



**40<sup>th</sup> EARSeL Symposium 2021**  
**European Remote Sensing-New Solutions for Science and Practice**

**2<sup>nd</sup> EARSeL UAS Workshop**

**9<sup>th</sup> EARSeL Workshop on Remote Sensing of Coastal Zone**

**EO Education Workshop**

**Monday, 07/June/2021**

**8:00am** Technical session allowing presenting authors to test their presentations.

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**8:50am** <https://us02web.zoom.us/j/87085275054?pwd=S0lyUzV5UU1IU1NML2hadnNNQ3ZEUT09>  
**CEST** Meeting ID: 870 8527 5054  
 Passcode: 40

**9:00am** **OS: Opening session**

-

**9:10am** Chair: **Klaus-Ulrich Komp**  
**CEST** Chair: **Jean-Christophe Schyns**

<https://us02web.zoom.us/j/84141949905?pwd=NIhMeIVqbTdQU0ZXd0VUQ1UyZ3p4UT09>  
 Meeting ID: 841 4194 9905  
 Passcode: 40

**9:10am** **Keynote lecture 1: ESA's Earth Observation Programme today and looking forward. Prof. Dr. Michael Rast**

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**9:50am** Chair: **Klaus-Ulrich Komp**  
**CEST** Chair: **Jean-Christophe Schyns**

<https://us02web.zoom.us/j/84141949905?pwd=NIhMeIVqbTdQU0ZXd0VUQ1UyZ3p4UT09>  
 Meeting ID: 841 4194 9905  
 Passcode: 40

**9:50am** **Keynote lecture 2: Earth Observation Data for Ecosystem Monitoring tool: an integrator of geospatial data towards policy implementation. Dr. Ioannis Manakos**

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**10:20am** Chair: **Klaus-Ulrich Komp**  
**CEST** Chair: **Jean-Christophe Schyns**

<https://us02web.zoom.us/j/84141949905?pwd=NIhMeIVqbTdQU0ZXd0VUQ1UyZ3p4UT09>  
 Meeting ID: 841 4194 9905  
 Passcode: 40

**10:20am** **Keynote lecture 3: Progress in hybrid models for applications in remote sensing of vegetation. Dr. Ir. Jochem Verrelst**

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**10:50am** Chair: **Klaus-Ulrich Komp**  
**CEST** Chair: **Jean-Christophe Schyns**

<https://us02web.zoom.us/j/84141949905?pwd=NIhMeIVqbTdQU0ZXd0VUQ1UyZ3p4UT09>  
 Meeting ID: 841 4194 9905  
 Passcode: 40

**10:50am** **Short break**

**11:05am** **LU&LC 1: Land use and land cover, degradation and desertification**

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**12:50pm** Chair: **Ioannis Manakos**  
**CEST** Chair: **Birgitta Putzenlechner**  
 Chair: **Gregory Giuliani**

<https://us02web.zoom.us/j/81136733848?pwd=NytDTGVYmVaMitockxhN3hIREJ3dz09>  
 Meeting ID: 811 3673 3848  
 Passcode: 40

**Can a Hierarchical Classification of Sentinel-2 Data Improve the Land Cover Mapping?**

**Adam Waśniewski, Michał Kałuski, Agata Hościło, Aneta Lewandowska, Milena Chmielewska**

Centre of Applied Geomatics, Institute of Geodesy and Cartography, Modzelewskiego 27, 02-679 Warsaw, Poland





### Application of Remote Sensing Data to Identify and Assess the Condition of High Mountain Vegetation

**Marlena Kycko<sup>1</sup>, Bogdan Zagajewski<sup>1</sup>, Tomasz Zwiacz-Kozica<sup>2</sup>**

1: Department of Geoinformatics, Cartography and Remote Sensing, Chair of Geomatics and Information Systems, Faculty of Geography and Regional Studies, University of Warsaw, 00-927 Warszawa, Poland; marlenakycko@uw.edu.pl; bogdan@uw.edu.pl;  
2: Tatra National Park, Kuźnice 1, 34-500 Zakopane, Poland

### Mapping And monitoring Agricultural Land With Time-series Satellite Data

**Stavroula Dimou, Aikaterini Stamou, Dimitrios Kaimaris, Petros Patias**

AUTH, Greece

### Invasive and expansive plant species mapping using airborne HySpex hyperspectral, Random Forest and Support Vector Machine algorithms

**Anita Sabat-Tomala, Edwin Raczko, Karolina Zdunek, Bogdan Zagajewski**

University of Warsaw, Faculty of Geography and Regional Studies, Chair of Geomatics and Information Systems, Department of Geoinformatics, Cartography and Remote Sensing, Poland

### Landslide Mapping Using TLS and UAV-based Point Clouds.

**Konstantinos Nikolakopoulos, Aggeliki Kyriou, Ioannis Koukouvelas, Maria Kakavas**

Department of Geology, University of Patras, Greece

### Morphological Factors Analysis of Steppe Rangelands Degradation Based on Remote Sensing and GIS Techniques (Case of the Naâma Algerian Zone)

**Sarah Kreri, Nadjla Bentekhici, Assia Saad, Ahmed Zegrar, Khadidja Bakhti**

Agence Spatiales Algérienne (ASAL), Centre des Techniques Spatiales (CTS), Algeria

### Remote sensing methods for Sustainable Development- urban growth monitoring

**Agnieszka Jenerowicz, Elżbieta Bielecka, Beata Calka**

Military University of Technology, Poland

12:50pm Short break

1:05pm **Keynote lecture 4: Earth observation data access and processing in the cloud - new approach for scientific applications. Dr. Maciej Krzyżanowski**

1:30pm  
CEST  
Chair: Anca Dabija  
Chair: Premysl Stych  
Chair: Bogdan Zagajewski

<https://us02web.zoom.us/j/85663458347?pwd=UDJzdFpZVWlUeUxGa2ZmeDE3WHp0UT09>

Meeting ID: 856 6345 8347

Passcode: 40

1:30pm **Keynote lecture 5: VHR Satellite Imagery supporting waste removal of polluted areas at land and sea. Benjamin Lieberknecht**

1:55pm  
CEST  
Chair: Anca Dabija  
Chair: Premysl Stych  
Chair: Bogdan Zagajewski

<https://us02web.zoom.us/j/85663458347?pwd=UDJzdFpZVWlUeUxGa2ZmeDE3WHp0UT09>

Meeting ID: 856 6345 8347

Passcode: 40

1:55pm **LU&LC 2: Land use and land cover, degradation and desertification**

3:35pm  
CEST  
Chair: Anca Dabija  
Chair: Premysl Stych  
Chair: Bogdan Zagajewski

<https://us02web.zoom.us/j/85663458347?pwd=UDJzdFpZVWlUeUxGa2ZmeDE3WHp0UT09>

Meeting ID: 856 6345 8347

Passcode: 40

### Detecting Potentially Toxic Elements In Agricultural Soils Adjacent To Mining Area Of Kajaran, Armenia Using VIS-NIR Spectroscopy



FACULTY OF GEOGRAPHY  
AND REGIONAL STUDIES  
UNIVERSITY OF WARSAW



**Garegin Tepanosyan<sup>1</sup>, Gevorg Tepanosyan<sup>1</sup>, Vahagn Muradyan<sup>1</sup>, Shushanik Asmaryan<sup>1</sup>, Lilit Sahakyan<sup>1</sup>, Michael Denk<sup>2</sup>, Cornelia Gläßer<sup>2</sup>**

1: Center for Ecological-Noosphere Studies NAS RA, Armenia; 2: Martin Luther University Halle-Wittenberg, Institute of Geosciences and Geography

### **Estimation and Mapping Soil Chromium Pollution using Satellite Imaging Spectroscopy**

**Vahid Khosravi<sup>1</sup>, Faramarz Doulati Ardejani<sup>2</sup>, Asa Gholizadeh<sup>3</sup>, Mohammadmehdi Saberioon<sup>3,4</sup>**

1: University of Birjand; 2: University of Tehran; 3: Czech University of Life Sciences Prague; 4: German Research Centre for Geosciences

### **Earth Observation for an efficient water management in Cyprus**

**Anastasis Evagorou<sup>1,2</sup>, Christiana Papoutsas<sup>1,2</sup>, Evangelos Akylas<sup>1,2</sup>, George Papadavid<sup>3</sup>, Athanasios Loukas<sup>4</sup>, Diofantos Hadjimitsis<sup>1,2</sup>**

