PROCEEDINGS OF SPIE

SPIDigitalLibrary.org/conference-proceedings-of-spie

Front Matter: Volume 10773

, "Front Matter: Volume 10773," Proc. SPIE 10773, Sixth International Conference on Remote Sensing and Geoinformation of the Environment (RSCy2018), 1077301 (10 August 2018); doi: 10.1117/12.2510369

SPIE.

Event: Sixth International Conference on Remote Sensing and Geoinformation of the Environment (RSCy2018), 2018, Paphos, Cyprus

PROCEEDINGS OF SPIE

Sixth International Conference on Remote Sensing and Geoinformation of the Environment (RSCy2018)

**Kyriacos Themistocleous
Giorgos Papadavid
Silas Michaelides
Vincent Ambrosia
Diofantos G. Hadjimitsis**
Editors

**26–29 March 2018
Paphos, Cyprus**

Organized by
Cyprus Remote Sensing Society (Cyprus)

Co-organized by
ESA—European Space Agency (France) • NASA (United States) • GEO (Group on Earth Observations) (Switzerland) • DLR (German Aerospace Center) (Germany) • Department of Electronic Communications of the Ministry of Communications and Works (Cyprus) • Cyprus University of Technology (Cyprus) • EXCELSIOR (Cyprus) • Copernicus (Belgium) • ETEK (Cyprus Scientific and Technical Chamber) (Cyprus) • Agricultural Research Institute (Cyprus) • Department of Meteorology (Cyprus) • Neapolis University (Cyprus) • International Society for Photogrammetry and Remote Sensing (ISPRS) • European Cooperation in Science and Technology (COST)

Published by
SPIE

Volume 10773

Proceedings of SPIE 0277-786X, V. 10773

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

Sixth International Conf. on Remote Sensing and Geoinformation of the Environment (RSCy2018),
K. Themistocleous, G. Papadavid, S. Michaelides, V. Ambrosia, D. G. Hadjimitsis, Eds., Proc. of SPIE Vol. 10773,
1077301 • © 2018 SPIE • CCC code: 0277-786X/18/\$18 • doi: 10.1117/12.2510369

Proc. of SPIE Vol. 10773 1077301-1

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 *Sixth International Conference on Remote Sensing and Geoinformation of the Environment (RSCy2018)*, edited by Kyriacos Themistocleous, Giorgos Papadavid, Silas Michaelides, Vincent Ambrosia, Diofantos G. Hadjimitsis, Proceedings of SPIE Vol. 10773 (SPIE, Bellingham, WA, 2018) Seven-digit Article CID Number.

ISSN: 0277-786X
ISSN: 1996-756X (electronic)

ISBN: 9781510621176
ISBN: 9781510621183 (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 © 2018, 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/18/\$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. 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

ix	<i>Authors</i>
xi	<i>Conference Committee</i>
xv	<i>Introduction</i>
xvii	<i>Conference Sponsorship and Support</i>

SEO-DWARF WORKSHOP

10773 02	A novel automated methodology that estimates the United Nations (UN) Sustainable Development Goal (SDG) 14.1.1.: index of coastal eutrophication using the Copernicus Marine Environment Monitoring Service (CMEMS) [10773-50]
10773 03	Assessment of chlorophyll-a retrievals algorithms from Sentinel-2 satellite data [10773-64]
10773 04	A methodology for monitoring the upwelling phenomenon using Sentinel-3 products [10773-56]
10773 05	Detection of marine fronts: a comparison between different approaches applied on the SST product derived from Sentinel-3 data [10773-12]
10773 06	A semantic representation of EO data for image retrieval based on natural language queries [10773-27]

INFORMATION EXTRACTION FROM LASER SCANNING DATA WORKSHOP

10773 07	Geo-spatial information and geomatics applications in higher education: an overview of main trends and recent changes [10773-28]
10773 08	Integrated BIM-GIS model generation at the city scale using geospatial data [10773-18]

