level, Sun 3


Session Chairs: [Weilin "Will" Hou](#), U.S. Naval Research Lab. (United States) ; [Robert A. Amone](#), The Univ. of Southern Mississippi (United States) ; [Chuanmin Hu](#), Univ. of South Florida (United States)

#### Seasonal trends of biophysical ocean properties and anomalies across the Mississippi Shelf

Paper 10631-1

Time: 8:30 AM - 8:50 AM

Author(s): Robert A. Amone, Brooke Jones, The Univ. of Southern Mississippi (United States); Sherwin Ladner, Naval Research Laboratory (United States); Inia Soto, The Univ. of Southern Mississippi (United States)


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#### Anomalous marine biophysical conditions due to 2016 and 2017 wind and flooding events in the Northeastern Gulf of Mexico

Paper 10631-2

Time: 8:50 AM - 9:10 AM

Author(s): Brooke Jones, Robert A. Amone, The Univ. of Southern Mississippi (United States)


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#### Hyperspectral determination of ocean color as an ocean monitoring tool: example applications in the Gulf of Mexico

Paper 10631-3

Time: 9:10 AM - 9:30 AM

Author(s): Jason K. Jolliff, Sherwin Ladner, David Lewis, Ewa Jarosz, Adam Lawson, Travis Smith, Allison Penko, Sean McCarthy, U.S. Naval Research Lab. (United States)


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#### Near real time calibration of the Ocean Land Colour Imager

Paper 10631-4

Time: 9:30 AM - 9:50 AM

Author(s): Jennifer Bowers, Paul Martinolich, Vencore, Inc. (United States); Richard Crout, Sherwin Ladner, Adam Lawson, U.S. Naval Research Lab. (United States)


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**Comparison of aerosol models from the Ocean Color satellite sensors and AERONET-OC and their impact on reflectance spectra in coastal waters**

Paper 10631-5

Time: 9:50 AM - 10:10 AM

Author(s): Alexander Gilerson, Eder Herrera, Yaron Klein, The City College of New York (United States); Robert Foster, U.S. Naval Research Lab. (United States); Barry Gross, The City College of New York (United States); Robert A. Amone, The Univ. of Southern Mississippi (United States); Sam Ahmed, The City College of New York (United States)


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**Ocean surface characterization using snapshot hyperspectral polarimetric imager**

Paper 10631-6

Time: 10:10 AM - 10:30 AM

Author(s): Carlos Carrizo, Andrii Golovin, Ahmed El-Habashi, The City College of New York (United States); Robert Foster, Deric Gray, Jeff Bowles, U.S. Naval Research Lab. (United States); Alexander Gilerson, The City College of New York (United States)

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**Dedicated Exhibition Time and Lunch Break 10:30 AM - 1:10 PM**

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**Session 3:  
Harmful Algal Blooms (HAB)**

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Tuesday 17 April 2018

1:10 PM - 3:10 PM

Location: Ballroom Level, Sun 3

Session Chair: James M. Sullivan, Harbor Branch Oceanographic Institute (United States)


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**Harmful algal bloom dynamics in Southeast Florida and the Indian River Lagoon (Conference Presentation)**

Paper 10631-9

Time: 1:10 PM - 1:30 PM

Author(s): James M. Sullivan, Malcolm N. McFarland, Nicole Stockley, M. Dennis Hanisak, Harbor Branch Oceanographic Institute (United States)


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**Using observation networks to examine the impact of Lake Okeechobee discharges on the St. Lucie Estuary, Florida**

Paper 10631-10

Time: 1:30 PM - 1:50 PM

Author(s): Nicole Stockley, James M. Sullivan, M. Dennis Hanisak, Malcolm N. McFarland, Harbor Branch Oceanographic Institute (United States)


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**Interannual variability in the Indian River Lagoon, Florida, measured by a network of environmental sensors**

Paper 10631-11

Time: 1:50 PM - 2:10 PM

Author(s): M. Dennis Hanisak, Kristen S. Davis, Harbor Branch Oceanographic Institute (United States)


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**Seasonal and inter-annual variability in sea surface temperature and chlorophyll-a concentration along the West Florida Shelf: analyzing 5 years of satellite data**

