PROCEEDINGS OF SPIE

Geostationary Ocean Color Imager (GOCI) Technical Development, Operation, and Applications

Yu-Hwan Ahn David Antoine Paula S. Bontempi Delu Pan Editors

12 October 2010 Incheon, Korea, Republic of

Sponsored by SPIE

Cosponsored by

Korea Ocean Research & Development Institute (Korea, Republic of)
Korea Ocean Satellite Center (Korea, Republic of)
Ministry of Land, Transport and Maritime Affairs (Korea, Republic of)
Incheon Metropolitan City (Korea, Republic of)
Incheon Tourism Organization (Korea, Republic of)
National Aeronautics and Space Administration (United States)
National Institute of Information and Communications Technology (Japan)
Science Technology Corporation (United States)
Indian Space Research Organization (India)
Indian National Centre for Ocean Information Services (India)

Published by SPIE

Volume 7861

Proceedings of SPIE, 0277-786X, v. 7861

The papers included 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. The papers published in these proceedings 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 this book:

Author(s), "Title of Paper," in Geostationary Ocean Color Imager (GOCI) Technical Development, Operation, and Applications, edited by Yu-Hwan Ahn, David Antoine, Paula S. Bontempi, Delu Pan, Proceedings of SPIE Vol. 7861 (SPIE, Bellingham, WA, 2010) Article CID Number.

ISSN 0277-786X ISBN 9780819483911

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 © 2010, 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/10/\$18.00.

Printed in the United States of America.

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



Paper Numbering: Proceedings of SPIE follow an e-First publication model, with papers published first online and then in print and on CD-ROM. Papers are published as they are submitted and meet publication criteria. A unique, consistent, permanent 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 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. Numbers in the index correspond to the last two digits of the six-digit CID number.

Contents

v vii	Symposium Committees Conference Committee
	GOCI/COMS FUNCTION REPORTS
7861 05	Analysis anomaly during trial test and in-orbit test to set up stabilized operation of GOCI [7861-04]
	JM. Ryu, SJ. Lee, SS. Bea, HJ. Han, YH. Ahn, Korea Ocean Research & Development Institute (Korea, Republic of)
	GOCI DATA PROCESSING, CAL/VAL, AND SERVICE
7861 08	Preliminary verification results of the geostationary ocean color satellite data processing software system [7861-07] HJ. Han, JH. Ryu, S. Cho, CS. Yang, YH. Ahn, Korea Ocean Research & Development Institute (Korea, Republic of)
	GOCI APPLICATIONS
7861 OC	Potential applications of geostationary ocean color imagery for physical-biological interactions [7861-11] YH. Jo, XH. Yan, F. Li, Univ. of Delaware (United States)
7861 OD	Remote sensing of atmospheric aerosol and ocean color for the COMS/GOCI [7861-12] KH. Lee, Kyungil Univ. (Korea, Republic of); Y. J. Kim, G. C. Kim, Gwangju Institute of Science and Technology (Korea, Republic of); M. S. Wong, The Hong Kong Polytechnic Univ (Korea, Republic of); Y. H. Ahn, Korea Ocean Research & Development Institute (Korea, Republic of)
7861 OE	Rapid geographic mapping method of remote sensing data and its applications [7861-13] Y. Q. Kang, Pukyong National Univ. (Korea, Republic of)
7861 OF	The diffuse attenuation coefficient model in the Yellow Sea for the Korean Geostationary Ocean Color Imager (GOCI) [7861-14] S. Son, National Oceanic and Atmospheric Administration (United States) and I.M. Systems Group, Inc. (United States); M. Wang, National Oceanic and Atmospheric Administration (United States)
	Author Index

Symposium Committees

Symposium General Chairs

Upendra N. Singh, NASA Langley Research Center (United States)
Yu-Hwan Ahn, Korea Ocean Research & Development Institute (Republic of Korea)

Symposium General Cochairs

Toshio Iguchi, National Institute of Information and Communications Technology (Japan)

A. S. Kiran Kumar, Indian Space Research Organisation (India)

Delu Pan, State Oceanic Administration (China)

Symposium Honorary Chairs

Michael Freilich, NASA Headquarters (United States) **Mary Ellen Kicza**, National Oceanic and Atmospheric Administration

(United States) **Takashi Moriyama**, Japan Aerospace Exploration Agency (Japan)

Ranganath R. Navalgund, Space Applications Center (India)

Shailesh R. Nayak, Ministry of Earth Sciences (India)

Symposium Technical Program Chairs

Robert J. Frouin, Scripps Institution of Oceanography, University of California, San Diego (United States)

Vaddadi Jayaraman, Indian Space Research Organisation (India) **Kohei Mizutani**, National Institute of Information and Communications Technology (Japan)

Symposium Steering Committee

Upendra N. Singh, Chair, NASA Langley Research Center (United States) **George J. Komar**, Cochair, NASA Goddard Space Flight Center (United States)

Kazuhiro Asai, Tohoku Institute of Technology (Japan)

Robert J. Frouin, Scripps Institution of Oceanography, University of California, San Diego (United States)

Jack A. Kaye, NASA Headquarters (United States)

A. S. Kiran Kumar, Space Applications Center (India)

Delu Pan, State Oceanic Administration (China)

Jinxue Wang, Raytheon Company (United States)

Symposium International Organizing Committee

Yu-Hwan Ahn, Korea Ocean Research & Development Institute (Republic of Korea)

Jinyu Cheng, Chinese Society of Oceanography (China)
Adarsh Deepak, Science and Technology Corporation (United States)
Ramesh K. Kakar, NASA Headquarters (United States)
Teruyuki Nakajima, The University of Tokyo (Japan)
Haruhisa Shimoda, Japan Aerospace Exploration Agency (Japan)
Lelia B. Vann, NASA Langley Research Center (United States)

Conference Committee

Conference Chairs

Yu-Hwan Ahn, Korea Ocean Research & Development Institute (Korea, Republic of)

David Antoine, Laboratoire d'Océanographie de Villefranche (France) **Paula S. Bontempi**, NASA Headquarters (United States)

Delu Pan, State Oceanic Administration (China)

Program Committee

Paul DiGiacomo, National Oceanic and Atmospheric Administration (United States)

Hiroshi Kobayashi, University of Yamanashi (Japan)

Anne Lifermann, Centre National d'Études Spatiales (France)

Joo-Hyung Ryu, Korea Ocean Research & Development Institute (Korea, Republic of)

Palanisamy Shanmugam, Korea Ocean Research & Development Institute (Korea, Republic of)

Session Chairs

- 1 GOCI/COMS Function Reports
 - **SeungHyun Son**, National Oceanic and Atmospheric Administration (United States)
- 2 GOCI Data Processing, CAL/VAL, and Service Kevin Ruddick, Royal Belgian Institute of Natural Sciences (Belgium)
- 3 GOCI Applications

Delu Pan, State Oceanic Administration (China)

4 Future Geo Ocean Color Satellite

Yu-Hwan Ahn, Korea Ocean Research & Development Institute (Korea, Republic of)