REMOTE SENSING

10773 09	Land surface satellite remote sensing gap analysis [10773-44]
10773 0A	Detecting underground structures in Cyprus using field spectroscopy [10773-14]

10773 OB	Revisiting the validity of Braak's equation on altitudinal temperature lapse rate using thermal-infrared bands of Landsat 8 [10773-24]
10773 OC	Rapeseed crops flowering duration estimation by RGB images acquired by consumer drone: a tool for ground-truthing [10773-49]
10773 OD	Remote sensing measurements in creating thematic spectral library [10773-31]
10773 OE	Assessment of terrestrial oil spill dynamics using field spectra and Sentinel 1 H - α decomposition [10773-53]
10773 OF	Assessing the discrepancy in open-source atmospheric correction of Sentinel-2 acquisitions for a tropical mining area in New Caledonia [10773-55]
10773 OG	From a change detection image to an operational alert system with Sentinel-1 time series [10773-58]

GIS

10773 OH	A review of spatial expert systems: Do they still have a role to play? [10773-21]
10773 OI	Backend and frontend strategies for deployment of WebGIS services [10773-5]
10773 OJ	A citizen science approach to assess the impact of roads on reptile mortality in Cyprus [10773-59]
10773 OK	Energy poverty in Cyprus and the use of geographic information systems [10773-51]

LAND COVER/URBAN AREAS

10773 OL	Supervised and unsupervised classification for obtaining land use/cover classes from hyperspectral and multi-spectral imagery [10773-4]
10773 OM	Integration of digital surface models in land cover classification using multi-temporal RapidEye images in Germany [10773-38]

FORESTS

10773 ON	Quantification of forest extent in Germany by combining multi-temporal stacks of Sentinel-1 and Sentinel-2 images [10773-34]
10773 OO	Integrated remote sensing for urban forest changes monitoring [10773-20]
10773 OP	Mapping tree height in agroforestry system using Landsat 8 data [10773-35]

10773 OQ **A voxel-based model of LiDAR point cloud for estimating forest canopy closure** [10773-45]

10773 OR **Automated Landsat 8 data preprocessing for national forest monitoring system** [10773-42]

COASTAL WATERS, OCEANS, AND LARGE WATER BODIES

10773 OS **Spatial data assimilation with a service-based GIS infrastructure for mapping and analysis of *E. Huxleyi* blooms in arctic seas** [10773-23]

10773 OT **Processing framework to support maritime surveillance applications based on optical remote sensing images** [10773-40]

10773 OU **Extraction of bathymetric features using multiple SAR images produced by Sentinel-1** [10773-22]

10773 OV **Coastal 3D mapping using very high resolution satellite images and UAV imagery: new insights from the SAVEMEDCOASTS project** [10773-26]

10773 OW **Retrieval of nearshore bathymetry in the Gulf of Chania, NW Crete, Greece, from WorldView-2 multispectral imagery** [10773-54]

10773 OX **Estimation of sea state parameters using X-band marine radar technology in coastal areas** [10773-2]

CULTURAL HERITAGE WORKSHOP

10773 OY **Local monitoring techniques for cultural heritage sites affected by geo-hazards** [10773-67]

10773 OZ **Best practices for monitoring, mitigation, and preservation of cultural heritage sites affected by geo-hazards: the results of the PROTHEGO project** [10773-68]

NATURAL HAZARDS

10773 10 **Spatial data infrastructure for the management and risk assessment of natural disasters** [10773-8]

10773 11 **Multi-precursors assessment of earthquakes by geospatial and ground data** [10773-19]

10773 12 **Accuracy of available seismic data in Google Earth** [10773-7]

10773 13 **BeRTISS project: Balkan-Mediterranean real-time severe weather service** [10773-13]

UAVs

- 10773 14 **Preview of a protocol for UAV data collection in coastal areas** [10773-32]
- 10773 15 **UAS multi-camera rig for post-earthquake damage 3D geovisualization of Vrisa village**
[10773-52]
- 10773 16 **Urban surfaces studied by VIS/NIR imaging from UAV: possibilities and limitations** [10773-39]