Paper 10631-12

Time: 2:10 PM - 2:30 PM

Author(s): Erica T. Krueger, Felix Jose, Florida Gulf Coast Univ. (United States)


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**Individual particle measurements to monitor ecological processes in the Indian River Lagoon, FL**

Paper 10631-13

Time: 2:30 PM - 2:50 PM


Author(s): Malcolm N. McFarland, Nicole Stockley, Harbor Branch Oceanographic Institute (United States); James M. Sullivan, Florida Atlantic Univ. (United States)


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**Satellite monitoring and interpretation of dynamically changing concentrations of *Karenia Brevis* harmful algal blooms in the West Florida Shelf (Conference Presentation)**

Paper 10631-14

Time: 2:50 PM - 3:10 PM

Author(s): Samir Ahmed, Ahmed El-Habashi, NOAA-CREST, The City College of New York (United States); Vincent Lovko, Mote Marine Lab. (United States) 

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**Coffee Break 3:10 PM - 3:40 PM**

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## Session 4: Oil Spill Detection

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Tuesday 17 April 2018  
3:40 PM - 4:40 PM  
Location: Ballroom Level, Sun 3

Session Chairs: [Fraser R. Dalgleish](#), Harris Corp. (United States) ; [Alexander Gilerson](#), The City College of New York (United States)

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### Infrared polarimetric sensing of oil on water

Paper 10631-15

Time: 3:40 PM - 4:00 PM

Author(s): David B. Chenault, Polaris Sensor Technologies, Inc. (United States); Justin P. Vaden, Polaris Sensor Technologies (United States)


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### Remote measurement of thick oil spill depth using thermal imagery

Paper 10631-16

Time: 4:00 PM - 4:20 PM

Author(s): Toomas H. Allik, Active EO Inc. (United States); Roberta E. Dixon, CACI International Inc. (United States); Mark S. Walters, U.S. Army Night Vision & Electronic Sensors Directorate (United States)


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### Mapping and reconnaissance imager, night-enhanced, for sensing of contaminants, oil, and unseen threats (MARINE SCOUT)

Paper 10631-17

Time: 4:20 PM - 4:40 PM

Author(s): Scot Myhr, George Ax, John Gill, Lance LeClair, Evan Sippel, MTEQ, Inc. (United States); Mark Walters, U.S. Army Night Vision & Electronic Sensors Directorate (United States); Toomas H. Allik, Active EO Inc. (United States); Roberta E. Dixon, CACI International Inc. (United States)

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## Session 5: In Situ Sensing

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Tuesday 17 April 2018  
4:40 PM - 6:00 PM  
Location: Ballroom Level, Sun 3

Session Chairs: [Michael S. Twardowski](#), Florida Atlantic Univ. (United States), Harbor Branch Oceanographic Institute (United States) ; [Fraser R. Dalgleish](#), Harris Corp. (United States)


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### Analytical model to derive suspended particulate matter concentration in natural waters by inversion of optical attenuation and backscattering

Paper 10631-18

Time: 4:40 PM - 5:00 PM

Author(s): Michael S. Twardowski, Harbor Branch Oceanographic Institute (United States); Cédric Jamet, Hubert Loisel, Lab. d'Océanologie et de Géosciences (France)


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### Characterizing instabilities in the developed and transitional boundary layer

Paper 10631-19

Time: 5:00 PM - 5:20 PM

Author(s): Sílvia Matt, Weilin Hou, Wesley Goode, U.S. Naval Research Lab. (United States)

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## Session PS1: Posters-Tuesday

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Tuesday 17 April 2018  
6:00 PM - 8:00 PM  
Location: Ballroom Level, Osceola Ballroom C

All symposium attendees – You are invited to attend the evening Interactive Poster Session to view the high-quality posters and engage the authors in discussion. Enjoy light refreshments while networking with colleagues in your field. Authors may set up their posters between 10:00 am and 5:00 pm the day of their poster session. Special daytime previewing prior to the session from 10:00 am to 5:00 pm. Attendees are required to wear their conference registration badges to access the Osceola Ballroom to view the posters.