1: Cyprus University of Technology, Cyprus; 2: Eratosthenes Centre of Excellence, Limassol, Cyprus; 3: Agricultural Research Institute, Pafos, Cyprus; 4: Aristotle University of Thessaloniki, Department of Rural and Surveying Engineering, Thessaloniki, Greece

### **Analysing Change Dynamics of Land Cover, Erosion and Accretion of World's Largest Mangrove Forest (Sundarbans) using Remotely Sensed Data**

**Akbar Hossain Kanan, Francesco Pirotti, Mauro Masiero**

University of Padova, Italy

### **Using Imaging Spectroscopy For Predicting Land-Use Effects On Soil Quality In Dryland**

**Nathan Levi<sup>1,2</sup>, Arnon Karnieli<sup>1</sup>, Tarin Paz-Kagan<sup>2</sup>**

1: The Remote Sensing Laboratory, Blaustein Institutes for Desert Research, Ben-Gurion University of the Negev, Sede Boqer Campus, 84990, Israel; 2: Department of Sensing, Information and Mechanization Systems, Institute of Agricultural Engineering, Agricultural Research Organization (ARO), Volcani Center, Israel

### **Assessment of the Effectiveness of Land Cover Classification According to Corine Land Cover Nomenclature**

**Marcin Kluczek<sup>1</sup>, Anca Dabija<sup>1</sup>, Bogdan Zagajewski<sup>1</sup>, Edwin Raczko<sup>1</sup>, Marlena Kycko<sup>1</sup>, Ahmed H. Al-Sulttani<sup>1</sup>, Anna Tardà<sup>2</sup>, Lydia Pineda<sup>2</sup>, Jordi Corbera<sup>2</sup>**

1: Department of Geoinformatics, Cartography and Remote Sensing, Chair of Geomatics and Information Systems, Faculty of Geography and Regional Studies, University of Warsaw, Warszawa, Poland; 2: Catalan Earth Observation Centre, Cartographic and Geological Institute of Catalonia, E-08038 Barcelona, Spain

3:35pm

Lunch break

4:00pm

**URS: Urban Remote Sensing**

Chair: Carsten Juergens

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Chair: Derya Maktav

6:00pm

Chair: Stanislaw Lewinski

CEST

<https://us02web.zoom.us/j/88957846322?pwd=RVNMc0RlMjZkdHh0bmcwV2hwRDJZz09>

Meeting ID: 889 5784 6322

Passcode: 40

### **Identification of Construction Areas from VHR-images for Economic Forecasts**

**Carsten Juergens, Matthias Fabian Meyer-Heß**

Ruhr-University Bochum, Germany

### **Estimation of Urban Morphology and Surface Roughness Parameters Using High-resolution Satellite Imagery**

**Aikaterini Stamou, Petros Patias**

AUTH, Greece

### **The Potential Of Geospatial Information in Mapping Perceived Tenure Insecurity in Urban Deprivation**

**Esaie Dufitimana, Jiong Wang, Divyani Kholi**

Faculty of Geo-Information Science and Earth Observation (ITC), University of Twente, The Netherlands

### **GPU Accelerated Multiresolution Analysis For Semantic Segmentation Based Urban Building Extraction**

**Rizwan Ahmed Ansari<sup>1</sup>, Winnie Thomas<sup>2</sup>**

1: Veermata Jijabai Technological Institute, India; 2: Indian Institute of Technology Bombay, India



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### Characteristics of Urban Sprawl in Poland Based on Impervious Surface Change Analysis Using Landsat

**Wojciech Łachowski**

Institute of Urban and Regional Development, Poland

### Use of Aerial Hyperspectral Imagery and ALS Data for Urban Trees Condition Assessment in Warsaw (Poland)

**Krzysztof Gryguc<sup>1</sup>, Adrian Ochtyra<sup>1</sup>, Adriana Marcinkowska-Ochtyra<sup>1</sup>, Anna Jarocińska<sup>1</sup>, Dominik Kopec<sup>2,3</sup>, Anna Halladin-Dąbrowska<sup>2</sup>, Łukasz Sławik<sup>1,2</sup>**

1: Department of Geoinformatics, Cartography and Remote Sensing, Chair of Geomatics and Information Systems, Faculty of Geography and Regional Studies, University of Warsaw, Poland, emails: k.gryguc@uw.edu.pl, adriana.marcinkowska@uw.edu.pl, ajarocinska@uw.edu.pl, l.slawik@uw.edu.pl; 2: MGGP Aero sp. z o. o., Tarnów, Poland, email: ahalladin@mggpaero.com; 3: Department of Geobotany and Plant Ecology, Faculty of Biology and Environmental Protection, University of Lodz, email: dominik.kopec@biol.uni.lodz.pl

### The Impact of Fluctuations in the Legislative Process on the Loss of Urban Tree Canopy and Changes in the Ecosystem Services Provided by Trees - A Case Study In Poland Based On LiDAR and Aerial Orthophotos

**Piotr Wężyk<sup>1</sup>, Karolina Zięba-Kulawik<sup>1</sup>, Paweł Hawryło<sup>1</sup>, Piotr Matczak<sup>2</sup>, Patrycja Przewoźna<sup>3</sup>, Adam Ingłot<sup>4</sup>, Krzysztof Mączka<sup>2</sup>**

1: Dep. of Forest Resources Management, Faculty of Forestry, University of Agriculture in Krakow, Poland; 2: Department for the Study of Social Dynamics, Faculty of Sociology, Adam Mickiewicz University in Poznan, Poland; 3: Department of Geoinformation, Faculty of Geographical and Geological Sciences, Adam Mickiewicz University in Poznan, Poland; 4: Department of Geodesy, Faculty of Civil and Environmental Engineering, Gdansk University of Technology, Poland

### Strategizing the “Smart City” Model into an Integrated System Utilizing Space Technology and Geoinformatics Assets: A Systematic Approach to a Resilient Society: The Case Study of Limassol, CY

**Polina Sokratous<sup>1,2</sup>, Athos Agapiou<sup>1,2</sup>, Kyriacos Themistocleous<sup>1,2</sup>, Chris Danezis<sup>1,2</sup>, Phaedon Kyriakidis<sup>1,2</sup>, Diofantos Hadjimitsis<sup>1,2</sup>**

1: Cyprus University of Technology, Cyprus; 2: ERATOSTHENES Centre of Excellence, Limassol, Cyprus

6:00pm

Short break

6:15pm

3D RS

Chair: **Mattia Crespi**

Chair: **Karsten Jacobsen**

Chair: **Markéta Potůčková**

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7:15pm

CEST

<https://us02web.zoom.us/j/84356433330?pwd=RFFWSzZQWm0xdmhmZndCTVEzQjFPZz09>

Meeting ID: 843 5643 3330

Passcode: 40

### Free Height Models as Replacement of National Height Models?

**Karsten Jacobsen**

Leibniz University Hannover, Germany

### The Utility of Point Cloud and Rectangular Pixel Raster Data Representations in Hyperspectral Imaging

**Deep Inamdar<sup>1</sup>, Margaret Kalacska<sup>1</sup>, J. Pablo Arroyo-Mora<sup>2</sup>, George Leblanc<sup>2,1</sup>**

1: Applied Remote Sensing Laboratory, Department of Geography, McGill University, Montréal, QC H3A 0B9, Canada; 2: Flight Research Laboratory, National Research Council of Canada, Ottawa ON K1A 0R6, Canada

### Development Of Smoothed DSM For Improvement of Airborne Data Georectification

**Lukáš Slezák<sup>1,3</sup>, Tomáš Purket<sup>1</sup>, Jan Hanuš<sup>1,2</sup>**

1: Global Change Research Institute of the Czech Academy of Science, Czech Republic; 2: Czech Technical University, Faculty of Civil Engineering, Department of Geomatics, Czech Republic; 3: Masaryk University, Faculty of Science, Department of Geography, Czech Republic

### Increase Efficiency and Productivity in SAR Operational Processing with SARscape and ENVI Server

**Nicolai Holzer<sup>1</sup>, Emlyn Hagen<sup>1</sup>, Alberto Meroni<sup>2</sup>**

1: Harris Geospatial Solutions GmbH, Talhofstraße 32a, 82205 Gilching, Germany; 2: Harris Geospatial Solutions Italia S.r.l., Centro Direzionale Colleoni, Viale Colleoni 25, 20864 Agrate Brianza, Italy