GEOLOGY

- 10773 17 **Introduction of remote sensing methods for monitoring the under restoration Amiantos Mine, Cyprus** [10773-43]

AGRICULTURE

- 10773 18 **Crop water requirements estimation at irrigation district scale from remote sensing: a comparison between MODIS ET product and the analytical approach** [10773-48]
- 10773 19 **Soil organic carbon content monitoring and mapping using airborne and Sentinel-2 spectral imaging** [10773-10]

POSTER SESSION

- 10773 1A **Sandy sediment transport along Anapa bay bar (the Black Sea, Russia)** [10773-6]
- 10773 1B **Areas of glaciers and glacial lakes in northeastern Nepal studied with Landsat imagery between 1992 and 2015** [10773-47]
- 10773 1C **Open source tools for coastal dynamics monitoring** [10773-60]
- 10773 1D **Granulometric analysis of the Anapa bay-bar sediments (the Black Sea, Russia)** [10773-16]
- 10773 1E **Evaluating ocean-color algorithms to remotely sense the surface suspended particle matter in the northeast Aegean Sea, Greece** [10773-46]
- 10773 1F **Dolgaya spit dynamics visualization by using Black Sea GIS regional module** [10773-61]
- 10773 1G **Natura 2000 habitat mapping in Cyprus using high resolution orthophoto maps** [10773-15]
- 10773 1H **Comparison of three DEM sources: a case study from Greek forests** [10773-69]

10773 1I	The contribution of unmanned systems to updating forest maps [10773-70]
10773 1J	Importance of DEM's accuracy in the activity classification of faults: the case of a fault in the Gulf of Corinth, Greece [10773-36]
10773 1K	Climate change impact on flood hazard in a central Portugal alluvial plain [10773-41]
10773 1L	Remote sensing and multi-criteria evaluation techniques with GIS application for the update of Greek Land Parcel Identification System [10773-57]
10773 1M	Vertical accuracy comparison of ALOS AW3D30 DSM and trigonometric survey points [10773-71]
10773 1N	A procedure for change detection from images acquired without a fixed camera [10773-17]
10773 1O	Applications of thermal imaging camera for assessing structural integrity [10773-66]
10773 1P	Assessment and mapping of the current state of the landscapes/ecosystems in Haskovo region (southeastern Bulgaria) in relation to ecosystem services using remote sensing and GIS [10773-30]
10773 1Q	Application of remote sensing for ecosystems monitoring and risk assessment [10773-29]
10773 1R	Effects of satellite spatial resolution on gross primary productivity estimation through light use efficiency modeling [10773-62]
10773 1S	UAVs for the rapid assessment of the damages in the coastal zone after a storm [10773-37]
10773 1T	Multi-scale seagrass mapping in satellite data and the use of UAS in accuracy assessment [10773-33]
10773 1U	Assessment and mapping of urban environmental quality using remote sensing and geospatial data [10773-25]
10773 1V	UAV-image-based illegal activity detection for urban subway safety [10773-9]
10773 1W	Framework for an integrated system for enhancing the energy efficiency and structural performance of buildings [10773-65]

Authors

Numbers in the index correspond to the last two digits of the seven-digit citation identifier (CID) article numbering system used in Proceedings of SPIE. The first five 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.