Posters that are not set up by the 5:00 pm cut-off time will be considered no-shows, and their manuscripts may not be published. Poster authors should accompany their posters from 6:00 to 8:00 pm to answer questions from attendees. All posters and other materials must be removed no later than 8:30 pm. Any posters or materials left behind at the close of the poster session will be considered unwanted and will be discarded. SPIE assumes no responsibility for posters left up after the end of each poster session. 


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### Nonnegative matrix factorization based feature selection analysis for hyperspectral imagery of sediment-laden riverine flow

Paper 10631-7

Time: 6:00 PM - 8:00 PM


Author(s): Nicholas V. Scott, Riverside Research (United States); Ian C. Moore, Xavier Univ. (United States)

[Add To My Schedule](#) **Phase based statistics from direct numerically simulated imagery of sediment-laden oscillatory flow for Bayesian belief network analysis**

Paper 10631-8

Time: 6:00 PM - 8:00 PM


Author(s): Nicholas V. Scott, Riverside Research (United States); Tian-Jian Hsu, Univ. of Delaware (United States)

[Add To My Schedule](#) **On-orbit polarization sensitivity evaluation of FY-3B MERIS**

Paper 10631-44

Time: 6:00 PM - 8:00 PM


Author(s): Ling Sun, National Satellite Meteorological Ctr. (China); Lei Gao, Danyang Cao, Ran Huo, North China Univ. of Technology (China)

[Add To My Schedule](#) **Spectrally resolved infrared sea surface pyrometric measurements**

Paper 10631-46

Time: 6:00 PM - 8:00 PM


Author(s): Michael E. Thomas, Marc B. Airola, Jessica K. Makowski, Johns Hopkins Univ. (United States)

[Add To My Schedule](#) **Exploration of multiple wavelength laser beams propagating underwater**

Paper 10631-47

Time: 6:00 PM - 8:00 PM

Author(s): Michael Kelly, US Navy (United States); Svetlana Avramov-Zamurovic, Charles L. Nelson, U.S. Naval Academy (United States)

[Add To My Schedule](#) **WEDNESDAY 18 APRIL**[Show All Abstracts](#)

## Session 6: Underwater Imaging

Wednesday 18 April 2018

8:20 AM - 10:00 AM


Location: Ballroom Level, Sun 3

Session Chairs: [Linda Mullen](#), Naval Air Warfare Ctr. Aircraft Div. (United States) ; [Weilin "Will" Hou](#), U.S. Naval Research Lab. (United States)**Beamforming receiver for underwater pulsed laser line scanning**

Paper 10631-23

Time: 8:20 AM - 8:40 AM


Author(s): Walter Britton, Harbor Branch Oceanographic Institute (United States), Q-P2 LLC (United States), Edgetech (United States); Fraser R. Dalgleish, Harbor Branch Oceanographic Institute (United States); Hanqi Zhuang, Florida Atlantic Univ. (United States)

[Add To My Schedule](#) **Investigation of the compressive line sensing imaging system in a controlled hybrid scattering environment**

Paper 10631-24

Time: 8:40 AM - 9:00 AM


Author(s): Bing Ouyang, Harbor Branch Oceanographic Institute (United States); Weilin Hou, U.S. Naval Research Lab. (United States)

[Add To My Schedule](#) **Object detection and geometric profiling through dirty water media using asymmetry properties of backscattered signals**

Paper 10631-25

Time: 9:00 AM - 9:20 AM


Author(s): Chensheng Wu, Robert Lee, Christopher C. Davis, Univ. of Maryland, College Park (United States)

[Add To My Schedule](#) **Image processing technique for an underwater modulated pulse laser imaging system**

Paper 10631-26

Time: 9:20 AM - 9:40 AM


Author(s): David W. Illig, Naval Air Systems Command (United States); Linda Mullen, Naval Air Warfare Ctr. Aircraft Div. (United States)

[Add To My Schedule](#) **On plankton distributions and biophysical interactions in diverse coastal and limnological environments**

Paper 10631-27

Time: 9:40 AM - 10:00 AM

Author(s): Aditya R. Nayak, Malcolm N. McFarland, Michael S. Twardowski, James M. Sullivan, Harbor Branch Oceanographic Institute (United States)

