PROCEEDINGS OF SPIE

SPIDigitalLibrary.org/conference-proceedings-of-spie

Front Matter: Volume 9827

, "Front Matter: Volume 9827," Proc. SPIE 9827, Ocean Sensing and Monitoring VIII, 982701 (7 June 2016); doi: 10.1117/12.2245350

SPIE.

Event: SPIE Defense + Security, 2016, Baltimore, MD, United States

PROCEEDINGS OF SPIE

Ocean Sensing and Monitoring VIII

Weilin W. Hou
Robert A. Arnone
Editors

19–20 April 2016
Baltimore, Maryland, United States

Sponsored and Published by
SPIE

Volume 9827

Proceedings of SPIE 0277-786X, V. 9827

SPIE is an international society advancing an interdisciplinary approach to the science and application of light.

Ocean Sensing and Monitoring VIII, edited by Weilin W. Hou, Robert A. Arnone, Proc. of SPIE Vol. 9827,
982701 · © 2016 SPIE · CCC code: 0277-786X/16/\$18 · doi: 10.1117/12.2245350

Proc. of SPIE Vol. 9827 982701-1

The papers in this volume were part of the technical conference cited on the cover and title page. Papers were selected and subject to review by the editors and conference program committee. Some conference presentations may not be available for publication. Additional papers and presentation recordings may be available online in the SPIE Digital Library at SPIEDigitalLibrary.org.

The papers reflect the work and thoughts of the authors and are published herein as submitted. The publisher is not responsible for the validity of the information or for any outcomes resulting from reliance thereon.

Please use the following format to cite material from these proceedings:

Author(s), "Title of Paper," in *Ocean Sensing and Monitoring VIII*, edited by Weilin W. Hou, Robert A. Arnone, Proceedings of SPIE Vol. 9827 (SPIE, Bellingham, WA, 2016) Six-digit Article CID Number.

ISSN: 0277-786X

ISSN: 1996-756X (electronic)

ISBN: 9781510600683

Published by

SPIE

P.O. Box 10, Bellingham, Washington 98227-0010 USA

Telephone +1 360 676 3290 (Pacific Time) • Fax +1 360 647 1445

SPIE.org

Copyright © 2016, Society of Photo-Optical Instrumentation Engineers.

Copying of material in this book for internal or personal use, or for the internal or personal use of specific clients, beyond the fair use provisions granted by the U.S. Copyright Law is authorized by SPIE subject to payment of copying fees. The Transactional Reporting Service base fee for this volume is \$18.00 per article (or portion thereof), which should be paid directly to the Copyright Clearance Center (CCC), 222 Rosewood Drive, Danvers, MA 01923. Payment may also be made electronically through CCC Online at copyright.com. Other copying for republication, resale, advertising or promotion, or any form of systematic or multiple reproduction of any material in this book is prohibited except with permission in writing from the publisher. The CCC fee code is 0277-786X/16/\$18.00.

Printed in the United States of America.

Publication of record for individual papers is online in the SPIE Digital Library.

**SPIE. DIGITAL
LIBRARY**
SPIEDigitalLibrary.org

Paper Numbering: Proceedings of SPIE follow an e-First publication model, with papers published first online and then in print. Papers are published as they are submitted and meet publication criteria. A unique citation identifier (CID) number is assigned to each article at the time of the first publication. Utilization of CIDs allows articles to be fully citable as soon as they are published online, and connects the same identifier to all online, print, and electronic versions of the publication. SPIE uses a six-digit CID article numbering system in which:

- The first four digits correspond to the SPIE volume number.
- The last two digits indicate publication order within the volume using a Base 36 numbering system employing both numerals and letters. These two-number sets start with 00, 01, 02, 03, 04, 05, 06, 07, 08, 09, 0A, 0B ... 0Z, followed by 10-1Z, 20-2Z, etc.

The CID Number appears on each page of the manuscript. The complete citation is used on the first page, and an abbreviated version on subsequent pages.