Agapiou, Athos, 0A, 1G	Fratino, Umberto, 18
Andrade, Cristina, 1K	Frattini, P., 0Z
Antoniou, Andreas, 1G	Gaitani, N., 16
Anzidei, Marco, 0V	Ganeva, Dessislava, 0C
Arnold, Stephan, 0M	Garcia, J. A., 10
Athanasios, N., 15	Georgiadis, Charalampos, 0V
Avetisyan, Daniela, 0D, 1P	Georgiadis, Harris, 1U
Baier, F., 0J	Gholizadeh, Asa, 19
Barazzetti, Luigi, 08, 1N	Giannoulas, Vasileios J., 11
Batsaris, M., 14	Goranova, Margarita Metodieva, 0D
Berg, M., 0T	Grether, Dominik, 06
Bliziotis, Dimitris, 02	Guerova, G., 13
Boori, M. S., 0L	Hadjicharalambous, Helena, 1G
Borisova, Denitsa, 0D, 1P, 1Q	Hadjigeorgiou, Christodoulos, 17
Boruvka, Lubos, 19	Hadjimitsis, Diofantos G., 05, 0A
Bosman, Alessandro, 0V	Haralambous, H., 13
Burud, I., 16	Hatziiordanou, Lena, 1G
Buydens, Guillaume, 0F	He, Lifeng, 1V
Ceriola, Giulio, 04	Hovenbitzer, Michael, 0M, 0N
Chaidas, K., 15	Hudjimartsu, Sahid, 0P, 0R
Choudhary, K., 0L	Ibrahim, Elsy, 0F
Christofe, Andreas, 1W	Ieronymaki, Maria, 02
Chrysopolitou, Vasiliki, 1G	Ikbali, Wim, 0P, 0R
Chrysostomou, Christis Z., 1W	Ioannou, Ilias, 06
Cloarec, Marc, 0U	Istomin, E. P., 10
Crosta, G., 0Z	Ivanova, Iva, 1Q
Cuca, Branka, 07	Jarvis, C., 0E
Dahal, Prabhat Raj, 1B	Jurado Lozano, Pedro Jose, 09
Danai, Ifanti, 1U	Kaduk, J., 0E
Danezis, C., 0Z	Kaimaris, Dimitrios, 0V, 1U
Debouny, Tom, 0F	Kalimeri, Titika, 1L
de Gemmis, Marco, 06	Kapsimalis, Vasilis, 0W
Demetriou, Demetris, 0H	Karamvasis, Kleanthis, 04, 06
De Pasquale, Vito, 04, 06	Karathanassi, Vassilia, 04, 05
Deprez, Robin, 0F	Kazakov, E., 0S
Despotov, Bogdan, 06	Kolokoussis, Polychronis, 04, 05, 06
Dimitrov, Ventseslav, 0D	Kondrik, D., 0S
Dimitrova, T., 13	Kopsacheilis, Vasilis, 06
Divinsky, Boris, 1A	Kosyan, Alisa, 1D
Doukari, Michaela, 14, 15, 1T	Kosyan, Ruben, 1A
Doumaz, Fawzi, 0V	Kotroni, V., 13
Drakopoulos, P., 1E	Koukouvelas, Ioannis K., 1J, 1S
Drakopoulou, Paraskevi, 0W	Kowalski, Zbigniew, 17
Drolas, G. Ch., 15	Krause, D., 0T
Drosos, Vasileios C., 1H, 1I, 1M	Krylenko, Viacheslav, 1D, 1F
Dubbranna, Jean, 0U	Krylenko, Marina, 1F
Eliades, Elias, 1G	Kupriyanov, A., 0L
Fedorova, Elena, 1A, 1D	Kustiyo, 0R
Fernandez, Paulo, 1K	Kyparissis, Aris, 1R