[Add To My Schedule](#) **Coffee Break and Dedicated Exhibition Time 10:00 AM - 11:00 AM**

## Session 7: Orbital Angular Momentum

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Wednesday 18 April 2018

11:00 AM - 12:20 PM

Location: Ballroom Level, Sun 3

Session Chairs: [Brandon Cochenour](#), Naval Air Warfare Ctr. Aircraft Div. (United States) ; [Yongxiang Hu](#), NASA Langley Research Ctr. (United States)


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### Lidars utilizing vortex laser beams

Paper 10631-28

Time: 11:00 AM - 11:20 AM

Author(s): Carl Weimer, Ball Aerospace (United States); Yong Hu, NASA Langley Research Ctr. (United States); Jeff T. Applegate, Mike Lieber, Ball Aerospace (United States); Wenbo Sun, David MacDonnell, NASA Langley Research Ctr. (United States)


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### An optical vortex transmissometer

Paper 10631-29

Time: 11:20 AM - 11:40 AM

Author(s): Amanda Alley, Alan Laux, Linda Mullen, Brandon Cochenour, Naval Air Systems Command (United States)


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### Analysis of orbital angular momentum laser beams for applications in underwater communication

Paper 10631-30

Time: 11:40 AM - 12:00 PM

Author(s): Joseph Brugger, Charles Nelson, U.S. Naval Academy (United States)


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### On the change of the underwater volume sensing function when using a laser beam with orbital angular momentum

Paper 10631-31

Time: 12:00 PM - 12:20 PM

Author(s): Austin W. Jantzi, Clarkson Univ. (United States)

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**Lunch/Exhibition Break 12:20 PM - 1:30 PM**

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## Session 8: Lidar Sensing I

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Wednesday 18 April 2018

1:30 PM - 3:10 PM

Location: Ballroom Level, Sun 3

Session Chairs: [Weilin "Will" Hou](#), U.S. Naval Research Lab. (United States) ; [Damien B. Josset](#), U.S. Naval Research Lab. (United States)


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### Development and assessment of lidar modeling to retrieve IOPs

Paper 10631-32

Time: 1:30 PM - 1:50 PM

Author(s): Christopher Strait, Michael S. Twardowski, Fraser R. Dalgleish, Harbor Branch Oceanographic Institute (United States); Alberto Tonizzo, GTF, LLC (United States); Anni K. Vuorenkoski Dalgleish, Harbor Branch Oceanographic Institute (United States)


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### Global scale whitecaps coverage from CALIPSO lidar measurements (Conference Presentation)

Paper 10631-33

Time: 1:50 PM - 2:10 PM

Author(s): Damien B. Josset, David Wang, Weilin Hou, U.S. Naval Research Lab. (United States)


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### Sea-ice detection for autonomous underwater vehicles and oceanographic lagrangian platforms by continuous-wave laser polarimetry

Paper 10631-34

Time: 2:10 PM - 2:30 PM

Author(s): Jose Lagunas-Morales, Takuvik (Canada); Claudie Marec, Édouard Leymarie, Christophe Penkerch, Lab. d'Océanographie de Villefranche (France); Eric Rehm, Takuvik (Canada); Pierre Desaulniers, Denis Brousseau, Patrick Larochelle, Centre d'Optique Photonique et Laser (COPL) (Canada); Gilles Roy, Georges Fournier, Defence Research and Development Canada Valcartier (Canada); Simon Thibault, Centre d'Optique Photonique et Laser (COPL) (Canada); Marcel Babin, Takuvik (Canada)

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### Characterizing fluorescence and reflectance properties of Arctic macroalgae as future LiDAR targets

Paper 10631-35

Time: 2:30 PM - 2:50 PM

Author(s): Matthieu Huot, Eric Rehm, Takuvik Joint International Lab. (Canada); Fraser R. Dalgleish, Harbor Branch Oceanographic Institute (United States); Michel Piché, Univ. Laval (Canada); Simon Lambert-Girard, Takuvik Joint International Lab. (Canada); Philippe Archambault, Univ. Laval (Canada)




[Add To My Schedule](#) **Underwater object detection performance of a chaotically modulated laser rangefinder**