**Tuesday, 08/June/2021**

**8:00am - Technical session allowing presenting authors to test their presentations**

**8:50am CEST** <https://us02web.zoom.us/j/87085275054?pwd=S0lyUzV5UU1IU1NML2hadhNNQ3ZEUT09>  
Meeting ID: 870 8527 5054  
Passcode: 40

**9:00am - Keynote lecture 6: Development of Advanced Microwave Remote Sensor for Urban Disaster Monitoring. Prof. Josaphat Tetuko Sri Sumantyo**

**9:30am CEST**  
Chair: Stefanie Holzwarth  
Chair: Eberhard Parlow  
Chair: Elzbieta Bielecka

<https://us02web.zoom.us/j/82742058379?pwd=dG9sUkVkazFTNUEvTDJCCcUNKNEUrQT09>  
Meeting ID: 827 4205 8379  
Passcode: 40

**9:30am - Applications: Applications of remote sensing**

**11:30am CEST**  
Chair: Stefanie Holzwarth  
Chair: Eberhard Parlow  
Chair: Elzbieta Bielecka

<https://us02web.zoom.us/j/82742058379?pwd=dG9sUkVkazFTNUEvTDJCCcUNKNEUrQT09>  
Meeting ID: 827 4205 8379  
Passcode: 40

**Mapping of Geophysical Land, Ocean and Atmosphere Products over Europe from 40 Years of AVHRR Data—the TIMELINE Project**

**Stefanie Holzwarth<sup>1</sup>, Sarah Asam<sup>1</sup>, Martin Bachmann<sup>1</sup>, Martin Böttcher<sup>2</sup>, Andreas Dietz<sup>1</sup>, Christina Eisfelder<sup>1</sup>, Andreas Hirner<sup>1</sup>, Matthias Hofmann<sup>1</sup>, Grit Kirches<sup>2</sup>, Detmar Krause<sup>1</sup>, Simon Plank<sup>1</sup>, Thomas Popp<sup>1</sup>, Philipp Reiners<sup>1</sup>, Sebastian Rößler<sup>1</sup>, Thomas Ruppert<sup>1</sup>, Alexander Scherbachenko<sup>1</sup>, Ranjitha Vignesh<sup>1</sup>, Meinhard Wolfmüller<sup>1</sup>**

1: German Remote Sensing Data Center (DFD), German Aerospace Center (DLR), 82234 Wessling, Germany; 2: Brockmann Consult GmbH, 21029 Hamburg, Germany

**Mask R-CNN based Mapping of Dwellings in Refugee Camps from High-Resolution Satellite Imagery**

**Getachew Workineh Gella<sup>1,3</sup>, Lorenz Wendt<sup>1,3</sup>, Andreas Braun<sup>1,2,3</sup>, Dirk Tiede<sup>1,3</sup>, Stefan Lang<sup>1,3</sup>**

1: Paris Lodron University of Salzburg, Austria; 2: University of Tübingen, Department of Geography, Germany; 3: Christian Doppler Laboratory for Geospatial and EO-based Humanitarian Technologies (CDL GeoHum)

**Scale Effect In The Spatial Distribution Of GHS-POP Population Data**

**Beata Calka<sup>1</sup>, Elzbieta Bielecka<sup>1</sup>, Eufémia da Glória Patrício<sup>2</sup>, Elisabete dos Santos Veiga Monteiro<sup>2</sup>, Maria João Gomes<sup>2</sup>**

1: Military University of Technology, Poland; 2: Polytechnic Institute of Guarda, Portugal

**Threshold- and Trend-based Vegetation Change Monitoring Algorithm Based on the Inter-annual Multi-temporal Normalized Difference Moisture Index Series**

**Adrian Ochtyra, Adriana Marcinkowska-Ochtyra, Edwin Raczko**

Department of Geoinformatics, Cartography and Remote Sensing, Chair of Geomatics and Information Systems, Faculty of Geography and Regional Studies, University of Warsaw, Poland

**Asbestos-Cement Roofing Identification Using Remote Sensing And Convolutional Neural Networks (CNNs)**

**Małgorzata Krówczyńska, Edwin Raczko, Ewa Wilk**

University of Warsaw, Faculty of Geography and Regional Studies, Poland

**Building Detection based on improved Deep Learning model**

**Mohammed Bilel Amri, Mohammed El Amin Larabi, Khadidja Bakhti**

Centre des Techniques Spatiales, Algeria

**A Multi-disciplinary integrated approach using Earth Observation, GIS, Hydraulic Modelling for flood risk assessment in catchment areas in Cyprus.**

**Iosifina Kountouri<sup>1,2</sup>, Chris Danezis<sup>1,2</sup>, Athos Agapiou<sup>1,2</sup>, Nicholas Kyriakides<sup>1,2</sup>, Kyriacos Themistocleous<sup>1,2</sup>, Phaedon Kyriakides<sup>1,2</sup>, Haris Kontoes<sup>1,2</sup>, Christodoulos Mettas<sup>1,2</sup>, Silas Michaelides<sup>1,2</sup>, Diofantos Hadjimitsis<sup>1,2</sup>**





1: Cyprus University of Technology,; 2: ERATOSTHENES Centre of Excellence, Cyprus

### Considerations and Multi-Criteria Decision Analysis for the Installation of Permanent Infrastructures for Continuous Space-based Monitoring of Natural Hazards

**Dimitris Kakoulli<sup>1,2</sup>, Kyriaki Fotiou<sup>1,2</sup>, George Melillos<sup>1,2</sup>, Chris Danezis<sup>1,2</sup>**

1: Cyprus University of Technology, Cyprus; 2: ERATOSTHENES Centre of Excellence, Cyprus

### Evaluation of Citizen Science Data for Disaster Management: Case Study Forest Fires in Croatia

**Marina Tavra<sup>1</sup>, Ljiljana Šerić<sup>2</sup>, Ivan Racetin<sup>1</sup>, Anka Lisec<sup>3</sup>**

1: University of Split, Faculty of Civil Engineering, Architecture and Geodesy, Croatia; 2: Department for Modelling and Intelligent Systems, University of Split, Faculty of Electrical Engineering, Mechanical Engineering and Naval Architecture, Croatia; 3: Department of Geodesy, University of Ljubljana, Faculty of Civil and Geodetic Engineering, Slovenia

11:30am Short break

11:45am **Keynote lecture 7: A decade of drone remote sensing: smaller areas in more detail. Prof. Rudi Goossens**

Chair: Anna Zmarz  
Chair: Lammert Kooistra

12:15pm  
CEST

<https://us02web.zoom.us/j/89213890767?pwd=Ty9jQTR4UDBiWHhScjdFL1QvMTR4Zz09>

Meeting ID: 892 1389 0767

Passcode: 40

12:15pm **UAS: Unmanned Aircraft Systems from theory to application**

Chair: Anna Zmarz  
Chair: Lammert Kooistra

1:45pm  
CEST

<https://us02web.zoom.us/j/89213890767?pwd=Ty9jQTR4UDBiWHhScjdFL1QvMTR4Zz09>

Meeting ID: 892 1389 0767

Passcode: 40

### UAS and Machine Learning for Mapping Riparian Vegetation Along Federal Waterways in Germany

**Edvinas Rommel<sup>1</sup>, Laura Giese<sup>1</sup>, Katharina Fricke<sup>1</sup>, Tina Mölter<sup>2</sup>, Filip Dzunic<sup>2</sup>, Maryam Asgari<sup>3</sup>, Paul Nätke<sup>4</sup>, Gilles Rock<sup>2</sup>, Jens Bongartz<sup>3</sup>, Andreas Burkart<sup>4</sup>, Maike Heuner<sup>1</sup>, Ina Quick<sup>1</sup>, Uwe Schröder<sup>1</sup>, Björn Baschek<sup>1</sup>**

1: German Federal Institute of Hydrology, Koblenz, Germany; 2: Geocoptix, Trier, Germany; 3: University of Applied Sciences, Koblenz, Germany; 4: JB Hyperspectral Devices, Düsseldorf, Germany

### Spatio-Temporal Heterogeneity of Vegetation – Could We Understand It Better Using UASs?

**Jana Mullerova<sup>1,2</sup>, Rafi Kent<sup>3</sup>, Josef Bruna<sup>1</sup>, Martynas Bucas<sup>4</sup>, Joan Estrany<sup>5</sup>, Xurxo Gago<sup>5</sup>, Adrien Michez<sup>6</sup>, Martin Mokros<sup>7,8</sup>, Maria Tsiafouli<sup>9</sup>, Salvatore Manfreda<sup>10</sup>**