Kyprianou, I., 0K
 Kyriakides, Nicholas, 1O, 1W
 Lafon, Virginie, 05, 06
 Lagouvardos, K., 13
 Liampas, Sarantis-Angelos G., 1H, 1M
 Liu, Huaqing, 1V
 Makri, Despina, 1T
 Malig, Jenny, 06
 Mallinis, Giorgios, 0V, 1U
 Marakakis, Ioannis, 1L
 Melillos, George, 0A
 Michaelides, Silas, 0A
 Miltiadou, Miltio, 02, 05, 06
 Moreira, Madalena, 1K
 Mosxopoulou, Helen, 1I
 Mourato, Sandra, 1K
 Moustakas, A., 15
 Moutzouris-Sidiris, Ioannis, 03
 Navaro, Bénédicte, 0G
 Navarro, Wendy, 0X
 Nedkov, Roumen, 0D, 1P
 Nikolakopoulos, Konstantinos G., 1J, 1S
 Nikolov, Hristo, 0D
 Noskov, Alexey, 0I, 1C
 Ogochukwu, A., 0E
 Oikonomou, C., 13
 Oikonomou, E., 1E
 Orfila, Alejandro, 0X
 Ozigis, M. S., 0E
 Panagiotou, Nikos, 1G
 Panayiotou, Charalampos, 1G
 Papakonstantinou, Apostolos, 14, 15, 1T
 Papoutsas, Christiana, 05, 06
 Parcharidis, Issaak, 0W
 Paringer, R., 0L
 Patias, Petros, 0V, 1U
 Pavlopoulos, Kosmas, 0W
 Pena, J. A., 10
 Pereira, Luísa, 1K
 Peschechera, Giuseppe, 18
 Petkov, Doyno, 0D
 Pikridas, Christos, 0V, 13
 Pirard, Eric, 0F
 Ploutarchos, Kerpelis, 12
 Polignano, Marco, 06
 Popa, Ionel R., 0O
 Poulos, S., 1E
 Poyiadji, Eleftheria, 17
 Pozdnyakov, D., 0S
 Prasetyo, Lilik B., 0B, 0P, 0Q, 0R
 Previtali, Mattia, 1N
 Prodromou, Maria, 05
 Przytucka, Maria, 17
 Radeva, Kameliya, 0D, 1Q
 Ranchin, Thierry, 0U
 Regan, Amanda, 09
 Regniers, Olivier, 06
 Roeber, Volker, 0U
 Roncoroni, Fabio, 1N
 Roussou, O., 15
 Saberioon, Mohammadmehdi, 19
 Samarelli, Sergio, 06
 Saporiti, Nicolas, 0G
 Sarelli, Anastasia, 02, 05, 06
 Savastru, Dan M., 0O, 11
 Savastru, Roxana S., 0O, 11
 Schwarz, E., 0T
 Seissiger, Sylvia, 0M
 Sepe, Vincenzo, 0V
 Serghides, D. K., 0K
 Setiawan, Yudi, 0B, 0P, 0Q, 0R
 Slesareva, L. S., 10
 Soulakellis, N., 15
 Sparrow, D., 0J
 Spastra, Yiota, 02
 Stagakis, Stavros, 1R
 Stamatou, Christos C., 1H, 1M
 Stamatidis, Panagiotis, 1T
 Stefouli, Marianthi, 17
 Suresh, Gopika, 0N
 Suyanto, Desi, 0B, 0P, 0Q, 0R
 Sykas, Dimitris, 02, 05
 Tan, Yumi, 1V
 Tantele, Elia A., 1O, 1W
 Tarantino, Eufemia, 18
 Themistocleous, Kyriacos, 0A, 0Y, 0Z
 Thiis, T., 16
 Topouzelis, Konstantinos, 03, 06, 14, 15, 1T
 Trabelsi, Angela, 0G
 Tsakiri, Maria-Strati, 1U
 Tsapanou, A., 1E
 Tymvios, F., 13
 Tzirkalli, Elli, 1G
 Vaitis, Michail, 06
 Valagussa, A., 0Z
 Vanikiotis, Theofilos, 1R
 Vasilakos, Christos, 1T
 Vecchie, Antonio, 0V
 Vélez, Juan C., 0X
 Velizarova, Emiliya, 1P
 Verroios, Sofirios A., 1J
 Vogiatzakis, I. N., 0J
 Voinov, S., 0T
 Votsis, Renos A., 1O, 1W
 Vukovic, M., 16
 Wołkowicz, Stanisław, 17
 Woroszkiewicz, Michał, 17
 Xenophontos, Marina, 1G
 Zhao, Binbin, 1V
 Zhuk, Elena, 1F
 Zipf, Alexander, 0I
 Zizala, Daniel, 19
 Zodiatis, George, 1F
 Zoran, Maria A., 0O, 11
 Zotos, S., 0J
 Zygouri, Vasiliki N., 1J

