



Programme Book

12th EARSeL Workshop on Imaging Spectroscopy

22-24 June 2022, Potsdam, Germany



UNIVERSITÄT GREIFSWALD
Wissen lockt. Seit 1456



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Jointly organised by EARSeL and
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Welcome



It is with great pleasure that EARSeL and the local organizers at GFZ Potsdam and the University of Greifswald welcome all participants to this 12th EARSeL Imaging Spectroscopy Workshop, originally planned for March 2021! This workshop marks the end of a rather challenging preparation time and we are all even happier to organize this workshop with 200+ people in a face-to-face format.

Over the past years, imaging spectroscopy has gained an increasing relevance in integrated environmental analysis. This development has been driven firstly, by an increase in the availability of airborne imaging spectroscopy data, operational processing chains and robust and accurate analysis methods. Secondly, the recent and upcoming launches of several spaceborne imaging spectrometers hold the prospect of obtaining more accurate, frequent, timely and large-scale information on the environment than ever before. These missions are accompanied by rapid developments at the local scale in Unmanned Aerial Systems and close-range spectroscopy. Lastly, rapid advancements in newer fields such as fluorescence and mid-infrared spectroscopy for environmental applications add to the relevance of Earth Observation by imaging spectroscopy. The workshop series of the EARSeL Special Interest Group on Imaging Spectroscopy has consequently been attracting an increasingly international and interdisciplinary audience and is being recognized as one of the leading conferences on imaging spectroscopy for Earth Observation in Europe and worldwide.

Therefore, we are convinced that a face-to-face event after more than two years of limited personal exchange is urgently needed to bring forward communication and cooperation in our science community. We wish all participants successful and enjoyable days in Potsdam and at the workshop!

Saskia Foerster, Sebastian van der Linden and the Organizing Committee

Scientific Committee

Helge Aasen (ETH Zürich, CH)
Eyal Ben-Dor (Tel Aviv University, IL)
Katja Berger (LMU München, DE)
Véronique Carrère (University of Nantes, FR)
Sabine Chabrillat (GFZ Potsdam, DE)
Fabian Fassnacht (FU Berlin, DE)
Jean-Baptiste Feret (Irstea, FR)
Claudia Giardino (IREA CNR, IT)
Uta Heiden (DLR Oberpfaffenhofen, DE)
Lucie Homolová (CzechGlobe, CZ)
Robert O. Green (NASA JPL, US)
Luis Guanter (Univ. Politècnica de València, ES)
Lammert Kooistra (Wageningen University, NL)
Zbyněk Malenovský (University of Bonn, DE)
Tim Malthus (CSIRO, AU)
Cindy Ong (CSIRO, AU)
Akpona Okujeni (HU Berlin, DE)
Tom Painter (NASA JPL, US)
Uwe Rascher (FZ Jülich, DE)

Organizing Committee

Saskia Foerster (GFZ Potsdam, DE)
Sebastian van der Linden (Univ. of Greifswald, DE)
Mathias Kneubühler (University of Zürich, CH)
Martin Bachmann (DLR Oberpfaffenhofen, DE)
Heide Bierbrauer (EARSeL Secretariat)
Arlena Brosinsky (GFZ Potsdam, DE)
Bernd Bobertz (University of Greifswald, DE)
Jörg Hartleib (University of Greifswald, DE)
Niklas Bohn (GFZ Potsdam, DE)
Robert Milewski (GFZ Potsdam, DE)
Christin Skala (GFZ Potsdam, DE)

Scientific Committee (cont.)

Michael Rast (ISSI Bern, CH)
Michael E. Schaepman (University of Zürich, CH)
Anke Schickling (DLR Space Agency Bonn, DE)
Phil Townsend (University of Wisconsin, US)
Jochem Verrelst (University of Valencia, ES)

Practical Information



Internet Access

There is [Eduroam](#) in all buildings. Use your institutional account to connect with these settings: Network SSID: eduroam; Wireless security: WPA2-Enterprise; Authentication: Protected EAP (PEAP); Inner authentication: EAP-MSCHAPv2; Root certificate: T-TeleSec GlobalRoot Class 2 or system certificates; User name: Your-Login@Your-Institute.de; Password: Your Eduroam password

In all GFZ buildings (Houses H, C4, A42) you may also use the [GFZ-Guests](#)-network. Connect to the WIFI "GFZ-Guests". The registration page wlc.gfz-potsdam.de will be opened automatically by most modern devices. 1. Connect to SSID GFZ-Guests; 2. Start your internet browser, it will redirect to the login-site: wlc.gfz-potsdam.de; 3. Fill in username and password for GFZ WIFI exactly as written on your badge

When in the PIK building (A56) the [PIK-Guests](#)-network is available. You will find the login information in the lecture room on a notice board.

Posters

Posters will be displayed throughout the workshop, located in the same area as the coffee breaks. Please hang your poster on workshop day 1 on the poster board indicated in the programme. Sticky pads to hang the posters are available at the venue. To give more visibility to the posters, authors are asked to present their poster in short (1-3 min) poster pitches in the associated oral sessions.

Oral Presentations

Oral presentations will usually be of 12 min length plus 3 min for questions and change over to the next speaker. The length of the presentations may vary in some sessions depending on the planned number of presentations. Please check the workshop programme or consult the session chair, if unsure. Please upload your presentation as PPT or PDF file directly to the presentation laptop in the lecture hall well before the session. From 30 min before the session start, there will be technical staff on site to assist with this.

Young Scientist Award

A first and second prize will be awarded both for the best Young Scientists' oral presentations and posters. The candidate talks are given in a dedicated plenary session on 23 June at 15:30. The posters are shortly presented at 15:15 and can be visited before in the morning poster session. The winners are selected during a live voting after the respective presentations using the following QR codes:

Posters



Talks



Tutorials



Following the successful tradition of past EARSeL Imaging Spectroscopy Workshops, several tutorials are offered on 21 June, the day before the workshop starts. The tutorials are organized at Telegrafenberg premises and can be attended free of charge.

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|---------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 10:00 – 12:00 | <ul style="list-style-type: none">▪ From Box to Flight to Data. UAV demo flight
Headwall – Meeting in front of Building H▪ Hyperspectral processing routines for HySpex airborne data
Norsk Elektro Optikk AS – PC Pool, Building A42, room: 131▪ Programmatic Access to the Spectral Information System SPECCHIO
A. Hueni, RSL, University of Zurich – building C4, room: 2.06▪ Hands-on EnMAP-Box: Imaging Spectroscopy with QGIS
A. Rabe, B. Jakimow (HU Berlin) and F. Thiel (University of Greifswald) – Building H, main lecture hall |
| 13:00 – 15:00 | <ul style="list-style-type: none">▪ UAV imaging spectroscopy data processing and analysis
Headwall – Building C4, room: 2.06▪ The ENVI Modeler – User-Defined Workflows for Hyperspectral Analysis
L3Harris Technologies, Inc – PC Pool, Building A42, room: 131▪ Hands-on EnMAP-Box: Imaging Spectroscopy with QGIS
A. Rabe, B. Jakimow (HU Berlin) and F. Thiel (University of Greifswald) – Building H, main lecture hall |
| 15:30 – 17:30 | <ul style="list-style-type: none">▪ Introduction to the EnGeoMAP/EnSoMAP toolboxes
R. Milewski and H. Dämpfeling, GFZ Potsdam – Building H, main lecture hall |
| 15:30 – 18:00 | <ul style="list-style-type: none">▪ The ARTMO toolbox for analyzing and processing of remote sensing data into biophysical variables
J. Verrelst (Uni. Valencia) & J. Vicent (Magellum) - Building C4, room: 2.06 |

Guided tours Science Park at Telegrafenberg on the Tutorial Day

In addition to the tutorials, there will be guided tours of one hour duration on the Science Park Albert Einstein on Telegrafenberg on 21 June, starting at 12:00 and 15:30. Meeting point for the tours is the Pillar Forum in front of Building H.

Workshop Dinner



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Location: Restaurant Mövenpick „Zur Historischen Mühle“ in close vicinity to Sanssouci Palace und the Historic Mill.

Time: Thursday, 23 June, 19:00-22:00.

Social programme: 18:00-19:00, guided outdoor tours in Park Sanssouci and special opening of Historic Mill. Meeting point for tours: 18:00 between visiting centre and car park next to the Historic Mill (see detailed map).