1: Institute of Botany of the Czech Academy of Sciences, Czech Republic; 2: Jan Evangelista Purkyně University, Ústí n. L., Czech Republic; 3: independent researcher, Bahan, Israel; 4: Klaipeda University, Klaipeda, Lithuania; 5: University of the Balearic Islands/Instituto de Agroecología y Economía del Agua (INAGEA), Palma de Mallorca, Spain; 6: University Rennes 2 LETG (CNRS UMR 6554), CEDEX, Rennes, France; 7: Technical University, Zvolen, Slovakia; 8: Czech University of Life Sciences Prague, Prague, Czech Republic; 9: Aristotle University of Thessaloniki, Thessaloniki, Greece; 10: Università Degli Studi di Napoli Federico II, Napoli, Italy

### Low-Budget Ultra-Lightweight UAVs and Immersive Virtual Environments: Potentials and Limitations of Processing 3D Point Clouds and Drone Images for the VR-based Representation of Post-Industrial Landmarks

**Marco Weißmann, Dennis Edler, Andreas Rienow**

Geomatics Group, Institute of Geography, Ruhr-University Bochum (RUB), Germany

### Comparison Of Predicted Topsoil Organic Carbon Maps Generated From UAV Hyperspectral Imagery

**János Mészáros<sup>1</sup>, Máttyás Árvai<sup>1</sup>, Gergely Jakab<sup>2</sup>, Zoltán Szalai<sup>2</sup>, Gábor Szatmári<sup>1</sup>, László Pásztor<sup>1</sup>**

1: Centre for Agricultural Research, Institute for Soil Sciences, Hungary; 2: Research Centre for Astronomy and Earth Sciences, Geographical Institute, Hungary

### Challenges in Mapping Landslide Features from Drone's Geocoded Videos

**Ionut Sandric<sup>1,2</sup>, Viorel Ilinca<sup>3,2</sup>, Radu Irimia<sup>1,2</sup>, Zenaida Chitu<sup>2</sup>, Marta Jurchescu<sup>4</sup>, Alin Plesoianu<sup>5</sup>**

1: University of Bucharest, Faculty of Geography, Romania; 2: Research Institute of the University of Bucharest, Bucharest, Romania; 3: Geological Institute of Romania, Romania; 4: Institute of Geography, Romanian Academy, Romania; 5: Esri Romania



**Development And Optimisation Of An UAV For Counting Of Big Animals In Forestry By Use Of Thermovision**

**Rafal Frackowiak**

WARSAW UNIVERSITY OF TECHNOLOGY, FACULTY OF POWER AND AERONAUTICAL ENGINEERING, POLAND

**Modelling vegetation attributes in temperate grasslands with Sentinel-2 and Unmanned Aerial Vehicles**

**Javier Muro<sup>1</sup>, Lisa Schwarz<sup>1</sup>, Florian Männer<sup>1</sup>, Anja Linstädter<sup>2</sup>, Olena Dubovyk<sup>1</sup>**

1: University of Bonn, Germany; 2: University of Potsdam

1:45pm

Short break

2:00pm

**Keynote lecture 8: Future Applications of Spaceborne LiDAR in Coastal and Oceanic Waters. Dr. Martin Alejandro Montes**

Chair: Florinda Artuso

Chair: Luca Fiorani

Chair: Vittorio E. Brando

2:20pm

CEST

<https://us02web.zoom.us/j/89243628358?pwd=SIBLK3IkY1NNSXI5MHV1SIBFL1BSQT09>

Meeting ID: 892 4362 8358

Passcode: 40

2:00pm

**UAS WS 1: UAV Platforms: operators training and optimization**

Chair: Anna Zmarz

Chair: Lammert Kooistra

5:30pm

CEST

<https://us02web.zoom.us/j/89213890767?pwd=Ty9jQTR4UDBIWHhScjdFL1QvMTR4Zz09>

Meeting ID: 892 1389 0767

Passcode: 40

2:20pm

**Keynote lecture 9: Overview Of HPLC Phytoplankton Pigments Intercomparisons (HIPs) Organized In Support To Satellite Data Validation Activities. Dr. Elisabetta Canuti**

Chair: Luca Fiorani

Chair: Florinda Artuso

Chair: Vittorio E. Brando

2:40pm

CEST

<https://us02web.zoom.us/j/89243628358?pwd=SIBLK3IkY1NNSXI5MHV1SIBFL1BSQT09>

Meeting ID: 892 4362 8358

Passcode: 40

2:40pm

**Keynote lecture 10: Multi- and Hyperspectral Remote Sensing Applications in Highly Turbid Coastal Waters: Challenges and Opportunities. Dr. Ana Inés Dogliotti**

Chair: Luca Fiorani

Chair: Florinda Artuso

Chair: Vittorio E. Brando

3:00pm

CEST

<https://us02web.zoom.us/j/89243628358?pwd=SIBLK3IkY1NNSXI5MHV1SIBFL1BSQT09>

Meeting ID: 892 4362 8358

Passcode: 40

3:00pm

**Keynote lecture 11: Assessment of Ocean Color Products in the Framework of the Copernicus Climate Change Service. Dr. Salvatore Marullo**

Chair: Luca Fiorani

Chair: Florinda Artuso

Chair: Vittorio E. Brando

3:20pm

CEST

<https://us02web.zoom.us/j/89243628358?pwd=SIBLK3IkY1NNSXI5MHV1SIBFL1BSQT09>

Meeting ID: 892 4362 8358

Passcode: 40

3:20pm

Short break

3:40pm

**WS Coastal Zone: 9th EARSeL Workshop on Remote Sensing of Coastal Zone 2021**

Chair: Luca Fiorani

Chair: Florinda Artuso

Chair: Vittorio E. Brando

6:40pm

CEST

<https://us02web.zoom.us/j/89243628358?pwd=SIBLK3IkY1NNSXI5MHV1SIBFL1BSQT09>

Meeting ID: 892 4362 8358

Passcode: 40

**Mapping Intertidal Zones Using Time Series of Sentinel-2**

**Corine Davids, Jörg Haarpaintner**

NORCE, Norway



FACULTY OF GEOGRAPHY  
AND REGIONAL STUDIES  
UNIVERSITY OF WARSAW



### Mapping Atmospheric Exposure Of The Intertidal Zone With Sentinel-1 CSAR In Norway.

**Jörg Haarpaintner, Corine Davids**

NORCE - Norwegian Research Centre AS, Norway

### Assessment of the Shoreline Evolution Using Declassified Images. A Case Study in the Region of Pinios Municipality, Greece

**Dionysios Apostolopoulos, Konstantinos Nikolakopoulos**

University of Patras, Greece

### Spectral Characteristics Of In-Situ and Harvested Marine Macroplastics of Varying Surface Cover Measured Against a Sand Substrate

**Jenna A Guffogg<sup>1,2</sup>, Samantha M Blades<sup>1</sup>, Mariela Soto-Berelov<sup>1</sup>, Christopher J. Bellman<sup>1</sup>, Andrew K. Skidmore<sup>2,3</sup>, Simon D. Jones<sup>1</sup>**

1: RMIT University, Australia; 2: ITC, University of Twente, Netherlands; 3: Department of Environmental Science, Macquarie University, Australia

### Lidar Fluorosensor for the Remote Sensing of Coastal Zone and Open Sea

**Luca Fiorani, Federico Angelini, Andrea Chiuri, Francesco Colao, Antonio Palucci**

Nuclear Fusion and Safety Technologies Department (FSN) of the Italian National Agency for New Technologies, Energy and Sustainable Economic Development (ENEA), Via Enrico Fermi 45, 00044 Frascati, Italy

### Statistical Tools To Extract Information From A Data Set Of A Maritime Campaign

**Andrea Chiuri<sup>1</sup>, Federico Angelini<sup>1</sup>, Florinda Artuso<sup>1</sup>, Francesco Colao<sup>1</sup>, Luca Fiorani<sup>1</sup>, Isabella Giardina<sup>1</sup>, Antonella Lai<sup>1</sup>, Ivano Menicucci<sup>1</sup>, Marcello Nuvoli<sup>1</sup>, Antonio Palucci<sup>1</sup>, Marco Pistilli<sup>1</sup>, Maurizio Demarte<sup>2</sup>, Massimo Ercolani<sup>2</sup>, Roberta Ivaldi<sup>2</sup>**