Conference Committee

Conference Chairs

Kyriacos Themistocleous, Cyprus University of Technology (Cyprus)
Giorgos Papadavid, Agricultural Research Institute (Cyprus)
Silas Michaelides, Cyprus University of Technology (Cyprus)
Vincent Ambrosia, NASA (United States)
Diofantos G. Hadjimitsis, Cyprus University of Technology (Cyprus)

Scientific Committee

Vincent Ambrosia, NASA (United States)
Upendra N. Singh, NASA (United States)
Anthony Stefanides, George Mason University (United States)
Qian Yu, University of Massachusetts (United States)
Chen Gang, University of North Carolina at Charlotte (United States)
Qihao Weng, Indiana State University (United States)
Jon Mills, Newcastle University (United Kingdom)
Kevin Tansey, University of Leicester (United Kingdom)
Costas Armenakis, York University (United States)
Jocelyn Chanusso, GIPSA Laboratory - Grenoble Institute of Technology (France)
Hesham El-Askary, Chapman University (United States)
Iain Woodhouse, The University of Edinburgh (United Kingdom)
Chris Clayton, University of Southampton (United Kingdom)
Marinko Oluic, Geosat (Croatia)
Lena Halounova, Czech Technical University in Prague (Czech Republic)
Susana Bautista, Universidad de Alicante (Spain)
Miro Govedarica, University of Novi Sad (Serbia)
Ulrich Michel, Jade University of Applied Sciences (Germany)
Klaus Schäfer, Karlsruhe Institute of Technology (KIT) (Germany)
Peter Penev, University of Architecture, Civil Engineering and Geodesy (Bulgaria)
Nilanchal Patel, Bit-Step (India)
Yerach Doytsher, Israel Institute of Technology (Israel)
Ammatzia Peled, University of Haifa (Israel)
George Zalidis, Aristotle University of Thessaloniki (Greece)
Demetre Argialas, National Technical University of Athens (Greece)
Vassilia Karathanassi, National Technical University of Athens (Greece)
Efi Dimopoulou, National Technical University of Athens (Greece)
Andreas Georgopoulos, National Technical University of Athens (Greece)
Charalabos Ioannides, National Technical University of Athens (Greece)
Marinos Kavouras, National Technical University of Athens (Greece)
Alexandros Papayannis, National Technical University of Athens (Greece)

Athanasios Loukas, University of Thessaly (Greece)
Petros Patias, Aristotle University of Thessaloniki (Greece)
Ioannis Gifas, Aristotle University of Thessaloniki (Greece)
Albert Ansmann, Leibniz Institute for Tropospheric Research (Germany)
Athanassios Ganas, National Observatory of Athens (Greece)
Jesus San Miguel-Ayanz, Joint Research Centre - Institute for Environment and Sustainability (Belgium)
Gunter Schreier, German Aerospace Center (DLR) (Germany)
Rosa Lasaponara, CNR (Italy)
Nicola Masini, CNR (Italy)
Marco Gianinetto, Politecnico di Milano (Italy)
Alessio Di Iorio, Alma Sistemi (Italy)
Armin Schmidt, GeodataWIZ Ltd. (United Kingdom)
Alexandra Chudnovsky, Tel-Aviv University (Israel)
Maria A. Zoran, National Institute for Research and Development for Optoelectronics (Romania)
Ignacio Merendez-Pastor, Universidad Miguel Hernández of Elche (Spain)
Artur Gil, University of the Azores (Portugal)
A.P. Krishna, Birla Institute of Technology, Mesra (India)
Denitsa Borisova, Bulgarian Academy of Sciences (Bulgaria)
Apostolos Sarris, Foundation for Research and Technology – Hellas (Greece)
Nektarios Chrysoulakis, Foundation for Research and Technology – Hellas (Greece)
Zina Mitraka, Foundation for Research and Technology – Hellas (Greece)
Konstantinos Nikolakopoulos, University of Patras (Greece)
Marios Anagnostou, National Technical University of Athens, National Observatory of Athens (Greece)
Adrianos Retalis, National Observatory of Athens (Greece)