Contents

v	<i>Authors</i>
vii	<i>Conference Committee</i>

OPTICALLY COHERENT MARITIME MEASUREMENTS

9827 02	Integration of a laser doppler vibrometer and adaptive optics system for acoustic-optical detection in the presence of random water wave distortions [9827-1]
9827 03	Demonstration of adaptive optics for mitigating laser propagation through a random air-water interface [9827-2]
9827 04	Statistical characterization of the optical interaction at a supercavitating interface [9827-3]
9827 05	Measurements of optical underwater turbulence under controlled conditions [9827-4]
9827 06	Dynamic control of coherent orbital-angular-momentum beams in turbid environments [9827-5]
9827 07	The influence of underwater turbulence on optical phase measurements [9827-6]

IMAGING OF THE OCEAN

9827 08	Remotely operated compact underwater temporally encoded imager: CUTEI [9827-7]
9827 09	Experimental study of a DMD based compressive line sensing imaging system in the turbulence environment [9827-8]
9827 0A	Wide bandwidth optical signals for high range resolution measurements in water [9827-9]
9827 0B	Enhanced oil spill detection sensors in low-light environments [9827-10]
9827 0C	Automated sea floor extraction from underwater video [9827-11]

UNDERWATER COMMUNICATION AND TURBULENCE

9827 0D	Probability density function analysis for optical turbulence with applications to underwater communications systems [9827-12]
9827 0F	Velocity fields and optical turbulence near the boundary in a strongly convective laboratory flow [9827-14]
9827 0G	Blue-light digital communication in underwater environments utilizing orbital angular momentum [9827-15]

OCEAN LIDAR

- 9827 OH **Airborne Lidar Bathymetry (ALB) waveform analysis for bottom return characteristics** [9827-16]
- 9827 OI **An underwater chaotic lidar sensor based on synchronized blue laser diodes** [9827-17]
- 9827 OJ **Independent component analysis for underwater lidar clutter rejection** [9827-18]

REMOTE SENSING OF SEA SURFACE TEMPERATURE I

- 9827 OL **Near real time SST retrievals from Himawari-8 at NOAA using ACSPO system** [9827-21]
- 9827 ON **Exploring new bands in modified multichannel regression SST algorithms for the next-generation infrared sensors at NOAA** [9827-23]

SST, OCEAN COLOR, AND MODELING OF THE OCEAN

- 9827 OS **Sensitivity of modeled ocean heat content to errors in short wave radiation and its attenuation with depth** [9827-28]
- 9827 OU **Chlorophyll fluorescence and the polarized underwater light field: comparison of vector radiative transfer simulations and multi-angular hyperspectral polarization field measurements** [9827-30]
- 9827 OV **Estimating terra MODIS polarization effect using ocean data** [9827-31]

POSTER SESSION

- 9827 OX **Structural characterization of wind-sheared turbulent flow using self-organized mapping** [9827-33]
- 9827 OY **Impact of MODIS SWIR band calibration improvements on Level-3 atmospheric products** [9827-34]
- 9827 OZ **Surface biomass flux across the coastal Mississippi shelf** [9827-35]
- 9827 11 **Diurnal changes in ocean color in coastal waters** [9827-37]

Authors

Numbers in the index correspond to the last two digits of the six-digit citation identifier (CID) article numbering system used in Proceedings of SPIE. The first four digits reflect the volume number. Base 36 numbering is employed for the last two digits and indicates the order of articles within the volume. Numbers start with 00, 01, 02, 03, 04, 05, 06, 07, 08, 09, 0A, 0B...0Z, followed by 10-1Z, 20-2Z, etc.