1: Nuclear Fusion and Safety Technologies Department (FSN) of the Italian National Agency for New Technologies, Energy and Sustainable Economic Development (ENEA), via Fermi 45, 00044 Frascati, Italy; 2: Istituto Idrografico della Marina, Passo dell'Osservatorio 4, 16134 Genova, Italy

### HPLC Marine Pigment Analysis Applied to Studies of Phytoplankton Community Composition in the Mediterranean Sea

**Florinda Artuso<sup>1</sup>, Annalisa Di Cicco<sup>2</sup>, Federico Angelini<sup>1</sup>, Andrea Chiuri<sup>1</sup>, Francesco Colao<sup>1</sup>, Luca Fiorani<sup>1</sup>, Isabella Giardina<sup>1</sup>, Antonia Lai<sup>1</sup>, Salvatore Marullo<sup>1</sup>, Antonio Palucci<sup>1</sup>, Vittorio Brando<sup>2</sup>, Simone Colella<sup>2</sup>, Michela Sammartino<sup>2</sup>, Rosalia Santoleri<sup>2</sup>, Gianluca Volpe<sup>2</sup>**

1: ENEA, Via Enrico Fermi 45, 00044 Frascati, Italy; 2: ISMAR, CNR, Via Fosso del Cavaliere 100, 00133 Rome, Italy

### Remote Sensing as a Tool to Assess the Role of Coastal Upwelling in the Baltic Sea Ecosystem

**Toma Dabuleviciene<sup>1</sup>, Diana Vaiciute<sup>1</sup>, Igor Kozlov<sup>1,2</sup>, Inga Dailidienė<sup>1</sup>**

1: Klaipeda University Marine Research Institute, Lithuania; 2: Satellite Oceanography Laboratory, Russian State Hydrometeorological University, St. Petersburg, Russia

### Image Spectroscopy Of Shallow Coastal Waters

**Despina Makri<sup>1</sup>, Diofantos Hadjimitsis<sup>1</sup>, Dimosthenis Traganos<sup>2</sup>, Athos Agapiou<sup>1</sup>**

1: Cyprus University of Technology, Cyprus; 2: German Aerospace Center, Helmholtz Association of German Research Centers (HZ) Cologne, Germany

### Estimation of Mean Sea Surface Height Variability in Cyprus using Tide Gauge and Sentinel-3 Satellite Altimetry Data

**Marina Fragkiskou Pekri<sup>1,2</sup>, Dimitris Kakoullis<sup>1,2</sup>, Marios Nikolaidis<sup>1,2</sup>, Evangelos Akylas<sup>1,2</sup>, Chris Danezis<sup>1,2</sup>**

1: Cyprus University of Technology, Department of Civil Engineering & Geomatics, P.O. Box 50329, 3036, Limassol, Cyprus; 2: Eratosthenes Centre of Excellence of the Cyprus University of Technology, Limassol, Cyprus

### Space-based Deformation Monitoring of Coastal Urban Areas: The Case of Limassol's Coastal Front

**Kyriaki Fotiou<sup>1,2</sup>, Dimitris Kakoullis<sup>1,2</sup>, Marina Pekri<sup>1,2</sup>, George Melillos<sup>1,2</sup>, Ramon Brcic<sup>3</sup>, Michael Eineder<sup>3</sup>, Diofantos G. Hadjimitsis<sup>1,2</sup>, Chris Danezis<sup>1,2</sup>**

1: Cyprus University of Technology; 2: ERATOSTHENES Centre of Excellence; 3: German Aerospace Center (DLR)





**Documentation and Survey of an Abandoned Air Base from World War II in Greenland**

**Karel Pavelka, Paulina Raeva, Karel Pavelka Jr., Eva Matoušková**

Czech Technical University in Prague, FCE, Czech Republic



## Wednesday, 09/June/2021

**8:00am - Technical session allowing presenting authors to test their presentations**

**8:50am CEST** <https://us02web.zoom.us/j/87085275054?pwd=S0lyUzV5UU1IU1NML2hadhNNQ3ZEUT09>  
Meeting ID: 870 8527 5054  
Passcode: 40

**9:00am - Forestry: Forestry - mapping, monitoring and change analysis**

**12:15pm CEST**  
Chair: **Piotr Wezyk**  
Chair: **Bogdan Zagajewski**  
Chair: **Lucie Kupková**

<https://us02web.zoom.us/j/89576014071?pwd=amV6eExyYUEzOXVUaGhYYURVcnVMQT09>  
Meeting ID: 895 7601 4071  
Passcode: 40

### Assessing the Robustness of Inversion Methods to Estimate Leaf Traits from Leaf Spectra of Mixed Broadleaf/Conifer Ecosystems

**Thierry Gaubert<sup>1,2</sup>, Karine Adeline<sup>1</sup>, Margarita Huesca<sup>3</sup>, Susan Ustin<sup>4</sup>, Xavier Briottet<sup>1</sup>**

1: ONERA, France; 2: Université Fédérale Toulouse Midi-Pyrénées, Toulouse, France; 3: Faculty of Geo-Information Science and Earth Observation (ITC), University of Twente, Enschede, Overijssel, Netherlands; 4: John Muir Institute of the Environment, University of California, Davis, California, USA

### Assessing The Vegetation Traits Retrieval Capabilities Of The Biodiversity And SBG Hyperspectral Satellite Missions Over Open Canopies

**Thomas Miraglio<sup>1</sup>, Karine Adeline<sup>1</sup>, Margarita Huesca<sup>2</sup>, Susan Ustin<sup>3</sup>, Xavier Briottet<sup>1</sup>**

1: ONERA/DOA, Université Fédérale de Toulouse, 2 avenue Edouard Belin, 31055 Toulouse, France; 2: Natural Resources Department, Faculty of Geo-information Science and Earth Observation, University of Twente, Enschede, Netherlands; 3: John Muir Institute of the Environment, University of California, Davis, One Shield Avenue, 95616 Davis, CA, USA

### UAV-derived FCOVER as a Proxy for FAPAR in a Mixed-coniferous Forest?

**Birgitta Putzenlechner<sup>1,2</sup>, Philip Marzahn<sup>2</sup>, Philipp Koal<sup>3</sup>, Arturo Sánchez-Azofeifa<sup>4</sup>**

1: Georg-August-Universität Göttingen; 2: Ludwig-Maximilians-Universität Munich; 3: Forestry Research and Competence Center ThüringenForst; 4: University of Alberta

### The Application of UAV-based Phenological Data and Machine Learning Models for Drought Stress Detection in European Beech

**Stuart Krause, Tanja Sanders**

Thünen Institute - WO, Germany

### Forest-Structure Analysis In The Paraguayan Chaco, Combining Sentinel And GEDI Data

**Patrick Kacic<sup>1</sup>, Emmanuel Da Ponte<sup>2</sup>**

1: University of Freiburg im Breisgau, Germany; 2: German Remote Sensing Data Center

### Comparison of Random Forest and Support Vector Machines for forest species mapping of the UNESCO Krkonoše/Karkonosze Transboundary Biosphere Reserve

**Marcin Kluczek<sup>1</sup>, Bogdan Zagajewski<sup>1</sup>, Edwin Raczko<sup>1</sup>, Ajda Njegovec<sup>2</sup>, Krzysztof Gryguc<sup>1</sup>, Anca Dabija<sup>1</sup>, Marlena Kycko<sup>1</sup>**

1: University of Warsaw, Faculty of Geography and Regional Studies, Chair of Geomatics and Information Systems, Department of Geoinformatics, Cartography and Remote Sensing, Poland; 2: Geodetski Zavod Celje, D.O.O., Slovenia

### Rapid Assessment Of Post-Fire Forest Regeneration Based On Burn Severity Gradient Using The Google Earth Engine.

**Maria Prodomou<sup>1,2</sup>, Chris Danezis<sup>1,2</sup>, Ioannis Gitas<sup>3</sup>, Diofantos Hadjimitsis<sup>1,2</sup>**

1: Department of Civil Engineering and Geomatics, Cyprus University of Technology, Limassol, Cyprus; 2: ERATOSTHENES Centre of Excellence, Limassol, Cyprus; 3: Department of Forestry, Laboratory of Forest Management and Remote Sensing, Aristotle University of Thessaloniki, Greece