Transport: Free bus transfer from the workshop venue on Telegrafenberg to the location of the guided tours and dinner. Departure of busses outside of the entrance to the Science Park at Telegrafenberg at **17:30**. Please note that there will be no organized bus transport provided on the way back. Public transport options to go back to Potsdam main station after dinner: Bus 695 leaving at 21:54 and 22:54 (last bus), Tram/Bus stops in the city centre as indicated in the map (alternative: walking to the city centre 15-20 min, to the main station 30-40 min).



Programme



Wednesday, 22/June/2022			
8:00 - 9:30	Registration: Workshop registration <i>Location: Building H</i>		
9:30 - 10:00	Welcome: Opening session with welcome notes <i>Location: Building H</i> <i>Chair: Saskia Foerster, Sebastian van der Linden</i> Welcome note GFZ - Harald Schuh, Director Department 1 "Geodesy" Welcome note EARSeL - Jean-Christophe Schyns, EARSeL President Welcome note SIG Imaging Spectroscopy – M. Bachmann, M. Kneubühler, SIG Chairmen		
10:00 - 10:30	1-1 Keynote: "Multi-sensor synergies for crop stress detection - on the role of imaging spectroscopy" by Katja Berger <i>Location: Building H (Plenary Hall); Chair: Saskia Foerster</i>		
10:30 - 11:00	Coffee 1-1: Coffee break around poster area <i>Location: Building H (Posters area)</i>		
11:00 - 12:30	1-2 Plenary: Updates from spaceborne imaging spectroscopy missions <i>Location: Building H (Plenary Hall); Chair: Luis Guanter, Michael Rast</i> The ENMAP Hyperspectral Spaceborne Mission Launched, <u>Sabine Chabrillat</u> , Sebastian Fischer, Karl Segl, Saskia Foerster, Maximilian Brell, Luis Guanter, Anke Schickling, Tobias Storch, Hans-Peter Honold PRISMA Mission And Beyond: Current Status And Future Plans For The First Italian Hyperspectral Mission, Ettore Lopinto, Luigi Ansalone, Luca Fasano, Francesco Longo, <u>Patrizia Sacco</u> The spaceborne imaging spectrometer DESIS: Mission Summary and Potential for Scientific Developments, <u>Uta Heiden</u> , Kevin Alonso, Martin Bachmann, Kara Burch, Emiliano Carmona, Daniele Cerra, Daniele Dietrich, Uwe Knott, David Krutz, Heath Lester, David Marshall, Rupert Müller, Peter Reinartz, Raquel de los Reyes, Mirco Tegler Progress toward NASA's Surface Biology and Geology Mission, Robert O. Green, <u>David R Thompson</u> , Ralph Basilio, Ian Brosnan, Kerry Cawse-Nicholson, K. Dana Chadwick, Liane Guild, Michelle Gierach, Simon J. Hook, Scott D. Horner, Glynn Hulley, Raymond Kokaly, Charles E. Miller, Kimberley R. Miner, Christine M. Lee, Daniel Limonadi, Jeffrey Luval, Ryan Pavlick, Benjamin Phillips, Benjamin Poulter, Ann Raiho, Kevin Reath, Stephanie Schollaert Uz, Amit Sen, Shawn Serbin, David Schimel, Philip Townsend, Woody Turner, Kevin Turpie, And the SBG Team Status And Planning Of The Copernicus Hyperspectral Imaging Mission For The Environment (CHIME), <u>Marco Celesti</u> , Michael Rast, Jennifer Adams, Valentina Boccia, Ferran Gascon, Claudia Isola, Jens Nieke The Fluorescence EXplorer (FLEX) Mission: Imaging Spectroscopy In Very High Spectral Resolution, <u>Jose Moreno</u> , Roberto Colombo, Alexander Damm, Yves Goulas, Franco Miglietta, Gina Mohammed, Matti Mottus, Peter North, Uwe Rascher, Christiaan van der Tol, Matthias Drusch NASA Earth Surface Mineral Dust Source Investigation (EMIT) Imaging Spectrometer Performance and Mission Status, <u>Robert Green</u> , David Thompson		
12:30 - 13:30	Lunch 1: Lunch break and group photo <i>Location:</i>		
13:30 - 15:00	1-3a SpecSess VegTraits: Quantifying priority vegetation traits from spaceborne imaging spectroscopy data – Part 1 <i>Location: Building H</i> <i>Chair: Martin Schlerf</i> <i>Chair: Jochem Verrelst</i>	1-3b SpecSess Soils: Hyperspectral remote sensing of soils <i>Location: A56</i> <i>Chair: Eyal Ben Dor</i> <i>Chair: Sabine Chabrillat</i>	1-3c SpecSess Water: Towards inland and coastal water monitoring using hyperspectral data - Part 1 <i>Location: A45</i> <i>Chair: Mariana Soppa</i> <i>Chair: Claudia Giardino</i>



	<p>Retrieval Of Fluorescence Quantum Efficiency And Quantitative Photosynthetic Traits In The Context Of The FLEX Mission, <u>Shari Van Wittenberghe</u>, Neus Sabater, Ana Belen Pascual, Eatald Amin, Adrian Moncholi, Carolina Tenjo, Luis Alonso, MaPilar Cendrero Mateo, Jose Moreno</p> <p>Advances in Vegetation Traits Models in the Context of the Hyperspectral CHIME Mission Preparation, <u>Jochem Verrelst</u>, Enrique Portales, Eatald Amin, Miguel Morata, Pablo Reyes Muñoz, Ana Belen Pascual-Venteo, Jose Luis Garcia, Juan Pablo Rivera, Giulia Tagliabue, Cinzia Panigada, Mirco Boschetti, Gabriele Candiani, Karl Segl, Stephane Guillasso, Katja Berger, Matthias Wocher, Tobias Hank, Claudia Isola</p> <p>Recent Progress And Challenges In The Derivation Of Non-photosynthetic Cropland Biomass From Spaceborne Imaging Spectroscopy Data, <u>Katja Berger</u>, Andrej Halabuk, Tobias Hank, Juan Pablo Rivera-Caicedo, Matthias Wocher, Matej Mojses, Katarina Gerhatova, Giulia Tagliabue, Miguel Morata Dolz, Ana B. Pascual Venteo, Pablo Reyes Munoz, Jochem Verrelst</p> <p>Representativeness of Airborne Imaging Spectroscopy for Global Upscaling for Spaceborne Missions, <u>Philip Townsend</u>, Ryan Pavlick, Morgan Dean, Kyle Kovach, Fabian Schneider</p> <p>Quantifying Crop Residue Cover by Spectroscopy Techniques Exploiting In-situ, Aerial and Simulated Spaceborne Hyperspectral Data for PRISMA Mapping Applications, <u>Monica Pepe</u>, Loredana Pompilio, Gabriele Candiani, Micol Rossini, Cinzia Panigada, Mirco Boschetti</p>	<p>Airborne Imaging Spectroscopy For Assessing Land-Use Effect On Soil Quality In Dryland, <u>Nathan Levi</u>, Arnon Karnieli, Tarin Paz-Kagan</p> <p>Synergies of VNIR-SWIR and LWIR Hyperspectral Remote Sensing Data for Soil Property Mapping in an Agricultural Landscape of Northern Greece, <u>Robert Milewski</u>, Sabine Chabrillat, Theodora Angelopoulou, Maximilian Brell, Nikos Tziolas, Georges Zalidis, Eyal Ben Dor</p> <p>Characterizing Soil Surface Covers Within Ice-free Areas of the Northern Antarctic Peninsula Region Using Reflectance Spectroscopy, <u>Thomas Schmid</u>, Ana Nieto, Marta Pelayo, Sabine Chabrillat, Robert Milewski, Stéphane Guillaso, Jerónimo López-Martínez</p> <p>Multi-Temporal Estimation of Soil Properties from Hyperspectral Prisma and Multispectral Sentinel-2 Data, <u>Nada Mzid</u>, Raffaele Casa, Fabio Castaldi, Massimo Tolomio, Simone Pascucci, Stefano Pignatti</p> <p>Estimation Of Water Infiltration Rate In Mediterranean Soils Using Airborne Hyperspectral Sensors, <u>Nicolas Francos</u>, Nikos Tziolas, Maximilian Brell, Sabine Chabrillat, Nunzio Romano, Paolo Nasta, Yijian Zeng, Brigitta Szabó, Salvatore Manfreda, Giuseppe Ciraolo, János Mészáros, Ruodan Zhuang, Bob Su, Eyal Ben-Dor</p> <p>Quantification and Variability Analysis of Forest Carbon to Nitrogen Ratio in Different Soil Horizons using Spectroscopy: A National-Scale Study, <u>Asa Gholizadeh</u>, Mohammadmehdi Saberioon, Nastaran Pouladi, Eyal Ben-Dor</p>	<p>Lessons Learned and Recent Advances Towards Hyperspectral Aquatic Remote Sensing, <u>Mariana A. Soppa</u>, Leonardo Alvarado, Dieu A. Dinh, Brenner Silva, François Steinmetz, Astrid Bracher</p> <p>Exploring PRISMA Data For Chlorophyll-a Retrieval Through Hyperspectral NDCI, <u>Felipe Nincao Begliomini</u>, Cláudio Clemente Faria Barbosa, Vitor Souza Martins, Evelyn Márcia Leão de Moraes Novo, Daniel Andrade Maciel, Rejane de Souza Paulino, Rogério Flores Júnior, <u>Thainara Munhoz Alexandre de Lima</u></p> <p>Comparison Of Coincident Hyperspectral Data From Satellite, Airborne And Fieldworks For Retrieving Water Quality Parameters In Lake Trasimeno, <u>Alice Fabbretto</u>, Andrea Pellegrino, Mariano Bresciani, Salvatore Mangano, Monica Pinardi, Nicola Ghirardi, Claudia Giardino, Massimo Cosi, Leandro Chiabantini</p> <p>Using Imaging Spectroscopy to Retrieve Suspended Sediment Properties in a Nearshore Coastal Estuary, <u>Joshua Harringmeyer</u>, Nilotpal Ghosh, Matthew Weiser, David Thompson, Xiaohui Zhu, Cédric Fichot</p> <p>Retrievals of the Main Phytoplankton Groups at Lake Constance Using OLCI and Evaluated with Field Observations, <u>Leonardo M. A. Alvarado</u>, Peter Gege, Svetlana Losa, Iris Dröscher, Mariana Soppa, Hongyan Xi, Astrid Bracher</p>
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Programme



