PROCEEDINGS OF SPIE

Active and Passive Microwave Remote Sensing for Environmental Monitoring

Claudia Notarnicola Nazzareno Pierdicca Emanuele Santi Editors

12–14 September 2017 Warsaw, Poland

Sponsored by SPIE

Cooperating Organisations
Innovation Centre for Sensor and Imaging Systems (United Kingdom)
ADS Scotland (United Kingdom)
The Knowledge Transfer Network (United Kingdom)
Visit Scotland (United Kingdom)
European Regional Development Fund (Belgium)
Technology Scotland (United Kingdom)
European Association of Remote Sensing Companies (Belgium)
European Association of Remote Sensing Laboratories (Germany)
The British Association of Remote Sensing Companies (United Kingdom)
Remote Sensing & Photogrammetry Society (United Kingdom)

Published by SPIE

Volume 10426

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 Active and Passive Microwave Remote Sensing for Environmental Monitoring, edited by Claudia Notarnicola, Nazzareno Pierdicca, Emanuele Santi, Proceedings of SPIE Vol. 10426 (SPIE, Bellingham, WA, 2017) Seven-digit Article CID Number.

ISSN: 0277-786X

ISSN: 1996-756X (electronic)

ISBN: 9781510613164

ISBN: 9781510613171 (electronic)

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 © 2017, 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/17/\$18.00.

Printed in the United States of America Vm7 i ffUb 5 qpc WUHY qz abWzi bXYf Wy bqY Zfca CD-9.

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



Paper Numbering: Proceedings of SPIE follow an e-First publication model. A unique citation identifier (CID) number is assigned to each article 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

∨ ∨ii	Authors Conference Committee
	JOINT SESSION: SAR DATA PROCESSING II
10426 02	Investigating ground instabilities in Indonesia through SAR interferometry [10426-16]
10426 03	KydroSAT: a Ku/Ka band synthetic aperture radar space mission concept for high-resolution mapping of hydrometeorological parameters [10426-17]
10426 04	Extraction of damaged area caused by debris flows in Hiroshima using COSMO-SkyMed images [10426-18]
	SAR INTERFEROMETRY
10426 05	Deformation vector measurement by means of ground based interferometric radar system [10426-1]
	ENVIRONMENTAL APPLICATIONS
10426 09	Monitoring by forward scatter radar techniques: an improved second-order analytical model (Best Student Paper) [10426-7]
10426 0A	Spatiotemporal hazard mapping of a flood event "migration" in a transboundary river basin as an operational tool in flood risk management [10426-8]
10426 OB	Weather radar performance monitoring using a metallic-grid ground-scatterer [10426-11]
	JOINT SESSION: RADAR
10426 0C	Application of Sentinel-1 VH and VV and Sentinel-2 for soil moisture studies [10426-13]
	POSTER SESSION
10426 0E	Correlation between land cover and ground vulnerability in Alexandria City (Egypt) using time series SAR interferometry and optical Earth observation data [10426-9]
10426 OF	Building damage mapping of 2016 Kumamoto, Japan, earthquake using ALOS-2/PALSAR-2 interferometric coherence [10426-19]

10426 OH	Advanced subsidence monitoring using persistent scatterer interferometry for Jharia Coal Field, Dhanbad, India [10426-22]
10426 OI	The effect of precipitation on measuring sea surface salinity from space [10426-23]
10426 OJ	Creating soil moisture maps based on radar satellite imagery [10426-24]
10426 0M	Influence of different DEMs on the quality of the InSAR results: case study over Bankya and Mirovo areas [10426-27]