Paper 10631-36

Time: 2:50 PM - 3:10 PM

Author(s): Luke K. Rumbaugh, Daniel J. Alles, William D. Jemison, Clarkson Univ. (United States)

[Add To My Schedule](#) **Coffee Break 3:10 PM - 3:40 PM****Session 9:  
Lidar Sensing II**

Wednesday 18 April 2018

3:40 PM - 4:40 PM


Location: Ballroom Level, Sun 3

Session Chairs: [Weilin "Will" Hou](#), U.S. Naval Research Lab. (United States) ; Damien B. Josset, U.S. Naval Research Lab. (United States)**Comparing fluorescent and differential absorption LiDAR techniques for detecting algal biomass with applications to Arctic substrates**

Paper 10631-37

Time: 3:40 PM - 4:00 PM


Author(s): Eric Rehm, Takuvik (Canada), Univ. Laval (Canada), Ctr. National de la Recherche Scientifique (France); Fraser R. Dalgleish, Harbor Branch Oceanographic Institute (United States), Florida Atlantic Univ. (United States); Matthieu Huot, Takuvik (Canada), Univ. Laval (Canada), Ctr. National de la Recherche Scientifique (France); José Lagunas-Morales, Univ. Laval-CNRS, Takuvik (Canada); Simon Lambert-Girard, Takuvik (Canada), Univ. Laval (Canada), Ctr. National de la Recherche Scientifique (France); Stefania Matteoli, Istituto di Elettronica e di Ingegneria dell'Informazione e delle, Consiglio Nazionale delle Ricerche (Italy); Philippe Archambault, Takuvik (Canada), Univ. Laval (Canada), Ctr. National de la Recherche Scientifique (France); Michel Piché, Centre d'optique, photonique et laser, Université Laval (Canada)

[Add To My Schedule](#) **Remote characterization of turbid water using a novel Lidar technique**

Paper 10631-38

Time: 4:00 PM - 4:20 PM


Author(s): Andrew Gisler, ASTRALiTe, Inc. (United States); Jeffrey P. Thayer, Univ. of Colorado Boulder (United States), Atmospheric &amp; Space Technology Research Associates, LLC (United States); Geoffrey Crowley, Atmospheric &amp; Space Technology Research Associates, LLC (United States)

[Add To My Schedule](#) **Monitoring ocean water level in remote shoreline locations using GPS reflectometry**

Paper 10631-39

Time: 4:20 PM - 4:40 PM

Author(s): Andrew Gisler, ASTRA (United States); Irfan Azeem, Atmospheric &amp; Space Technology Research Associates, LLC (United States); Erik Stromberg, Adam Reynolds, ASTRA (United States); Geoffrey Crowley, Atmospheric &amp; Space Technology Research Associates, LLC (United States); Carol Janzen, Molly McCammon, Alaska Ocean Observing System (United States)

[Add To My Schedule](#) **Session 10:  
Bioluminescence**

Wednesday 18 April 2018

4:40 PM - 5:20 PM


Location: Ballroom Level, Sun 3

Session Chairs: [Michael S. Twardowski](#), Harbor Branch Oceanographic Institute (United States) ; [Weilin "Will" Hou](#), U.S. Naval Research Lab. (United States)**Development of an AUV-deployed ambient light sensor with active bioluminescence stimulus**

Paper 10631-40

Time: 4:40 PM - 5:00 PM


Author(s): Clifford Pontbriand, Peter H. Wiebe, Dana R. Yoerger, Woods Hole Oceanographic Institution (United States)

[Add To My Schedule](#) **Propagation of bioluminescent signals to near-surface from mesopelagic waters**

Paper 10631-41

Time: 5:00 PM - 5:20 PM

Author(s): Alberto Tonizzo, GTF, LLC (United States); Brandon J. Russell, James M. Sullivan, Michael S. Twardowski, Harbor Branch Oceanographic Institute (United States)

[Add To My Schedule](#) **Conclusion and Best Paper Award Presentation**

Wednesday 18 April 2018

5:20 PM - 5:40 PM

Location: Ballroom Level, Sun 3

Conference Chairs:

**Weilin "Will" Hou**, U.S. Naval Research Lab. (USA) and **Robert A. Arnone**, The Univ. of Southern Mississippi (USA)

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