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15:00 - 15:30	Coffee 1-2: Coffee break <i>Location: Buildings H, A56, A45</i>		
15:30 - 16:45	<p>1-4a SpecSess VegTraits: Quantifying priority vegetation traits from spaceborne imaging spectroscopy data – Part 2 <i>Location: Building H</i> <i>Chair: Katja Berger</i> <i>Chair: Jochem Verrelst</i></p> <p>Cutting Out The Middleman: Calibrating And Validating An Ecosystem Model Using Remotely Sensed Surface Reflectance, <u>Alexey N Shiklomanov, Istem Fer, Toni Viskari, Michael Dietze, Shawn Serbin</u></p> <p>Estimation Of Winter Wheat Yield Using Time Series Of Airborne Hyperspectral Data, <u>Lucie Homolová, Miroslav Pikl, Švk Marian, Růžena Janoutová, Lukáš Slezák, Barbora Veselá, Karel Klem</u></p> <p>Detecting spatial patterns of change in vegetation condition inside Bavarian Forest National Park using Multi- and Hyperspectral spaceborne datasets, <u>Nivedita P. Kamaraj, Stefanie Holzwarth, Martin Bachmann, Edzer Pebesma, Simon König, Marco Heurich</u></p> <p>Retrieval of Carbon Content and Biomass from Hyperspectral Imagery over Cultivated Areas, <u>Matthias Wocher, Katja Berger, Jochem Verrelst, Tobias Hank</u></p> <p>Downscaling of Far-red Solar-induced Fluorescence from Canopy to Leaf Level – A Necessary Step to Derive Physiological Information of Plants from Remote Sensing Data, <u>Bastian Siegmann, Juliane Bendig, Juan Quiros-Vargas, Onno Muller, Sergio Cogliati, Alexander Damm, Uwe Rascher</u></p>	<p>1-4b SpecSess SoilContamination: Monitoring soil contamination by imaging spectroscopy <i>Location: A56</i> <i>Chair: Rollin Gimenez</i> <i>Chair: Sophie Fabre</i></p> <p>Determination of Chromium Concentration and Spatial Distribution in a Copper Mine using Reflectance Spectroscopy and Remote Sensing, <u>Vahid Khosravi, Asa Gholizadeh, Mohammadmehdi Saberloon</u></p> <p>Hyperspectral Analysis of Contaminated Soil Using Ultra High Resolution, <u>Nicolas Venjean</u></p> <p>Environmental Monitoring of Trace Metal Element Impact on Vegetation: Exploitation of In-situ and Airborne Hyperspectral Data, <u>Luc Béraud, Philippe Déliot, Laurent Poutier, Olivier Berseille, Arnaud Elger, Camille Larue, Thomas Rivière, Sophie Fabre</u></p> <p>Impact of Spatial Correlation on Classification Accuracy Assessment for Vegetation Mapping in a Former Industrial Site, <u>Rollin Gimenez, Arnaud Elger, Guillaume Lassalle, Anthony Credoz, Dominique Dubucq, Rémy Hédacq, Sophie Fabre</u></p>	<p>1-4c SpecSess Water: Towards inland and coastal water monitoring using hyperspectral data - Part 2 <i>Location: A45</i> <i>Chair: Mariana Soppa</i> <i>Chair: Claudia Giardino</i></p> <p>An open-source HydroLight-based Framework for Fast Inverse Modelling of Hyperspectral Observations from Coastal and Inland Waters, <u>Tadzio Holtrop, Hendrik Jan van der Woerd</u></p> <p>SWIPE: Spectral Water Inversion Processor and Emulator, <u>Jeremy Alan Kravitz, Liane Guild, Lisl Lain, Steffen Mauceri, Jake Lee, Didier Ramon, François Steinmentz</u></p> <p>Preparing for CHIME and SBG: Algorithms for Retrieving Snow and Ice Properties in Earth's Mountains, <u>Jeff Dozier, Edward H. Bair, Thomas H. Painter</u></p>
16:45 - 18:00	Posters Day 1 (List of posters at the end of this programme book) <i>Location: Building H</i>		
18:00 - 20:00	Ice Breaker: Gathering with drinks and snacks at the venue <i>Location: Building H</i>		

