

PROCEEDINGS OF SPIE

Earth Observing Systems XXVI

James J. Butler
Xiaoxiong (Jack) Xiong
Xingfa Gu
Editors

1-5 August 2021
San Diego, California, United States

Sponsored and Published by
SPIE

Volume 11829

Proceedings of SPIE 0277-786X, V. 11829

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

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 SPIDigitalLibrary.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 *Earth Observing Systems XXVI*, edited by James J. Butler, Xiaoxiong (Jack) Xiong, Xingfa Gu, Proc. of SPIE 11829, Seven-digit Article CID Number (DD/MM/YYYY); (DOI URL).

ISSN: 0277-786X

ISSN: 1996-756X (electronic)

ISBN: 9781510644960

ISBN: 9781510644977 (electronic)

Published by

SPIE

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

Telephone +1 360 676 3290 (Pacific Time)

SPIE.org

Copyright © 2021 Society of Photo-Optical Instrumentation Engineers (SPIE).

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 fees. To obtain permission to use and share articles in this volume, visit Copyright Clearance Center 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.

Printed in the United States of America by Curran Associates, Inc., under license from SPIE.

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

**SPIE. DIGITAL
LIBRARY**

SPIDigitalLibrary.org

Paper Numbering: A unique citation identifier (CID) number is assigned to each article in the Proceedings of SPIE at the time of 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 and print versions of the publication. SPIE uses a seven-digit CID article numbering system structured as follows:

- The first five 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.

Contents

REMOTE SENSING DATA ALGORITHMS, PROCESSING, AND ANALYSIS

- 11829 04 Improving the CERES SYN cloud and flux products by identifying GOES-17 scan anomalies using a convolutional neural network [11829-13]
- 11829 05 Using remote sensing imagery to study urban heat island and heat waves [11829-14]
- 11829 06 Characterizing water and non-water sites from cropland in eastern South Dakota using Sentinel-1 SAR images [11829-16]
- 11829 07 Remote monitoring capabilities for arctic water surface and ice covers [11829-17]
- 11829 08 About mathematical models of "spotting" in the problems of remote monitoring of aquatic ecosystems [11829-18]

INSTRUMENT INTERCOMPARISONS

- 11829 09 Comparison of AIRS and CrIS SNPP and JPSS radiometry between 2018 and 2021 [11829-19]
- 11829 0A Learning spatial response functions from large multi-sensor AIRS and MODIS datasets [11829-20]

POSTLAUNCH INSTRUMENT VALIDATION & VICARIOUS CALIBRATION

- 11829 0C Post-launch radiometric calibration of the GOES-16 and GOES-17 advanced baseline imager [11829-36]
- 11829 0D Additional characterization of Dome-C to improve its use as an invariant visible calibration target [11829-34]
- 11829 0E S-NPP and NOAA-20 VIIRS thermal emissive bands calibration stability assessments using an in situ ocean target [11829-37]

LANDSAT-8 & 9

- 11829 0F Landsat-8 TIRS radiometric calibration status [11829-22]
- 11829 0G Radiometric performance of Landsat 8 Collection 2 products [11829-23]

- 11829 0H Comparing geometric differences between Landsat Collection 1 to Collection 2 level-1 products [11829-24]
- 11829 0I Preliminary assessment of the geometric improvements to the Landsat Collection-2 archive [11829-25]
- 11829 0J Landsat 9: ready for launch [11829-26]
- 11829 0K Landsat 9 Operational Land Imager2 (OLI2) enhanced on-orbit linearity characterization [11829-27]

PRELAUNCH INSTRUMENT CALIBRATION & CHARACTERIZATION I

- 11829 0L Prelaunch characterization and performance of JPSS-3 VIIRS reflective solar bands [11829-1]
- 11829 0M JPSS-3 VIIRS day-night band pre-launch radiometric characterization [11829-2]
- 11829 0N JPSS-3 VIIRS response versus scan angle characterization and performance [11829-3]
- 11829 0O JPSS-3 VIIRS prelaunch geometric calibration and characterization status [11829-4]

PRELAUNCH INSTRUMENT CALIBRATION & CHARACTERIZATION II

- 11829 0Q PACE OCI pre-launch ETU spectral characterization and performance [11829-7]
- 11829 0R PACE Ocean Color Instrument polarization testing and results [11829-8]
- 11829 0S Progressive TDI measurements with the PACE OCI ETU [11829-9]
- 11829 0T Multi-Angle Imager for Aerosols (MAIA) spectral and radiometric calibration [11829-10]
- 11829 0U Geometric calibration of the Multi-Angle Imager for Aerosols (MAIA) [11829-11]

POSTLAUNCH INSTRUMENT OPERATION, CALIBRATION, & CHARACTERIZATION

- 11829 0V Restoration of degraded Suomi-NPP VIIRS DNB nighttime imagery induced by electronic bias change [11829-28]
- 11829 0W The effects of NOAA-20 VIIRS Solar Diffuser Stability Monitor (SDSM) Relative Spectral Response (RSR) on the Solar Diffuser (SD) degradation estimations [11829-29]
- 11829 0X NOAA 20 VIIRS Solar Diffuser Stability Monitor (SDSM) sun transmittance function update from Yaw maneuver and 3 year on-orbit SDSM data [11829-30]

- 11829 0Y Ground control points refresh for MODIS and VIIRS geolocation monitoring [11829-31]
- 11829 0Z MODIS reflective solar band calibration improvements using pseudo-invariant desert targets [11829-32]
- 11829 10 Tracking on-orbit changes in response versus scan angle for MODIS reflective solar bands using Dome C [11829-33]

POSTER SESSION

- 11829 11 JPSS-3 VIIRS pre-launch thermal emissive band calibration [11829-47]
- 11829 12 S-NPP/NOAA-20 VIIRS reflective solar bands on-orbit calibration bias investigation [11829-48]
- 11829 14 Ship target detection method for SAR image of FNLM filtering combined with faster R-CNN [11829-39]
- 11829 15 Building extraction algorithm based on improved adaptive MBI index in remote sensing image [11829-40]
- 11829 16 Research on fusion of SAR image and multispectral image using texture feature information [11829-41]
- 11829 17 Research on farmland boundary extraction based on deep learning and edge detection operator for GF-2 data [11829-42]
- 11829 18 Performance assessment of the NOAA-20 VIIRS RSB using deep convective clouds [11829-43]
- 11829 19 S-NPP and NOAA-20 VIIRS thermal emissive bands diurnal F-factor oscillations impacts on Earth view retrievals [11829-44]
- 11829 1A Impact of mirror-side correlated noise on radiometric calibration of MODIS thermal emissive bands [11829-45]
- 11829 1B Intercalibration of the reflective solar bands of MODIS and MISR instruments on the Terra platform [11829-46]
- 11829 1C Research of the impact of solid domestic and industrial waste on the snow and ice coverage of mountain territories of the Northern Caucasus using remote sensing technology [11829-50]