Keynote Speakers

Barbara Ryan, Group on Earth Observations (Switzerland)
Vincent Ambrosia, NASA (United States)
Stefano La Terra Bella, Copernicus (Belgium)
Diofantos G. Hadjimitsis, Cyprus University of Technology (Cyprus)

Session Chairs

- 1 Research, Educational and Entrepreneurial Opportunities in Earth Observation: Interactive Networking and Collaboration - EXCELSIOR Workshop
Silas Michaelides, Cyprus University of Technology (Cyprus)
- 2 SEO-DWARF Workshop
Vassilia Karathanassi, National Technical University of Athens (Greece)

- 3 Atmospheric
Albert Ansmann, Leibniz Institute for Tropospheric Research (Germany)
- 4 Information Extraction from Laser Scanning Data Workshop
Branka Cuca, Politecnico di Milano (Italy)
Luigi Barazzetti, Politecnico di Milano (Italy)
- 5 Copernicus Infosession
Stefano La Terra Bella, Copernicus (Belgium)
- 6 Remote Sensing
Kevin Tansey, University of Leicester (United Kingdom)
- 7 Remote Sensing
Christian Rogass, GFZ-Potsdam (Germany)
- 8 Remote Sensing
Fabio Remondino, Bruno Kessler Foundation (FBK) (Italy)
- 9 GIS
Demetris Demetriou, Public Works Department (Cyprus)
- 10 Land Cover/Urban Areas
Vincent Ambrosia, NASA (United States)
- 11 ATHENA GIS Workshop
Verena Jaspersen, German Aerospace Center (DLR) (Germany)
- 12 Forests
Vincent Ambrosia, NASA (United States)
- 13 Coastal Waters, Oceans and Large Water Bodies
Petros Patias, Aristotle University of Thessaloniki (Greece)
- 14 Coastal Waters, Oceans and Large Water Bodies
Paraskevi Drakopoulou, Hellenic Centre for Marine Research (Greece)
- 15 Cultural Heritage Workshop
Kyriacos Themistocleous, Cyprus University of Technology (Cyprus)
- 16 Natural Hazards
Maria A. Zoran, National Institute for Research and Development for
Optoelectronics (Romania)
- 17 UAVs
Konstantinos Topouzelis, University of the Aegean (Greece)

- 18 Geology
 Eleftheria Poyiadji, Institute of Geology and Mineral Exploration (Greece)
- 19 Agriculture
 Eyal Ben Dor, Tel-Aviv University (Israel)

Introduction

The organizing committee, scientific committee, and editors would like to thank the authors and participants who attended the Sixth International Conference on Remote Sensing and Geoinformation of Environment (RSCy2018), which was held 26–29 March 2018 in Paphos, Cyprus. The RSCy2018 conference focused on emerging issues in remote sensing and geoinformation of environment. The keynote speakers and thought-provoking technical program encouraged the exchange of ideas and provided the foundation for future collaboration and innovation. RSCy2018 was organized by the Cyprus Remote Sensing Society, in cooperation with ESA (European Space Agency), GEO (Group on Earth Observations), NASA, Copernicus, the Cyprus University of Technology, DLR (German Aerospace Center), ETEK (Cyprus Scientific and Technical Chamber), the Department of Meteorology, the Department of Electronic Communications of the Ministry of Communications and Works, the Agricultural Research Copernicus, Neapolis University, the International Society for Photogrammetry and Remote Sensing (ISPRS), and the European Cooperation in Science and Technology (COST). Supporters of the RSCy2018 included the Cyprus Research Promotion Foundation, Joint Programming Initiative, Copernicus, the Copernicus Relays network and the Copernicus Academy network, FabSpace 2.0, as well as the EXCELSIOR, CLIMA, PROTHERGO and ATHENA projects.