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Thursday, 23/June/2022			
8:30 - 9:00	<p>2-1 Keynote: "The future for environmental change research in a global context: added value of spaceborne imaging spectroscopy" by Inge Jonckheere (FAO) <i>Location: Building H (Plenary Hall); Chair: Martin Herold</i></p>		
9:00 - 10:00	<p>2-2 Panel discussion: "Imaging spectroscopy towards 2030" <i>Location: Building H (Plenary Hall), Chair: Michael Rast</i> Panelists: Godela Rossner (DLR), Marco Celesti (ESA), Patrick Hostert (HU Berlin, Landsat Science Team), Phil Townsend (UW Madison, SBG AlgoWG), Inge Jonckheere (FAO)</p>		
10:00 - 11:00	<p>Posters Day 2 (List of posters at the end of this programme book) <i>Location: Building H</i></p>		
11:00 - 12:15	<p>2-3 Plenary: New pathways in the analysis and application of (imaging) spectroscopy <i>Location: Building H (Plenary Hall); Chair: Zbyněk Malenovský, Helge Aasen</i></p> <p>Remote Estimation of Sulfur Content in fuel from Quantification of Ship Exhaust Plume, Jean-Philippe Gagnon, <u>Stéphane Boubanga-Tombet</u></p> <p>Change Detection in Urban Areas from Airborne-based Hyperspectral and Lidar Data. Case Study: Baerum, Norway, <u>Agnieszka Kinga Kuras</u>, Maximilian Brell, Kristian Hovde Liland, Vinith Balasingam, Stian Teien, Bjørn-Eirik Roald, Thomas Thiis, Ingunn Burud</p> <p>Mapping Methane Emissions Around the World with Satellite Imaging Spectroscopy Missions, <u>Luis Guanter</u>, Itziar Irakuliz-Loitxate, Javier Roger, Javier Gorroño</p> <p>How Does Photon Recollision Probability Perform In Modeling Forest Reflectance Spectra? - Lessons Learned From An Extensive Field And Airborne Campaign, <u>Aarne Hovi</u>, Miina Rautiainen</p> <p>Coupling Physics and Machine Learning for Improved Atmospheric Correction, <u>Philip G. Brodrick</u>, David R. Thompson, Niklas Bohn, Amy Braverman, Nimrod Carmon, Michael L. Eastwood, Regina Eckert, Jay Fahnen, Robert O. Green, Sarah R. Lundein, Steffen Mauceri, Winston Olson-Duvall, Charles Sarture, Jouni Susiluoto</p>		
12:15 - 13:15	<p>Lunch 2: Lunch break <i>Location: Building H</i></p>		
13:15 - 14:45	<p>2-4a SpecSess ForestTraits: The potentials and limits of monitoring forest traits with imaging spectroscopy <i>Location: Building H</i> <i>Chair: Michael Foerster</i> <i>Chair: Fabian Ewald Fassnacht</i></p> <p>Gaussian Processes Regression and PLSR for mapping forest canopy traits from Fenix Airborne Hyperspectral Data, <u>Rui Xie</u>, Roshanak Darvishzadeh, Andrew K. Skidmore, Marco Heurich, Stefanie Holzwarth, Tawanda W. Gara, Ils Reusen</p> <p>Seasonal Changes in Leaf Chlorophyll Content of Floodplain Forest's Tree Species: A Comparison of Spectral, Biochemical and Portable Chlorophyll Meter Measurements, <u>Lucie Červená</u>, Zuzana Lhotáková, Eva Neuwirthová, Petr Lukeš,</p>	<p>2-4b ThemSess SensorsMissions: Concepts, activities and processing developments for missions and sensors <i>Location: A56</i> <i>Chair: Anke Schickling</i> <i>Chair: Sebastian Fischer</i></p> <p>Identifying Distinct Plastics In Hyperspectral Experimental Lab-, Aircraft-, And Satellite Data Using Machine/Deep Learning Methods Trained With Synthetically Mixed Spectral Data. <u>Shanyu Zhou</u>, Hermann Kaufmann, Niklas Bohn, Theres Kuester, Karl Segl, Mathias Bochow</p> <p>Enmap Data Product Validation – Status, <u>Maximilian Brell</u>, Luis Guanter, Daniel Scheffler, Niklas Bohn, Karl Segl, Mariana Altenburg Soppa, Javier Gorrono, Astrid Bracher, Tobias Hank, Martin</p>	<p>2-4c SpecSess GenericLibs: Unlocking the potential of generic spectral libraries for remote sensing applications <i>Location: A45</i> <i>Chair: Frederik Priem</i> <i>Chair: Frank Canters</i></p> <p>GENLIB: Developing a Generic Framework for Library-based Mapping of Urban Areas, <u>Frederik Priem</u>, Ben Somers, Frank Canters</p> <p>The Data Concept Behind the Data: From Metadata Models and Labelling Schemes Towards a Generic Spectral Library, <u>Marianne Jilge</u>, Uta Heiden, Frederik Priem, Chaonan Ji, Andreas Hueni, Stefan Arnold, Frank Canters</p> <p>The SPECCHIO Spectral Information System – Status and New Functionalities,</p>

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	<p>Lucie Kupková, Jana Albrechtová</p> <p>Hyperspectral Image Analysis of Scots Pine Wood Affected with Decay Fungi Using Partial Least Squares and Library Spectra of Cellulose and Lignin, <u>Arnoud Jochemsen</u>, Gry Alfredsen, Ingunn Burud</p> <p>Detection of Tree Mortality Induced by Bark Beetle During Drought in Recent Years, <u>Vojtěch Bárta</u>, Tomáš Fabiánek, Lumír Dobrovolný, Lucie Homolová</p> <p>UAS-based Experiences of the Temporal, Spectral, and Spatial Accuracy to Detect the Green Attack Phase of Bark Beetle Infestations in the Arnsberger Forest and the Bavarian Forest, Germany, <u>Michael Förster</u>, Alexander Marx, Chunyan Xu, Ahuvit Trumper, Tobias Gränzig, Johannes May, Simon König, Birgit Kleinschmit</p> <p>Prediction of Leaf Area Index Using Hyperspectral Thermal Infrared Imagery over the Mixed Temperate Forest, <u>Elnaz Neinavaz</u>, Roshanak Darvishzadeh, Andrew K. Skidmore</p>	<p>Bachmann, Emiliano Carmona, Tobias Storch, Saskia Foerster, Anke Schickling, Sabine Chabrillat</p> <p>Advances in Imaging Spectrometer Atmospheric Correction With The Open Source ISOFIT Codebase, <u>David R. Thompson</u>, Philip Brodrick, Niklas Bohn, Nimrod Carmon, Kerry Cawse-Nicholson, Adam Chlus, David Connelly, Regina Eckert, Jay Fahlen, Michael J. Garay, Robert O. Green, Evan Greenberg, Michelle Gierach, Olga Kalashnikova, Matthew Lebsock, Benjamin Poulter, Ann Raiho, Mark Richardson, Alexey Shiklomanov, Philip Townsend</p> <p>Final Results Building EnMAP and First Results Operating EnMAP, <u>Tobias Storch</u>, Hans-Peter Honold, Martin Habermeyer, Paul Tucker, Andreas Ohndorf, Katrin Wirth, Sebastian Loew, Steffen Zimmermann, Matthias Betz, Michael Kuchler, Emiliano Carmona, Mathias Schneider, Peter Schwind, Helmut Muehle, Martin Muecke, Simon Baur, Martin Bachmann, Nicole Pinnel, Sabine Chabrillat, Sebastian Fischer</p> <p>PRISMA Signal Dependent Noise Characterization On A Rural Area: The Test Case Of Pignola (South Italy), <u>Maria Francesca Carfora</u>, Raffaele Casa, Nada Mzid, Simone Pascucci, Stefano Pignatti</p> <p>The CEOS CARD4L Conform EnMAP L2A Land Product, <u>Martin Bachmann</u>, Kevin Alonso, Emiliano Carmona, Birgit Gerasch, Martin Habermeyer, Stefanie Holzwarth, Harald Krawczyk, Maximilian Langheinrich, David Marshall, Miguel Pato, Nicole Pinnel, Raquel De Los Reyes, Mathias Schneider, Peter Schwind, Tobias Storch</p>	<p><u>Andreas Hueni</u>, Bastian Buman, Kimberley Mason</p> <p>Regression-based Unmixing Through Ensemble Learning from Synthetic Training Data Enables the Use of Large Generic Spectral Libraries, <u>Akpona Okujeni</u>, Frederik Priem, Sam Cooper, Sebastian van der Linden, Patrick Hostert</p> <p>Spectral Library Optimization for Fractional Cover Estimation and Classification, <u>Dar Alexander Roberts</u></p> <p>Rethinking spectral libraries using GIS-workflows, <u>Benjamin Jakimow</u>, Sebastian van der Linden, Andreas Janz, Fabian Thiel, Sam Cooper, Akpona Okujeni, Patrick Hostert</p>
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Programme