### Assessment of Plant Species Distribution and Diversity Along a Climatic Gradient from Mediterranean Woodlands to Semi-arid Shrublands

**Tarin Paz-Kagan<sup>1</sup>, Jisung Geba Chang<sup>2</sup>, Maxim Shoshany<sup>3</sup>, Marcelo Sternberg<sup>4</sup>, Arnon Karnieli<sup>2</sup>**





1: Agricultural Research Organization, Volcani Center, Israel; 2: Jacob Blaustein Institutes for Desert Research, Ben-Gurion University of the Negev; 3: Faculty of Civil and Environmental Engineering, Technion - Israel Institute of Technology, Haifa; 4: School of Plant Sciences and Food Security, Faculty of Life Sciences, Tel Aviv University, Tel Aviv

### Evaluating a Potential of Satellite and Airborne Data for Shrubby Formation Communities Detection.

**Marlena Kycko<sup>1</sup>, Bogdan Zagajewski<sup>1</sup>, Anna Tardà<sup>2</sup>, Lydia Pineda<sup>2</sup>, Vicenc Palà<sup>2</sup>, Jordi Corbera<sup>2</sup>**

1: University of Warsaw, Faculty of Geography and Regional Studies, Department of Geoinformatics, Cartography and Remote Sensing, Krakowskie Przedmiescie 30, 00-927, Warsaw, Poland; 2: Institut Cartogràfic i Geològic de Catalunya, Parc de Montjuïc s/n. Barcelona, Spain

### Monitoring Bark Beetle Disturbances With Dense Multi-Source Satellite Time Series

**Simon König<sup>1,2,3</sup>, Frank Thonfeld<sup>4,5</sup>, Olena Dubovyk<sup>3,6</sup>, Marco Heurich<sup>1,2,7</sup>**

1: Department of Visitor Management and National Park Monitoring, Bavarian Forest National Park, Germany; 2: Faculty of Environment and Natural Resources, University of Freiburg, Germany; 3: Department of Geography, University of Bonn, Germany; 4: German Remote Sensing Data Center, German Aerospace Center, Germany; 5: Department of Geography and Geology, University of Würzburg, Germany; 6: Center for Remote Sensing of Land Surfaces, University of Bonn, Germany; 7: Department of Forestry and Wildlife Management, Inland Norway University of Applied Sciences, Norway

### Relation Between Pine Spectral Response And Its Heavy Metal Content On A Former Ore Processing Site

**Luc Béraud<sup>1,2</sup>, Arnaud Elger<sup>1</sup>, Olivier Berseille<sup>1</sup>, Thomas Rivière<sup>2</sup>, Sophie Fabre<sup>2</sup>**

1: Laboratoire Ecologie Fonctionnelle et Environnement - Avenue de l'Agrobiopole 31326 Castanet-Tolosan cedex France; 2: ONERA DOTA, BP74025 2 av. Edouard Belin, FR-31055 TOULOUSE CEDEX 4

### Monitoring of Scots Pine Stands in Terms of Hazards from Mistletoe - Based on the Analysis of High-resolution UAV Images

**Jakub Michał Miszczyszyn, Piotr Wężyk**

University of Agriculture in Krakow, Poland

### Automatic Gap Fraction Estimation in Forest Using Point Clouds from UAV

**Francesco Pirotti<sup>1,2</sup>, Erico Kutchart<sup>2</sup>, Patricio Corvalan<sup>3</sup>, Alvaro Promis<sup>4</sup>, Jaime Hernandez<sup>3</sup>**

1: CIRGEO Interdepartmental Research Center in Geomatics, University of Padova, Italy; 2: TESAF Department, University of Padova, Italy; 3: Departamento Gestión Forestal y su Medio Ambiente, Universidad de Chile, Chile; 4: Departamento Silvicultura y Conservación de la Naturaleza Universidad de Chile, Chile

### Using Aerial Photographs And Sentinel-2 ESA Imagery For Mapping Of Windstorm Damages Occurred In The Forest Stands Of Czerniejewo Forest District (Polish State Forests National Holding)

**Wojciech Krawczyk, Piotr Wężyk**

University of Agriculture in Cracow, Department of Forest Resources Management, Faculty of Forestry, Poland

12:15pm Short break

12:30pm **Keynote lecture 12: Citizens meet Sensors – Application of Earth Observation for Sustainability Literacy. Jun. Prof. Dr. Andreas Rienow**

1:00pm  
CEST  
Chair: Agata Hościło  
Chair: Andreas Rienow  
Chair: Claudia Lindner

<https://us02web.zoom.us/j/84282210011?pwd=WkZUcEF6dDVOUS8yOHVQYjJJa2ZLZz09>  
Meeting ID: 842 8221 0011  
Passcode: 40

1:00pm **EO Education: EO Education**

1:00pm -  
2:30pm  
CEST  
Chair: Agata Hościło  
Chair: Andreas Rienow  
Chair: Claudia Lindner

<https://us02web.zoom.us/j/84282210011?pwd=WkZUcEF6dDVOUS8yOHVQYjJJa2ZLZz09>  
Meeting ID: 842 8221 0011  
Passcode: 40

### Teaching Interferometry Easily: An Augmented Reality App About Radar Interferometry In Volcano Monitoring

**Claudia Lindner, Andreas Rienow, Carsten Jürgens**

Ruhr-University Bochum, Germany





**Configure, Deploy, Implement – An integrated teaching environment for purposeful processing of EO Data in schools**

**Henryk Hodam, Fabian Selg, Andreas Rienow**  
Ruhr-Universität Bochum, Germany

**From Space to Place – Capacity Development of UNESCO site stakeholders on digital geo-media**

**Lisa Dannwolf<sup>1</sup>, Prof. Dr. Alexander Siegmund<sup>1,2,3</sup>**

1: Heidelberg University of Education, Germany; 2: Heidelberg Center for the Environment (HCE); 3: Institute of Geography, Heidelberg University, Germany,

**Geo:spektiv2GO – Making Remote Sensing Mobile for Students**

**Mario Blersch<sup>1</sup>, Johannes Keller<sup>1</sup>, Christian Plass<sup>1</sup>, Alexander Siegmund<sup>1,2</sup>**

1: Department of Geography – Research Group for Earth Observation (rgeo) Heidelberg University of Education, Germany; 2: Heidelberg Center for the Environment (HCE) & Institute of Geography, Heidelberg University, Germany

**Dissemination of Earth Observation Knowledge Among Secondary School Students in Bulgaria**

**Garo Hugasov Mardirossian, Lachezar Hristov Filchev**

Space Research and Technology Institute, Bulgarian Academy of Sciences (SRTI-BAS), Bulgaria

**Review of the Moon and Mars Observation Missions**

**Lachezar Hristov Filchev**

Space Research and Technology Institute, Bulgarian Academy of Sciences (SRTI-BAS), Bulgaria

1:00pm

-

4:00pm

CEST

**UAS WS 2: Processing of UAV images: from image to relevant information**

Chair: Lammert Kooistra

Chair: Anna Zmarz

<https://us02web.zoom.us/j/87615793673?pwd=YnN5Q0ZISWNCM1pxS0FBcGN2ZXBlZz09>

Meeting ID: 876 1579 3673

Passcode: 40

2:30pm

Short break

2:45pm

-

7:30pm

CEST

**Workshop EO: EO Education Workshop**

Chair: Agata Hościło

Chair: Andreas Rienow

Chair: Marlena Kycko

<https://us02web.zoom.us/j/84282210011?pwd=WkZUcEF6dDVOUS8yOHVQYjJJa2ZLZz09>

Meeting ID: 842 8221 0011

Passcode: 40

4:00pm

-

6:00pm

CEST

**GA: EARSeL General Assembly**





## Thursday, 10/June/2021

**8:00am -** Technical session allowing presenting authors to test their presentations

**8:50am CEST** <https://us02web.zoom.us/j/87085275054?pwd=S0lyUzV5UU1IU1NML2hadhNNQ3ZEUT09>  
Meeting ID: 870 8527 5054  
Passcode: 40

**9:00am -** **Keynote lecture 13: Can we assess what we do not see? spectral sensing of vegetation. Dr. Ittai Herrmann**  
Chair: **Miriam Machwitz**  
Chair: **Helge Aasen**