The papers in this volume, reviewed for presentation and accepted for publication by the scientific committee, represent continued advancements in the field of remote sensing and geoinformation. The program, which included both oral and poster presentations, was organized around 15 major themes: Agriculture, Atmospheric, Coastal Waters-Ocean-Large Water Regions, Remote Sensing for Cultural Heritage, Environmental Remote Sensing, Forests, Geology, GIS, Land Cover, LIDAR, Natural Hazards and Disaster Response, Remote Sensing, Satellites, UAVs, and Urban Environment. The abstracts and subsequent manuscripts make important contributions to the open scientific literature on remote sensing and geoinformation. We thank the authors for sharing their knowledge and enthusiasm. Experts from over 40 countries are represented in the abstracts that are presented in the conference program. At the conference closing ceremony, awards were given for the best paper and best poster, following peer-review. To be eligible for the best paper and best poster award, it was necessary for the authors to have submitted a manuscript for this proceedings volume, to have registered for the conference, and present their paper or poster.

The conference was enhanced by the inclusion of the workshops "Research, Educational and Entrepreneurial Opportunities in Earth Observation: Interactive Networking and Collaboration- the EXCELSIOR Workshop," "SEO-DWARF Workshop," "Information Extraction from Laser Scanning Data Workshop," and the "GIS Session" under the auspices of the ATHENA project as well as the PROTHERGO

National Event. One of the highlights of this year's conference was the Copernicus Infosession, which was organized by the Copernicus Commission of the European Union in collaboration with the Department Electronic Communications of the Ministry of Transport, Communications and Works, the Cyprus Remote Sensing Society, and the ERATOSTHENES Research Center under the EXCELSIOR program.

We are honored that so many experts from all over the world specializing in so many diverse areas of remote sensing and geoinformation attended this conference. This conference was an excellent opportunity for colleagues to share their knowledge, network, and collaborate on future research. We encourage you to take this opportunity to learn about the latest, most state-of-the-art findings and applications in the field of remote sensing and geoinformation.

Special thanks are due to the session chairs who provided invaluable assistance during the event. We also thank the SPIE staff for following the proceedings through the publication process. We also thank our sponsors for their support.

**Kyriacos Themistocleous
Giorgos Papadavid
Silas Michaelides
Vincent Ambrosia
Diofantos G. Hadjimitsis**

Conference Sponsorship and Support

Conference Organizer

Cyprus Remote Sensing Society (Cyprus)

Co-organized by

ESA—European Space Agency (France)

NASA (United States)

Group on Earth Observations (Switzerland)

DLR (German Aerospace Center) (Germany)

Department of Electronic Communications of the Ministry of Communications
and Works (Cyprus)

Cyprus University of Technology (Cyprus)

EXCELSIOR (Cyprus)

Copernicus (Belgium)

ETEK (Cyprus Scientific and Technical Chamber, Cyprus)

Agricultural Research Institute (Cyprus)

Department of Meteorology (Cyprus)

Neapolis University (Cyprus)

International Society for Photogrammetry and Remote Sensing (ISPRS)

European Cooperation in Science and Technology (COST)

Sponsored by

ESA—European Space Agency (France)

Department of Electronic Communications of the Ministry of Communications
and Works (Cyprus)

GeoSystems Hellas (Greece)

CyRIC (Cyprus)

Supported by

Copernicus Relays

Copernicus Academy

"Prothego" JPI Heritage Plus/0314/36

"Athena" H2020-TWINN2015 EU-691936

"Clima" JPI Heritage Plus/0314/07

FabSpace 2.0

COST - Optimise

Smart Events