14:45 - 15:15	Coffee 2-2: Coffee Break around poster area <i>Location: Building H (Posters area)</i>
15:15 - 15:30	Posters 2d YSA: Presentation of candidate posters for young scientist award and voting <i>Location: Building H (Plenary Hall), Chair: Sebastian van der Linden</i> <p style="color: #C00000;">From Spectra to Functional Plant Traits: Aggregating Multiple, Heterogeneous and Sparse Data Sets for a Generalizable Multi-trait Model, <u>Eya Cherif</u>, Teja Kattenborn, Hannes Feilhauer</p> <p style="color: #C00000;">Using Simulated Grassland Communities And Radiative Transfer Models To Test The Spectral Variation Hypothesis, <u>Antonia Dorea Ludwig</u>, Daniel Doktor, Hannes Feilhauer</p> <p style="color: #C00000;">Planting Contexts Affect Urban Tree Species Classification Using Airborne Hyperspectral Imagery, <u>Dengkai Chi</u>, Jingli Yan, Ben Somers</p> <p style="color: #C00000;">Asymmetry of Leaf Internal Structure Affects PLSR Modelling of the Anatomical Traits from VIS-NIR Leaf Level Spectra, <u>Eva Neuwirthova</u>, Zuzana Lhotakova, Lucie Cervena, Jana Albrechtova</p> <p style="color: #C00000;">Hyperspectral Analysis Of The Contaminants On The Surface Of Ganymede, <u>Katherine Villavicencio Valero</u>, Pascal Allemand, Fabien Dubuffet</p>
15:30 - 17:00	2-5 Plenary: Young Scientist Award - presentation of candidate talks and voting <i>Location: Building H (Plenary Hall), Chair: Sebastian van der Linden</i> <p style="color: #C00000;">Spatially Constrained Imaging Spectroscopy Retrievals, <u>Regina Eckert</u>, Philip Brodrick, David R Thompson, Steffen Mauceri, Jay Fahlen, Robert O Green, Michael L Eastwood, Mark Helmlinger</p> <p style="color: #C00000;">Comparison of Uncertainties in the Retrieval of Vegetation Traits Using Machine Learning Regression Algorithms, <u>José Luis García Soria</u>, Juan Pablo Rivera Caicedo, Ana B Pascual Venteo, Giulia Tagliabue, Katja Berger, Jochem Verrelst</p> <p style="color: #C00000;">Emulation of hyperspectral imagery from Sentinel-2 images using Regression Neural Networks, <u>Miguel Morata Dolz</u>, Bastian Siegmann, Adrian Pérez-Suay, Juan Pablo Rivera-Caicedo, Jochem Verrelst</p> <p style="color: #C00000;">Modeling Spectral and Directional Soil Reflectance in the Solar Domain (400-2500 nm) as a Function of Moisture Content, <u>Alice Dupiau</u>, Stéphane Jacquemoud, Xavier Briottet, Jason Champion, Sophie Fabre, Françoise Viallefont-Robinet</p> <p style="color: #C00000;">Solar Photovoltaic Module Detection Based On Multi-sources Hyperspectral Data, <u>Chaonan Ji</u>, Martin Bachmann, Andreas Hueni, Susanne Weyand, Julian Zeidler, Annekatrin Metz-Marconcini, Marion Schroedter-Homscheidt, Thomas Esch, Uta Heiden</p>
17:30 - 18:00	Bus transfer from venue to guided tours and dinner
18:00 - 19:00	Guided Tours: Outdoor tours in Park Sanssouci <i>Required booking during registration. Contact EARSeL Bureau for late booking.</i>
19:00 - 22:00	Conference Dinner: Joint evening at the Mövenpick restaurant near Schloss Sanssouci <i>Required booking during registration. Contact EARSeL Bureau for late booking.</i>

Friday, 24/June/2022		
8:30 - 9:45	3-1a ThemSess Biodiv: Analyzing and mapping biodiversity with imaging spectroscopy data <i>Location: Building H</i> <i>Chair: Lucie Homolová, Uta Heiden</i> <p style="color: #C00000;">Why The Link Between Spectral Variation And Biodiversity Is Weak, <u>Fabian Ewald Fassnacht</u>, Jana Müllerova, Luisa Conti, Marco Malavasi, Sebastian Schmidlein</p>	3-1b ThemSess Developments: Recent software and sensors developments, incl. sponsored talks <i>Location: A56</i> <i>Chair: Robert Milewski</i> <i>Chair: Véronique Carrère</i> HYPERNOR; Plans for a Hyperspectral Imager for Microsatellites, <u>Lars Lierstuen</u>, Andrei Fridman, Magnus Breivik, Erlend Leirset, Trond Løke



	<p>Relating Spectral Variance to Taxonomic Diversity: Experimental Evidence from Imaging Spectroscopy over a Tropical Forest, <u>Colette Badourdine</u>, Jean-Baptiste Féret, Grégoire Vincent, Raphaël Pélissier</p> <p>Evaluating Distortion Factors In The Assessment Of Plant Spectral Diversity From Ultra-high Resolution Hyperspectral Imagery, <u>Erika Piaser</u>, Andrea Berton, Michele Caccia, Francesca Gallivanone, Massimo Giannoni, Giovanna Sona, Paolo Villa</p> <p>Mapping Peatland Vegetation Communities on the Rewetted Fens with AVIRIS-NG and PRISMA data, <u>M Arasumani</u>, F Thiel, M Kaiser, S van der Linden</p> <p>Deriving Plant Genetic Diversity From Imaging Spectroscopy Systems, <u>Ewa A. Czyz</u>, Meredith C. Schuman, Andreas Hueni, Cheng Li, Marylaure de La Harpe, Bernhard Schmid, Michael E. Schaepman</p>	<p>Physical Atmospheric Correction of UAS Imaging Spectroscopy Data by DROACOR® in Complex Topography, <u>Daniel Schläpfer</u>, Sara Salehi, Rudolf Richter</p> <p>EUFAR - Current Status and Development, <u>Jan Hanuš</u></p> <p>Partially Supervised Detection in Hyperspectral Imagery, Daniel C. Heinz, <u>Thomas Bahr</u>, David Streutker, Greg Terrie, Michael Ingram</p> <p>Visual Data Analysis & Exploration Tools In The EnMAP-Box Plugin For QGIS, <u>Andreas Janz</u>, Benjamin Jakimow, Fabian Thiel, Sebastian van der Linden, Patrick Hostert</p>	
9:45 - 10:15	<p>Coffee 3-1: Coffee break</p> <p><i>Location: Buildings H, A56, A45</i></p>		
10:15 - 11:30	<p>3-2a SpecSess Fluorescence: Measuring and understanding solar-induced fluorescence as an indicator for actual photosynthesis and vegetation function</p> <p><i>Location: Building H</i> <i>Chair: Uwe Rascher</i> <i>Chair: Alexander Damm</i></p> <p>Challenges in the Retrieval and Interpretation of Sun-induced Chlorophyll Fluorescence for Its Use in Ecosystem Research, <u>Uwe Rascher</u>, <u>Alexander Damm</u></p> <p>HyScreen - A Ground-based Imaging Spectrometer System Measuring Solar-induced Fluorescence (SIF), <u>Huaiyue Peng</u>, Juliane Bendig, Kelvin Acebron, M.Pilar Cendrero-Mateo, Kari Kataja, Caspar Kneer, Uwe Rascher</p> <p>A Multi-Layer Perceptron Based Regressor for SIF Retrieval from Hyperspectral Imagery of the Airborne HyPlant Sensor in Topographically Variable Terrain, <u>Jim Loïc Buffat</u>, Hanno Scharr, Uwe Rascher</p> <p>Understanding Solar-induced Chlorophyll Fluorescence of Structurally Diverse Forests</p>	<p>3-2b ThemSess Campaigns: Insights from recent field and airborne campaigns</p> <p><i>Location: A56</i> <i>Chair: Andreas Hueni</i> <i>Chair: Martin Bachmann</i></p> <p>CHIME-SBG 2021 Airborne Imaging Spectroscopy Campaign, <u>Andreas Hueni</u>, Michael L. Eastwood, Carmen Meiller, Mike Werfeli, Helena Kuehnle, Marius Voegtli, Robert O. Green, Michael E. Schaepman, Jens Nieke, Jennifer S. Adams, Marco Celesti, Michael Rast</p> <p>Thermal Infrared Airborne Hyperspectral Data for Vegetation Land Cover Classification in a Mixed Temperate Forest, <u>Hillary K. Korir</u>, Elnaz Neinavaz, Andrew K. Skidmore, Roshanak Darvishzadeh</p> <p>Imaging Spectroscopy In Wetland Environments: Early Results From The Delta-X Campaign, <u>David Thompson</u>, John Chapman, Cedric Fichot, Daniel Jensen, Evan Greenberg, Joshua Harringmeyer, Mark Simard</p> <p>Impact of Processing Schemes on Reflectance Differences in</p>	<p>3-2c SpecSess RawMaterialEnergy: Imaging spectroscopy for raw materials and the energy transition</p> <p><i>Location: A45</i> <i>Chair: Christoph Hecker</i> <i>Chair: Martin Schodlok</i></p> <p>An Integrated Method for Utilizing Multi- and Hyperspectral Imaging for Raw Material Characterization in an Underground Mine, <u>Feven Desta</u>, Mike Buxton</p> <p>Hyperspectral Imaging For Open Pit Mining Applications, <u>Friederike Koerting</u>, Nicole Koellner, Friederike Kaestner, Helge Daempfing, Christian Mielke, Constantin Hildebrand</p> <p>Alteration Footprints Of A Porphyry Copper Deposit As Revealed By Airborne Imaging Spectroscopic Data, <u>Saeid Asadzadeh</u>, Nicole Koellner, Helge Daempfing, Sabine Chabriplat</p> <p>Exploring Porphyry Copper Tailings With Visible Light To Long Wave Infrared Reflectance Spectroscopy - A Case Study In Erdenet, Mongolia</p> <p><u>Michael Denk</u>, Yaron Ogen, Cornelia Gläßer</p>