**9:30am CEST** <https://us02web.zoom.us/j/89071523500?pwd=QXNtK2h2dVd6d05hMndqVzhXQTd1dz09>  
Meeting ID: 890 7152 3500  
Passcode: 40

**9:30am -** **Keynote lecture 14: Accessing Traits from Satellite to Close Range Phenotyping: a Change of Paradigm. Dr. Fred Baret**  
Chair: **Miriam Machwitz**  
Chair: **Helge Aasen**

**10:00am CEST** <https://us02web.zoom.us/j/89071523500?pwd=QXNtK2h2dVd6d05hMndqVzhXQTd1dz09>  
Meeting ID: 890 7152 3500  
Passcode: 40

**10:00am -** **Vegetation: The cutting edge of remote sensing & plant phenotyping – common interest and techniques and potential new concepts**

**11:30am CEST** Chair: **Miriam Machwitz**  
Chair: **Helge Aasen**

<https://us02web.zoom.us/j/89071523500?pwd=QXNtK2h2dVd6d05hMndqVzhXQTd1dz09>  
Meeting ID: 890 7152 3500  
Passcode: 40

### High-Resolution (drone based) Remote Sensing for Field-Phenotyping

**Helge Aasen**  
ETH Zurich, Switzerland

### On The Potential Of Emulating Solar-Induced Chlorophyll Fluorescence From Multispectral UAV Data For Applications In Breeding Research

**Bastian Siegmann<sup>1</sup>, Juliane Bendig<sup>1</sup>, Marco Celesti<sup>2</sup>, Erekle Chakhvashvili<sup>1</sup>, David Herrera<sup>1</sup>, Laura Verena Junker-Frohn<sup>1</sup>, Oliver Knopf<sup>1</sup>, Thorsten Kraska<sup>3</sup>, Onno Muller<sup>1</sup>, Nils Müller<sup>1</sup>, Patrick Rademske<sup>1</sup>, Jochem Verrelst<sup>4</sup>, Uwe Rascher<sup>1</sup>**  
1: Institute of Bio- and Geosciences, IBG-2: Plant Sciences, Forschungszentrum Jülich, Germany; 2: Remote Sensing of Environmental Dynamics Lab., DISAT, University of Milano-Bicocca, Italy; 3: Field Lab Campus Klein-Altendorf, Faculty of Agriculture, University of Bonn, Germany; 4: Laboratory of Earth Observation, Image Processing Laboratory, University of Valencia, Spain

### Assessment Of Downey Mildew Disease Severity On Grapevine Using Different Hyperspectral UAV Data Including a Comparison Of Nadir And Oblique Observations

**Miriam Machwitz<sup>1</sup>, Christian Bossung<sup>1</sup>, Rebecca Retzlaff<sup>2</sup>, Krittiya Pimkot<sup>2</sup>, Steffen Günster<sup>2</sup>, Daniel Molitor<sup>1</sup>, Doriane Dam<sup>1</sup>, Mareike Schultz<sup>3</sup>, Franz Ronellenfisch<sup>1</sup>, Martin Schlerf<sup>1</sup>, Marco Beyer<sup>1</sup>**  
1: LIST, Luxembourg; 2: University of Trier, Germany; 3: Institute Viti Vinicole, Luxembourg

### Spectral Assessment of Chickpea Morpho-Pysiological Traits From Space and Ground

**Roy Sadeh<sup>1</sup>, Asaf Avneri<sup>1</sup>, Yaniv Tubul<sup>1</sup>, Ran Lati<sup>2</sup>, Shahal Abbo<sup>1</sup>, David Bonfil<sup>3</sup>, Zvi Peleg<sup>1</sup>, Ittai Herrmann<sup>1</sup>**  
1: The Hebrew University of Jerusalem, Israel; 2: Department of Weed Research Agricultural Research Organization (ARO) Neve Ya'ar Research Center Israel; 3: Field Crops and Natural Resources Department, Agricultural Research Organization Gilat Research Center Israel

### Open PhenoLiDAR: An Open Source LiDAR Phenotyping Platform

**Jose Antonio Jimenez-Berni<sup>1</sup>, Sergio Bellido Jiménez<sup>1</sup>, Jose M Alvarez<sup>2</sup>**  
1: IAS-CSIC, Spain; 2: NVIDIA, USA

### Using Hyperspectral Imaging For Automated Plant Disease Detection In Field And Greenhouse



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**Stefan Paulus**

Institute of sugar beet research, Germany

11:30am

**Short break**

11:45am

**Precision Farming: Remote Sensing for Precision Farming**

Chair: **Katarzyna Dabrowska – Zielinska**

1:45pm

CEST

<https://us02web.zoom.us/j/83228027342?pwd=UGxpTUET20vekQyNnIVcnQ5cU44Zz09>

Meeting ID: 832 2802 7342

Passcode: 40

**Crop Growth Monitoring and Yield Forecast for Winter Wheat Under Different Soil-Water Conditions in Poland and South Africa**

**Katarzyna Dabrowska - Zielinska<sup>1</sup>, Solomon W. Newete<sup>2</sup>, Radoslaw Gurdak<sup>1</sup>, Maciej Bartold<sup>1</sup>, Khaled Abutaleb<sup>3</sup>, George J. Chirima<sup>2</sup>, Alicja Malinska<sup>1</sup>, Eric Economon<sup>2</sup>**

1: Institute of Geodesy and Cartography, Poland; 2: Agricultural Research Council – Soil, Climate and Water (ARC-SCW), Geo-Information Science division, Arcadia, Private Bag X79, 0001, Pretoria, South Africa.; 3: National Authority for Remote Sensing and Space Sciences, Cairo, Egypt

**Applications of Hyperspectral Field Remote Sensing and Fluorescence Methods for Wheat Phenological Change Monitoring**

**Bogdan Zagajewski, Marlena Kycko**

University of Warsaw, Faculty of Geography and Regional Studies, Chair of Geomatics and Information Systems, Department of Geoinformatics, Cartography and Remote Sensing, Poland

**Tools for Information to Farmers on Grasslands Yields Under Stressed Conditions to Support Management Practices**

**Radoslaw Gurdak<sup>1,2</sup>, Katarzyna Dabrowska-Zielińska<sup>2</sup>, Zbigniew Bochenek<sup>2</sup>, Marcin Kluczek<sup>2</sup>, Piotr Goliński<sup>3</sup>, Tomas Persson<sup>4</sup>, Corine Davids<sup>5</sup>, Michał Wyczalek-Jagielło<sup>6</sup>**

1: University of Warsaw, Poland; 2: Institute of Geodesy and Cartography, Poland; 3: Poznań University of Life Sciences, Poland; 4: Norwegian Institute of Bioeconomy Research, Norway; 5: NORCE Norwegian Research Centre AS, Norway; 6: GEOMATIC Michał Wyczalek-Jagielło, Poland

**Preliminary Tests For Detection Of Winter Manure Releases Onto Fields By Free Satellite Data**

**Filippo Sarvia, Samuele De Petris, Tommaso Orusa, Federica Ghilardi, Enrico Borgogno-Mondino**

Department of Agricultural, Forest and Food Sciences (DISAFA), University of Turin, Italy

**Calibration of Ground-based Radar Data for Precipitation Estimation in the Area of Cyprus**

**Eleni Loulli<sup>1,2</sup>, Johannes Bühl<sup>3</sup>, Silas Michaelides<sup>1,2</sup>, Athanasios Loukas<sup>4</sup>, Diofantos G. Hadjimitsis<sup>1,2</sup>**

1: Cyprus University of Technology, Cyprus; 2: ERATOSTHENES Centre of Excellence, Cyprus; 3: Leibniz Institute for Tropospheric Research (TROPOS), Germany; 4: Aristotle University of Thessaloniki, Greece

**Time Series Analysis using the Kalman Filter to Assess Drought in Maize Cultivation in Near Real-Time**

**Manuela Hirschmuagl<sup>1,2</sup>, Carina Sobe<sup>1</sup>, Martin Puhm<sup>1</sup>, Andreas Wimmer<sup>1</sup>**

1: Joanneum Research; 2: Uni Graz

**Assessment of the Accuracy of Winter Wheat Yield Models Based on Remote Sensing Data**

**Radoslaw Gurdak<sup>1,2</sup>, Katarzyna Dabrowska-Zielińska<sup>2</sup>**

1: University of Warsaw, Poland; 2: Institute of Geodesy and Cartography, Poland

**Application of Satellite Data for Drought Monitoring and Assessment of Its Impact on Yield of Winter Wheat**

**Martyna Gatkowska**

University of Warsaw, Poland

1:45pm

**Lunch Break**

2:15pm

**Natura 2000: Remote sensing for Natura 2000 habitats monitoring**

Chair: **Łukasz Ślawik**

Chair: **Dominik Kopec**

4:00pm

CEST

<https://us02web.zoom.us/j/89352892573?pwd=eldsKzErOWE0U1d5dzRaUnpzR1Nydz09>

Meeting ID: 893 5289 2573



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Passcode: 40

### Classification of Natura 2000 Grassland Habitats on Fused Multitemporal Hyperspectral and Topographical Data

**Krzysztof Gryguc<sup>1</sup>, Adriana Marcinkowska-Ochtyra<sup>1</sup>, Adrian Ochtyra<sup>1</sup>, Dominik Kopec<sup>2,3</sup>, Anna Jarocińska<sup>1</sup>, Łukasz Sławik<sup>1,2</sup>**

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### Monitoring Common Agriculture Policy and Cross Compliance with Sen4Cap in Eastern Macedonia and Thrace.