Ahmed, Samir, 0U	Lee, Robert, 0A
Alley, Derek, 08	Levy, Robert C., 0Y
Allik, Toomas H., 0B	Li, Wenzhe, 0G
Almeida de Sá Barros, R., 05	Majumdar, Arun K., 02, 03
Anderson, Stephanie, 0S	Matt, Silvia, 05, 0F
Angal, Amit, 0Y	McCluskey, Mike, 0C
Antonelli, Lynn, 04	Miller, Keith, 06, 0G
Arnone, Robert, 0Z, 11	Morgan, Kaitlyn, 06, 0G
Baghdady, Joshua, 0G	Mullen, Linda J., 08, 0A, 0J
Bernotas, Marius P., 0D	Nash, Justin, 0A
Boltt, Erik M., 0I	Nelson, Charles, 0D
Brinkmann, Jake, 0V	Nootz, G. A., 05
Caimi, Frank M., 09	Ondrusek, Michael, 11
Cho, Jay, 0B	Osler, Sean, 0G
Cochenour, Brandon, 06, 08, 0G, 0I	Ouyang, Bing, 09
Cook, Dean, 02	Pe'er, Shachak, 0H
Dagleish, Fraser R., 09	Petrenko, B., 0L, 0N
Dandridge, Anthony, 07	Rahmes, Mark, 0C
Dash, P., 0L	Ramboyong, Len, 0B
Davis, Allen, 07	Redding, Brandon, 07
Dixon, Roberta, 0B	Roberts, Mark, 0B
Donaghay, Percy, 0Z	Robinson, Dennis, 02
Dunn, Kaitlin J., 0I	Roeder, James, 02
El-habashi, Ahmed, 0U	Rumbaugh, Luke K., 0I
Eren, Firat, 0H	Rzhanov, Yuri, 0H
Geng, Xu, 0Y	Sakalaukus, Peter, 0S
Gladysz, S., 05	Salisbury, Joseph, 11
Gong, Cuiling, 09	Scott, Nicholas V., 0X
Goode, Wesley, 0F	Shulman, Igor, 0S
Gould, Richard W. Jr., 0S	Soyka, Thomas J., 0B
Handler, Robert A., 0X	Stiver, James, 0C
Hellman, Samuel, 0F	Vandermeulen, Ryan, 0Z, 11
Hoffman, Kurt, 0Y	Vuorenkoski, Anni K., 09
Hou, Weilin, 05, 09, 0F	Wald, Andrew, 0V, 0Y
Ignatov, A., 0L, 0N	Walters, Gage, 04
Illig, David W., 0J	Walters, Mark, 0B
Jefferies, Rhett, 04	Wu, Aisheng, 0V
Jemison, William D., 0I, 0J	Xiong, Jack, 0V, 0Y
Johnson, Eric, 06, 0G	Yang, Haoping, 0Z, 11
Josset, D. B., 05	
Kanaev, A. V., 05	
Kane, Tim, 04	
Kelly, Lauren, 0C	
Kihai, Y., 0L, 0N	
Kirkendall, Clay, 07	
Kovach, Charles, 11	
Kramar, M., 0L, 0N	
Ladner, Sherwin, 11	
Land, Phillip, 02, 03	

Conference Committee

Symposium Chair

David A. Logan, BAE Systems (United States)

Symposium Co-chair

Donald A. Reago Jr., U.S. Army Night Vision & Electronic Sensors
Directorate (United States)

Conference Chairs

Weilin W. Hou, U.S. Naval Research Laboratory (United States)
Robert A. Arnone, The University of Southern Mississippi (United States)

Conference Program Committee

Samir Ahmed, The City College of New York (United States)
Brandon Cochenour, Naval Air Warfare Center Aircraft Division
(United States)
Alexander Ignatov, NOAA National Environmental Satellite, Data,
and Information Service (United States)
Linda J. Mullen, Naval Air Systems Command (United States)

Session Chairs

Opening Remarks

Weilin W. Hou, U.S. Naval Research Laboratory (United States)
Robert A. Arnone, The University of Southern Mississippi (United States)

- 1 Optically Coherent Maritime Measurements
 Linda Mullen, Naval Air Systems Command (United States)
- 2 Imaging of the Ocean
 Weilin W. Hou, U.S. Naval Research Laboratory (United States)
- 3 Underwater Communication and Turbulence
 Brandon Cochenour, Naval Air Warfare Center Aircraft Division
 (United States)
- 4 Ocean Lidar
 Brandon Cochenour, Naval Air Warfare Center Aircraft Division
 (United States)
 Linda Mullen, Naval Air Systems Command (United States)

- 5 Remote Sensing of Sea Surface Temperature I
Robert A. Arnone, The University of Southern Mississippi (United States)
Alexander Ignatov, NOAA National Environmental Satellite, Data,
and Information Service (United States)
- 6 Remote Sensing of Sea Surface Temperature II
Alexander Ignatov, NOAA National Environmental Satellite, Data,
and Information Service (United States)
Robert A. Arnone, The University of Southern Mississippi (United States)
- 7 SST, Ocean Color, and Modeling of the Ocean
Robert A. Arnone, The University of Southern Mississippi (United States)
Samir Ahmed, The City College of New York (United States)