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	<p>with Three-dimensional Radiative Transfer Modelling, <u>Zbyněk Malenovský</u>, Růžena Janoutová, Lucie Homolová, Omar Regaieg, Nicolas Lauret, Eric Chavanon, Jordan Guilleux, Jean-Philippe Gastellu-Etchegorry</p> <p>Non-photochemical Quenching From In-situ Spectroradiometer Measurements In Lakes: Implications On Phytoplankton Fluorescence Remote Sensing, <u>Remika Gupana</u>, Alexander Damm, Abolfazl Irani Rahaghi, Camille Minaudo, Daniel Odermatt</p>	<p>the Overlapping Area of Neighbouring Flight Lines of Airborne Imaging Spectroscopy Data, <u>Marius Vöglti</u>, Daniel Schläpfer, Meredith C. Schuman, Michael E. Schaepman, Mathias Kneubühler, Alexander Damm</p> <p>Early results from SHIFT - the SBG High Frequency Time series, <u>Philip G. Brodrick</u>, Kerry Cawse-Nicholson, K. Dana Chadwick, Michelle Gierach, Christine Lee, Charles Miller, Kimberley Miner, Ryan Pavlick, Benjamin Poulter, David Schimel, Alexey Shiklomanov, David R. Thompson, Philip Townsend</p>	<p>Utilizing Lidar Intensity Data to Improve Copper and Molybdenum Prediction Models in a high-wetness environment</p> <p><u>Yaron Ogen</u>, Michael Denk, Cornelia Glaesser, Holger Eichstaedt</p>
11:40 - 12:00	3-3 Awards ceremony: Note from EARSeL and award ceremony for YSA talk and YSA poster and GreenEARSeL award <i>Location: Building H (Plenary Hall), Chair: Jean-Christophe Schyns</i>		
12:00 - 12:30	3-4 Keynote: "Ecological Insights from Imaging Spectroscopy of Foliar Functional Traits" by Phil Townsend <i>Location: Building H (Plenary Hall), Chair: Mathias Kneubühler</i>		
12:30 - 13:15	Lunch 3: Lunch break <i>Location: Building H</i>		
13:15 - 14:45	<p>3-5 ThemSess CropsGras: Imaging spectroscopy of cropland and grassland <i>Location: Building H (Plenary Hall); Chair: Akpona Okujeni, Lammert Kooistra</i></p> <p>Why and How to Map Leaf-chlorophyll Dynamics from Ultrahigh-resolution UAV Hyperspectral Imagery and Machine Learning?, <u>Yoseline Angel</u>, Matthew McCabe</p> <p>Mapping Of Esca Symptoms On Grapevine Using Hyperspectral And Thermal UAV Data, <u>Miriam Machwitz</u>, Christian Bossung, Melina Käfer, Gilles Rock, Vanessa Hüffer, Daniel Molitor, Doriane Dam, Franz Ronellenfitsch, Mareike Schultz</p> <p>Disease Assessment in Potato Crop Combining Imaging Spectroscopy and Point-cloud Based Features, <u>Marston Franceschini</u>, <u>Lammert Kooistra</u>, Benjamin Brede, Harm Bartholomeus</p> <p>Utilizing UAS-based Imaging Spectroscopy Information to Estimate the Soil Moisture Content at Different Grassland Types in Germany, Veronika Döpper, <u>Michael Förster</u>, Katja Berger, Alby Duarte Rocha, Tobias Gränzig, Birgit Kleinschmit</p> <p>Evaluating the Potential of HySpex and Sentinel-2 for Fractional Cover-based Drought Analyses in Grasslands, <u>Katja Kowalski</u>, Patrick Hostert, Maximilian Brell, Akpona Okujeni</p> <p>Multi-Temporal Imaging Spectroscopy Data Processing Framework For Estimating Biomass In Alpine Grasslands, <u>Nargiz Safaraliyeva</u>, Anna K. Schweiger, Christian Rossi, Andreas Hueni, Michael E. Schaepman, Mathias Kneubuehler, Maria J. Santos</p>		
14:45 - 15:45	Posters Day 3 (List of posters at the end of this programme book) <i>Location: Building H</i>		
15:45 - 16:00	Closing: Workshop closing session		

Posters



Wednesday, 22 June 2022: 16:45 - 18:00

Posters 1a VegTraits: Quantifying priority vegetation traits from spaceborne imaging spectroscopy data

2. Effects Of Sample Size On Regression Models For Biophysical Parameter Retrieval From Spectral Data. Hannes Feilhauer.

Posters 1b Soils: Hyperspectral remote sensing of soils

3. Identifying And Mapping Soils From Remote Sensing Hyperspectral Sensors With fCover. David William Marshall, Martin Bachmann, Eyal Ben-Dor, Martin Habermeyer, Uta Heiden, Daniela Heller Pearlshtien, Stefanie Holzwarth, Thomas Schmid.

4. Development of a Generic Database of Soil Optical and Biochemical Traits. Petr Lukeš, Jan Mišurec, Karel Klem, Jiří Tomíček.

5. Simulation of Spectral Disturbance Effects for the Generation of Landscape-like Soil Spectral Libraries in Support of Current and Upcoming Satellite Missions. Robert Milewski, Sabine Chabrillat, Alice Dupiau, Klara Dvorakova, Theres Küster, Stéphane Jacquemoud, Xavier Briottet, Bas van Wesemae.

6. Potential of Hyperspectral Remote Sensing Data and a Soil Spectral Library for Large Scale SOC Mapping. Kathrin J. Ward, Sabine Chabrillat, Maximilian Brell, Fabio Castaldi, Daniel Spengler, Saskia Foerster.

7. Using Drone-based Hyperspectral Information To Support Mapping Of Soil Organic Carbon And Clay Content By Sentinel-2 Data In Baden-Wuerttemberg. Larissa Torney, Michael Blaschek, Richard Mommertz, Martin Schodlok.

8. Predicting Soil Properties of Mountainous Agricultural Land in the Caucasus Mountains Using Mid-infrared Spectroscopy. Elton Mammadov, Michael Denk, Frank Riedel, Karolina Lewinska, Cornelia Glaesser.

9. Monitoring Biological Degradation Of Historical Stone Using Hyperspectral Imaging. Eva Matoušková, Kateřina Kovářová, Michal Cihla, Jindřich Hodač.

10. Soil Organic Carbon Modelling Using Open-Access Soil Spectroscopy Libraries And Machine Learning Algorithms. Mohammadmehti Saberioon, Asa Gholizadeh, Ali Ghaznavi, Sabine Chabrillat, Kathrin Ward.

11. Detecting Soil Organic Carbon In Agricultural Soils Adjacent To Mining Area Of Kajaran, Armenia Using Proximal Sensing Spectroscopy. Garegin Tepanosyan, Gevorg Tepanosyan, Vahagn Muradyan, Yeva Grigoryan, Shushanik Asmaryan, Lilit Sahakyan, Michael Denk, Cornelia Glaesser.

Posters 1c Water: Towards inland and coastal water monitoring using hyperspectral data

12. The Water Quality Prototype To Process PRISMA Products For Inland And Coastal Waters Mapping. Mariano Bresciani, Federica Braga, Maria Lucia Maglizzi, Corrado Avolio, Mario Costantini, Alice Fabbretto, Andrea Pellegrino, Claudia Giardino, Luca Pietranera, Gian Marco Scarpa, Patrizia Sacco, Deodato Tapete, Massimo Zavagli.

14. Optical Characterization of Pollutants in Industrial Waste Waters by Imaging Spectroscopy. Louis Zaugg, Rodolphe Marion, Laure Roupiez, Xavier Briottet, Malik Chami.

15. Contribution of Multispectral S2A and Hyperspectral (PRISMA, EO1) Data for Estimating Turbidity in Coastal Shallow Water. Rim Katlane, David Doxaran, Boubaker Elkilani, Samuel Martin.

16. Data Management Quality Management Framework for the Hyperspectral Radiometry System onboard the RV Celtic Explorer. Catherine Jordan, Caroline Cusack, Adam Leadbetter, Ramona Carr, Jochen Wollschlaeger, Peter Croot.

17. Diffuse Attenuation Of Underwater UV And Short Blue Light Obtained From TROPOMI's High Spectral Resolution. Astrid Bracher, Julia Oelker, Leonardo Alvarado, Svetlana Losa, Hongyan Xi, Mariana Soppa, Ana Brito, Vanda Brotas, Maycira Costa, Luciane Favareto, Mara Gomes, Vishnu P. Suseelan, Andreas Richter.