**Maria Iordanidou<sup>1,2</sup>, Christiana Papoutsas<sup>1,2</sup>, Athos Agapiou<sup>1,2</sup>, Harris Kontoes<sup>2,3</sup>, Diofantos Hadjimitsis<sup>1,2</sup>**

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### Differentiation of Non-forest Natura 2000 Habitats on the Basis of Hyperspectral and Multispectral Data

**Anna Jarocinska<sup>1</sup>, Marlena Kycko<sup>1</sup>, Hubert Piórkowski<sup>2</sup>, Agnieszka Błońska<sup>3</sup>, Dominik Kopec<sup>4,5</sup>**

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### Variabilities of *Rubus caesius* L. Discrimination on HySpex Images

**Anna Jarocińska<sup>1</sup>, Dominik Kopec<sup>2,3</sup>, Barbara Tokarska-Guzik<sup>4</sup>, Edwin Raczko<sup>1</sup>, Kornel Szubzda<sup>1</sup>**

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### Identification Of The Invasive *Lupinus Polyphyllus* Species Using Aerial Hyperspectral Remote Sensing And The Support Vector Machines Method

**Anita Sabat-Tomala, Edwin Raczko, Marlena Kycko, Bogdan Zagajewski**

Department of Geoinformatics, Cartography and Remote Sensing, Chair of Geomatics and Information Systems, Faculty of Geography and Regional Studies, University of Warsaw, Poland

### Services for EO-based Statistical Information for Agriculture and Verification on Farmers' Obligations under Common Agricultural Policy

**Jędrzej S. Bojanowski<sup>1</sup>, Edyta Woźniak<sup>2</sup>, Sebastian Aleksandrowicz<sup>2</sup>, Zbigniew Bochenek<sup>1</sup>, Katarzyna Dąbrowska-Zielińska<sup>1</sup>, Stanisław Lewiński<sup>2</sup>, Radek Malinowski<sup>2</sup>, Jan P. Musiał<sup>1</sup>, Marcin Rybicki<sup>2</sup>, Sylwia Sikora<sup>1</sup>, Tomasz Milewski<sup>3</sup>, Magdalena Mleczko<sup>3</sup>, Stanisław Sas<sup>4</sup>, Artur Łączyński<sup>3</sup>**

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### 4:00pm - Keynote lecture 15: Measure To Manage – Earth Observation based Monitoring of Complex Systems to Guide Sustainability. Dr. Valerie Graw

4:30pm  
CEST  
Chair: Monika Kuffer  
Chair: Angela Abascal

<https://us02web.zoom.us/j/84598590524?pwd=ZnlXNFhhdVVQTE9kSnZmclFEUGpkQT09>

Meeting ID: 845 9859 0524

Passcode: 40

### 4:30pm - Urbanization: Earth Observation Proxies to Predict Urban Deprivation, Socio-Economic and Environmental Inequalities

6:10pm  
CEST  
Chair: Monika Kuffer  
Chair: Angela Abascal

<https://us02web.zoom.us/j/84598590524?pwd=ZnlXNFhhdVVQTE9kSnZmclFEUGpkQT09>

Meeting ID: 845 9859 0524

Passcode: 40

### Location Matters: Topographic Analysis Of Slum Locations

**Inken Müller<sup>1</sup>, Hannes Taubenböck<sup>1,2</sup>, Monika Kuffer<sup>3</sup>, Michael Wurm<sup>1</sup>**





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### User Requirements For Deprived Urban Area EO-Based Modelling

**Monika Kuffer**<sup>1</sup>, Jon Wang<sup>1</sup>, Sabine Vanhuyse<sup>2</sup>, Stefanos Georganos<sup>2</sup>, Angela Abascal<sup>3</sup>, Maxwell Owusu<sup>1</sup>, Dana R. Thomson<sup>1</sup>

1: University of Twente, Netherlands, The; 2: Universite Libre De Bruxelles, Belgium; 3: University of Navarra, Spain

### Identifying Degrees Of Deprivation From Space: Building Detection And Morphological Analysis Of Urban Slum Areas

**Angela Abascal**<sup>1</sup>, Ignacio Rodriguez<sup>1</sup>, Sabine Vanhuyse<sup>2</sup>, Richard Sliuzas<sup>3</sup>, Monika Kuffer<sup>3</sup>

1: University of Navarra; 2: Université Libre de Bruxelles; 3: University of Twente

### Mapping And Predicting The Intra-urban Degrees Of Deprivation Using EO Data

**Egi Luo, Monika Kuffer, Jiong Wang**

Faculty of Geo-Information Science and Earth Observation (ITC), University of Twente, the Netherlands

### Sentinel-2 and Google Street View data indicate income levels in subdistricts of Tallinn, Estonia

**Oleksandr Karasov, Evelyn Uemaa, Tiit Tammaru**

Department of Geography, Institute of Ecology and Earth Sciences, University of Tartu, Estonia

### Urban-rural Gradients Spatialize Educational Gaps: A Machine Learning Approach Using Micro-data, High School Locations And Impervious Surfaces For Evaluate Academic Performance In Ecuador

**Fabián Santos**<sup>1</sup>, Karina Delgado Valdivieso<sup>2</sup>, Andreas Rienow<sup>3</sup>, Joaquín Gairín<sup>4</sup>

1: Centro de Investigación para el Territorio y el Hábitat Sostenible (CITEHS). Universidad Indoamérica; 2: Centro de Investigación de Ciencias Humanas y de la Educación. Universidad Indoamérica, Ecuador; 3: Institute of Geography, Ruhr University Bochum; 4: Centro de Investigación y Estudios para el Desarrollo Organizativo (CRIEDO). Universitat Autònoma de Barcelona

6:10pm - 6:15pm CEST	<p><b>12th EARSeL Workshop on Imaging Spectroscopy in Potsdam, 23-25.03.2022 - announcement</b> Chair: Sebastian van der Linden Chair: Saskia Foerster</p> <p><a href="https://us02web.zoom.us/j/81235749941?pwd=NWVlaDVNYTZaRit6bTBpRStmUnhhQT09">https://us02web.zoom.us/j/81235749941?pwd=NWVlaDVNYTZaRit6bTBpRStmUnhhQT09</a> Meeting ID: 812 3574 9941 Passcode: 40</p>
6:15pm - 6:20pm CEST	<p><b>41st EARSeL Symposium 2022 – announcement</b></p> <p><a href="https://us02web.zoom.us/j/81235749941?pwd=NWVlaDVNYTZaRit6bTBpRStmUnhhQT09">https://us02web.zoom.us/j/81235749941?pwd=NWVlaDVNYTZaRit6bTBpRStmUnhhQT09</a> Meeting ID: 812 3574 9941 Passcode: 40</p>
6:20pm - 6:50pm CEST	<p><b>CS: Closing Session</b> Chair: Klaus-Ulrich Komp Chair: Jean-Christophe Schyns</p> <p><a href="https://us02web.zoom.us/j/81235749941?pwd=NWVlaDVNYTZaRit6bTBpRStmUnhhQT09">https://us02web.zoom.us/j/81235749941?pwd=NWVlaDVNYTZaRit6bTBpRStmUnhhQT09</a> Meeting ID: 812 3574 9941 Passcode: 40</p>