Posters



Posters 1d SoilContamination: Monitoring soil contamination

18. Trace Metal Elements Impact On The Thermal Infrared Spectral Signatures Of Pines. Luc Béraud, Sophie Fabre, Laurent Poutier, Arnaud Elger, Oliver Berseille, Camille Larue, Thomas Rivière.
19. Identification of Potential Toxic Elements (PTE) in Technosols and in the Hyperaccumulator Plant Brassica Juncea with Imaging Spectroscopy. Friederike Kaestner, Magdalena Sut-Lohmann, Mark Grimm, Hannes Feilhauer, Theres Kuester, Thomas Raab.
20. The Use Of Satellite Remote Sensing And Machine Learning Algorithms For Identification, Measurement And Classification Of Mine Waste Sites. Nina Maria Küpper, Jan-Niklas Sander, Lorenz Richter, Justus Freer, Bernd Georg Lottermoser.

Thursday, 23 June 2022: 10:00 - 11:00

Posters 2a: The potentials and limits of monitoring forest traits with imaging spectroscopy

21. Do Norway Spruce Needle Spectra Vary Between Geographic Locations?. Aarne Hovi, Petr Lukeš, Lucie Homolová, Jussi Juola, Miina Rautiainen.
22. Speeding Up The Hyperspectral Reflectance Phenotyping In Scots Pine Seedlings. Zuzana Lhotáková, Jan Stejskal, Jaroslav Čepl, Jiří Chuchlík, Eva Neuwirthová, Jana Albrechová, Milan Lstibůrek.
23. Modelling Thermal Anisotropy and Energy Balance in Forests. Jennifer Susan Adams, Alexander Damm, Kathrin Naegeli.
24. Use Of Laboratory And Image Spectroscopy To Distinguish Ecotypes And Detect Drought Stress In Scots Pine. Filip Raasch, Lucie Kupková, Zuzana Lhotáková, Miroslav Barták, Eva Neuwirthová, Lucie Červená, Jana Albrechtová.
25. Tree Species Classification from AVIRIS-NG Hyperspectral Imagery using Convolutional Neural Networks. Benjamin Zehnder, Mathias Kneubühler, Anna K Schweiger.
26. Investigating the Potential of Thermal Infrared UAS Imagery for Detecting the Health Status of Pine Trees (*Pinus Brutia*) in Lefka Ori National Park in West Crete, Greece. Azeb Gidey Kahsay, Elnaz Neinavaz, Panagiotis Nyktas.
27. Linking Airborne Hyperspectral AVIRIS Reflectance with Plant Traits Affected by Bark Beetle Infestation. Martin Schlerf, Henning Buddenbaum, Johannes Stoffels, Brian Epie, Zavud Baghirov, Max Gerhards, Christian Bossung, Jan Rommelfanger, Achim Röder, Thomas Udelhoven.

Posters 2b: Unlocking the potential of generic spectral libraries for remote sensing applications

28. Development of a Multitemporal Urban Spectral Library for a Typical Mediterranean City. Dimitris Tsirantonakis, Giannis Latzanakis, Emmanouil Panagiotakis, Konstantinos Politakos, Nektarios Spyridakis, Dimitris Poursanidis, Nektarios Chrysoulakis.

Posters 2c: Concepts, activities and processing developments for missions and sensors

29. EnMAP Observation Planning and Data Access for Scientific Users. Nicole Pinnel, Helmut Mühle, Anett Gidofalvy, Daniele Dietrich, Emiliano Carmona, Peter Schwind, Martin Bachmann, Martin Habermeyer, Tobias Storch, Sabine Chabrillat, Sebastian Fischer.
30. HyperEdu Online Learning Initiative for Imaging Spectroscopy: Concept, Current Status, Lessons Learned and Future Perspectives. Arlena Brosinsky, Saskia Foerster, Charlotte Wilczok, Theres Kuester, Robert Eckardt, Michael Bock.
31. Evaluation of PRISMA Imaging Spectroscopy Mission Data over Different Natural Targets. Roberto Colombo, Claudia Giardino, Beniamino Gioli, Federico Carotenuto, Federica Braga, Mariano Bresciani, Mirco Boschetti, Loredana Pompilio, Monica Pepe, Daniela Meloni, Stefano Pignatti, Giuseppe Satalino, Sergio Cogliati, Giulia Tagliabue, Cinzia Panigada, Roberto Garzonio, Biagio Di Mauro, Simone Pascucci, Patrizia Sacco, Ettore Lopinto, Lorenzo Genesio, Franco Miglietta.

Posters



32. Field Intercomparison of Drone-borne Hyperspectral Systems – Towards Reproducibility Of Surface Reflectance Measurements. Magdalena Smigaj, Benjamin Brede, Harm Bartholomeus, Lammert Kooistra.
33. Automatic Bore Sight Angle Determination And Georeferencing For Dual Push Broom Sensors. Andreas Schmidt.
34. Validation of Atmospheric Correction of DESIS L2A Products: comparison of hyperspectral and Sentinel-2-like multispectral sensors. Raquel de los Reyes1, Bringfried Pflug, Jerome Louis, Kevin Alonso, Martin Bachmann1, Emiliano Carmona, Maximilian Langheinrich, Rupert Mueller, Rudolf Richter.
35. Assessing the Land Use / Land Cover Classification Performances of Multispectral and Hyperspectral Data: Landsat and PRISMA Satellite. Buse Tirmanoglu, Aylin Tuzcu Kokal, Nebiye Musaoglu.
36. Eradiate: Modern radiative transfer simulation software for Earth observation. Vincent Leroy, Yvan Nollet, Sebastian Schunke, Nicolas Misk, Yves Govaerts.
37. Validation of Sentinel-2 Atmospheric Correction Using Radiative Transfer Models Emulators. Daria Malik, Jorge Vicent Servera, Juan Pablo Rivera Caicedo, Jochem Verrelst, Luca Martino, Beatrice Berthelot.
38. DESIS And Copernicus Sentinel-2 Surface Reflectance, AOT and WV Products Compared To Measurements On Ground. Bringfried Pflug, Raquel de los Reyes, Rudolf Richter, Maximilian Langheinrich.
39. Overview and Application of the Atmospheric Look-up Table Generator (ALG) tool (v3. 2). Jorge Vicent Servera, Jochem Verrelst, Beatrice Berthelot, Jose Moreno.
40. Status of the IEEE P4001 Working Group for Standardization in Hyperspectral Imaging. Trond Løke, Chris Durell, John R Gilchrist, Torbjørn Skauli.
41. Disentangling Random And Correlated Radiometric Uncertainty Contributors In Sentinel-2 L1C TOA Reflectance Factors. Lukas Valentin Graf, Javier Gorroño, Achim Walter, Helge Aasen.

Posters 2d YSA: Presentation of candidate posters for young scientist award

42. From Spectra to Functional Plant Traits: Aggregating Multiple, Heterogeneous and Sparse Data Sets for a Generalizable Multi-trait Model. Eya Cherif, Teja Kattenborn, Hannes Feilhauer.
43. Using Simulated Grassland Communities And Radiative Transfer Models To Test The Spectral Variation Hypothesis. Antonia Dorea Ludwig, Daniel Doktor, Hannes Feilhauer.
44. Planting Contexts Affect Urban Tree Species Classification Using Airborne Hyperspectral Imagery. Dengkai Chi, Jingli Yan, Ben Somers.
45. Asymmetry of Leaf Internal Structure Affects PLSR Modelling of the Anatomical Traits from VIS-NIR Leaf Level Spectra. Eva Neuwirthova, Zuzana Lhotakova, Lucie Cervena, Jana Albrechtova.
46. Hyperspectral Analysis Of The Contaminants On The Surface Of Ganymede. Katherine Villavicencio Valero, Pascal Allemand, Fabien Dubuffet.

Friday, 24 June 2022: 14:45 - 15:45

Posters 3a: Analyzing and mapping biodiversity with imaging spectroscopy data

47. Mapping Succession Species Using Airborne Hyperspectral Data – Different Reference Preparation Approaches and Their Impact on Classification Accuracy. Aleksandra Radecka, Katarzyna Osińska-Skotak, Hubert Piórkowski.
48. Comparison Of HySpex Airborne Hyperspectral Images With Multi-temporal Sentinel-2 Compositions For Mapping The Dominant High-mountain Plant Communities. Marcin Kluczek, Bogdan Zagajewski, Marlena Kycko.

Posters 3b: Recent software and sensors developments

49. Unsupervised Detection in Hyperspectral Imagery. Daniel C. Heinz, Thomas Bahr, David Streutker, Greg Terrie, Michael Ingram, Nicolai Holzer.

Posters



Posters 3c: Measuring and understanding solar-induced fluorescence as an indicator for actual photosynthesis and vegetation function

50. 3D Forest Reconstruction From Terrestrial Laser Scanning Of Trees For Solar-induced Chlorophyll Fluorescence Sensitivity Analysis. Ruzena Janoutova, Zbynek Malenovsky, Lucie Homolova, Jan Novotny, Barbora Navratilova, Miroslav Pik

51. Winter Wheat Case Study In A Field In Germany On The Suitability Of Optical Remote Sensing Parameters To Track GPP Dynamics From Sub-diurnal To Seasonal Scale. Vera Krieger, Bastian Siegmann, Joe Berry, John Gamon, Juan Quiros, Kelvin Acebron, Laura Junker-Frohn, Marco Celesti, Marius Schmidt, Mirco Migliavacca, Paul Naethe, Ran Wan, Tommaso Julitta, Yelu Zeng, Uwe Rascher

52. Solar-Induced chlorophyll Fluorescence (SIF) and its relation with Soil Moisture (SM) and Gross Primary Productivity (GPP) at European scale during a heat wave. Juan Quiros-Vargas, Bastian Siegmann, Alexander Damm, Cosimo Brogi, Philipp Köhler, Roel Van Hoolst, David Martini, Onno Muller, Uwe Rascher

53. Design For An Active Laser-Induced Fluorescence System On Unmanned Aerial Vehicles. Hasib Mustafa, Harm Bartholomeus, Lammert Kooistra.

Posters 3d: Imaging spectroscopy for raw materials and the energy transition

54. The Influence Of Illumination Elevation Angle On Mineral Classification Of Hyperspectral Images. Tingxuan Jiang, Harald van der Werff, Frank van Ruitenbeek, Mark van der Meijde.

55. Hyperspectral Mapping of Clay Industrial Minerals With AHS Airborne Data. Eduardo García-Meléndez, Montserrat Ferrer-Julià, Mercedes Suárez, Javier García-Rivas, Emilia García-Romero, Elena Colmenero-Hidalgo.

56. The Contribution of Shortwave and Longwave Infrared Imaging Spectroscopy (IRIS) to Mapping Alteration Indicator Minerals in Geothermal Reservoirs. Christoph Hecker, Kartika Palupi Savitri.

57. Airborne Imaging Spectrometry Using AHS Data For The Evaluation Of The Spatial Distribution Of Sulfate Minerals. Eduardo García-Meléndez, Montse Ferrer-Julià, Asun Riaza, Elena Colmenero-Hidalgo, Antonio Espín de Gea, Juncal A. Cruz.

Posters 3e: Imaging spectroscopy of cropland and grassland

58. Application of Hyperspectral Imaging for Estimation of Potassium Content Across Different Plant Species. Anna Siedliska, Piotr Baranowski, Jaromir Krzyszczak, Grażyna Supryn.

59. Crop Identification Using One-Shot Airborne Hyperspectral Images. Beata Hejmanowska, Piotr Kramarczyk.

60. Detection of Grassland Degradation in Azerbaijan by Combining Multi-decadal NDVI Time Series and Fractional Cover Estimates Based on DESIS Data. Sarah Asam, Frederic Schwarzenbacher, David Marshall, Martin Bachmann.

61. Tempo-spatial Dynamics of Multispectral Assessment of Agricultural Field Heterogeneity. Quirina Noëmi Merz, Achim Walter, Helge Aasen.

62. Feature Selection And Classification Of Infected Tubers Using Hyperspectral Images And Compressive Sensing. Janez Lapajne, Matej Knapič, Saša Širca, Barbara Gerič Stare, Nik Susič, Uroš Žibrat

Tuesday, 21 June 2022, Tutorial Day

	From Box to Flight to Data (UAV demo flight) [Start at pillar forum in front of Building H]
10:00 - 12:00	Hyperspectral processing routines for HySpex airborne data [Building A42, 131] Programmatic Access to the Spectral Information System SPECCHIO [Building C4, 2.06] Hands-on EnMAP-Box: Imaging Spectroscopy with QGIS [Building H]
13:00 - 15:00	UAV IS data processing and analysis [Building C4, 2.06] The ENVI Modeler: User-Defined Workflows for Hyperspectral Analysis [Building A42, 131] Hands-on EnMAP-Box: Imaging Spectroscopy with QGIS [Building H]
15:30 - 17:30	Introduction to the EnGeoMAP/EnSoMAP toolboxes [Building H]
15:30 - 18:00	The ARTMO toolbox for analyzing and processing of remote sensing data [Building C4, 2.06]
12:00 and 15:30	<i>Guided tours Science Park Telegrafenberg (1h). Start of tours at pillar forum in front of Building H.</i>
10:00 - 18:00	Registration [Building H, Foyer]

Wednesday, 22 June 2022, Workshop Day 1

8:00 - 9:30	Registration and Coffee [Building H, Foyer]
9:30 - 10:00	Welcome [Building H, Plenary Hall]
10:00 - 10:30	Keynote 1: Multi-sensor synergies for crop stress detection - on the role of imaging spectroscopy [Building H, Plenary Hall]
10:30 - 11:00	Coffee [Building H, Posters area]
11:00 - 12:30	Plenary Session: Mission updates [Building H, Plenary Hall]
12:30 - 13:30	Lunch and group photo [Building H]
13:30 - 15:00	SpecSess VegTraits [H] SpecSess Soils [A56] SpecSess Water [A45]
15:00 - 15:30	Coffee [Buildings H, A56, A45]
15:30 - 16:45	SpecSess VegTraits [H] SpecSess SoilContamination [A56] SpecSess Water [A45]
16:45 - 18:00	Poster Session [Building H, Posters area]
18:00 - 20:00	Icebreaker [Building H, upper level]

Thursday, 23 June 2022, Workshop Day 2

8:30 - 9:00	Keynote 2: The future for environmental change research in a global context: added value of spaceborne imaging spectroscopy [Building H, Plenary Hall]
9:00 - 10:00	Moderated panel discussion: Imaging spectroscopy towards 2030 [Building H, Plenary Hall]
10:00 - 11:00	Posters and coffee [Building H, Posters area]
11:00 - 12:15	Plenary Session: New pathways in the analysis and application of (imaging) spectroscopy [Building H, Plenary Hall]
12:15 - 13:15	Lunch [Building H]
13:15 - 14:45	SpecSess ForestTraits [H] ThemSess SensorMission [A56] Spec_Sess GenericLibs [A45]
14:45 - 15:15	Coffee [Building H, Posters area]
15:15 - 15:30	Plenary session: Young Scientist Award posters [Building H, Plenary Hall]
15:30 - 17:00	Plenary session: Young Scientist Award orals [Building H, Plenary Hall]
17:30 - 18:00	Bus transfer from venue to Schloss Sanssouci (meeting point for busses at entrance of Science Park)
18:00 - 19:00	Guided outdoor tours in Park Sanssouci and special opening time in Historic Mill
19:00 - 22:00	Conference Dinner: Joint evening at the Mövenpick restaurant near Schloss Sanssouci

Friday, 24 June 2022, Workshop Day 3

8:30 - 9:45	ThemSess Biodiv [Building H, Plenary Hall]	ThemSess Developments [A56]
9:45 - 10:15	Coffee [Buildings H, A56, A45]	
10:15 - 11:30	SpecSess Fluorescence [H]	ThemSess Campaigns [A56]
11:40 - 12:00	EARSeL note and award ceremony	
12:00 - 12:30	Keynote 3: Ecological Insights from Imaging Spectroscopy of Foliar Functional Traits [Building H, Plenary Hall]	
12:30 - 13:15	Lunch [Building H]	
13:15 - 14:45	ThemSess CropsGras [Building H, Plenary Hall]	
14:45 - 15:45	Posters and coffee [Building H, Posters area]	
15:45 - 16:00	Workshop closing	

Colour Coding

Special and thematic sessions	Breaks
Plenary session	Social programme
Poster sessions / Registration	Tutorials

Albert Einstein Science Park

