# ESA EO Φ-week

**Preliminary Programme Overview. Status 12.09.2019**

**note: Keynote Speeches 20' ; Oral Presentations 15'**

## MONDAY 09 September 2019

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| 11.30 | Registration |
| 13.30 | Opening Session |
| 18.30 | Icebreaker |
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## Day 2 - TUESDAY 10 SEPT

### AI4EO (1) - 09.15-10.50h - CHAIRS: Mihai Datcu (DLR) , Alessio Rucci (Tre-Altamira)

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| KEYNOTE | Bianca Hoersch | ESA | Artificial Intelligence @ESA – Game Changer for Space |
| | Marc Rußwurm | Technical University Of Munich | Cloud-Robust Segmentation of Remote Sensing Imagery with Convolutional LSTMs |
| | Francesco Lattari | Politecnico Di Milano | Deep Learning for SAR Image Despeckling |
| | Georgios Balasis | National Observatory Of Athens | A Machine Learning Approach for Automated ULF Wave Recognition |
| | Mihai Datcu | DLR | Explainable Deep Learning for SAR Data |
| | Aida Alvera Acarate | GHER, University Of Liege | DINCAE: reconstruction of missing satellite data with a convolutional auto-encoder |
| 10:50 | | | COFFEE BREAK |

### AI4EO (2) - 11.30-13.05h - CHAIRS: Chris Stewart (ESA) , Alyssa Harris (Development Seed)

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| KEYNOTE | Miguel Mahecha | Max-planck-institute For Biogeochemistry | Understanding the Earth System with machine learning and system-based modelling |
| | Marian Neagul | West University of Timisoara | Hugin - A machine Learning Experimentation Tool for Earth Observation. Applications for Forestry |
| | Carsten Brockmann | Brockmann Consult GmbH | Inversion of Radiative Transfer by ML in Ocean Colour Retrieval |
| | Ana Del Aguila | DLR | AI4RTM: Artificial Intelligence for Radiative Transfer Models |
| | Begum Demir | Technische Universität Berlin | BigEarthNet: A New Large-Scale Sentinel-2 Benchmark Archive to Drive Deep Learning Studies for Earth Observation |
| | Nuno Cesar De Sa | Leiden University | Integrating multi-sensor Remote Sensing, field and spectroscopy for multitemporal estimation of grassland biophysical parameters under grazing pressure |
| | | | DISCUSSION |
| 13:30 | | | LUNCH |

### AI4EO (3) - 14.30-16.05h - CHAIRS: Tanya Scalia (ASI) , Miguel Mahecha (Max Planck Institute)

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| KEYNOTE | Alison Lowndes | NVIDIA | Obtaining & accelerating insight from downstream data with GPUs |
| | Alistair Francis | UCL | An Assessment of Deep-Learning Based Cloud Masking for Sentinel-2 with CloudFCN |
| | Nicolas Longepe | CLS | On the use of Deep Learning for ocean SAR image classification and segmentation |
| | Thomas Kræmer | Uit The Arctic University Of Norway | Iceberg detection in Sentinel-1 Extra Wide swath images: deep learning vs. statistical methods |
| | Md Saimoom Ferdous | Memorial University Of Newfoundland | Electromagnetic Backscatter Modelling of Icebergs: Validation through C-Band SAR Classifiers |
| | David Malmgren-Hansen | Technical University Of Denmark | Automating satellite-based ice charting using AI |
| 16:05 | | | COFFEE BREAK |

### AI4EO (4) - 16.30-18.15h - CHAIRS: Andreas Vollrath (ESA) , Amaya Atencia Yepez (GMV)

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| KEYNOTE | Francisco Doblas-Reyes | Barcelona Supercomputing Centre | Global Climate and Air Quality Research for Services and Operations |
| | Jakub Nalepa | KP Labs | Automated segmentation of hyperspectral satellite images using machine learning: how to deal with limited (or lacking) ground-truth data? |
| | Jonathan Reay | GMV | BIGMIG: Exploring the Application of Deep Recurrent and Convolutional Neural Networks to EO Data for Migration Prevention. |
| | Moataz Ahmed | ICHEC | Data Augmentation Techniques for Satellite Image Super Resolution using Deep Learning |
| | Alexis Letulier | European Union Satellite Centre | Artificial Intelligence for Space and Security Applications |
| | | | DISCUSSION, CONCLUSIONS OF THE DAY |
| 18:15 | | | **e-poster** |

## Day 3 - WEDNESDAY 11 SEPT

### AI4EO (5) - 9.15-10.50h - CHAIRS: Steffen Fritz (IIASA) , Aida Alvera-Azcárate (University Of Liège)

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| KEYNOTE | Danielle Wood | Mit Media Lab | The Role of Space Technology to Support Sustainable Development |
| | Thomas Stark | Technical University Munich | Towards global slum mapping from space: Detecting urban poverty using a transfer learned fully convolutional network |
| | Victor Maus | Vienna University Of Economics And Business | Satellite Earth Observations for Impact Assessment of Global Supply Chains |
| | Jose Manuel Delgado Blasco | Rhea S.p.a. | Free commercial Cloud and EO services: the OCRE project opens the gates to the research community |
| | Matthieu Molinier | VTT | Unsupervised LSTM-AE and Harmonic Models for Improving Timeliness of Forest Logging Notifications With Dense Satellite Image Time Series |
| | Liliana Castillo Villamor | Amigrow | AMIGROW: Multi-sourced data analytics for smarter and more sustainable agriculture |
| 10:50 | | | COFFEE BREAK |

| AI4EO (6) - 11.30-13.05h - CHAIRS: Sveinung Loekken (ESA) , Daniela Faur (Spacetech) | | | |
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| KEYNOTE | Gunther Lautenschläger | Airbus Defence & Space | Sentinel-2, Big Data in Space |
| | Marc Lubej | Sinergise | Spatio-Temporal Deep Learning: Application to Land Cover Classification |
| | Michael Riffler | GEOVILLE | Boosting automatic land cover mapping capacities – improving the performance of deep learning models with new multi-dimensional land cover dynamics indices based on full resolution Sentinel data |
| | Mónica Estébanez Camarena | TU Delft | Schools and Satellites: A Reliable Rainfall Product for West Africa (SAS) |
| | Alexis Hannah Smith | Imgeospatial | Automating the IMGeospatial Data Pipeline |
| | Francesco Lattari | Politecnico Di Milano | Recurrent Neural Networks for Trend Change Detection in InSAR Time Series |
| | | | DISCUSSION |
| 13:30 | | | LUNCH |
| AI4EO (7) - 14.30-16.05h - CHAIRS: Artur Nowakowski (ESA) , Inge Jonckheere (FAO) | | | |
| KEYNOTE | Julien Cornebise | Element AI | Artificial Intelligence for at-scale Monitoring of Human Rights and Environment |
| | Fabian Kunkel | Unibap AB | Bringing Industrial Edge Computing to Space |
| | Matt George | Planet | Large Scale Spatio-temporal Analytics from Daily Global Coverage of the Earth's Landmass |
| | Francois de Vieilleville | Agenium Space | Simplifying Deep Learning networks for on board processing |
| | Mattia Varile | AIKO | Deep Learning for Earth Observation: Applications for the Intel Myriad X VPU |
| | Momchil Iordanov | JRC | Monitoring crop phenology with street-level imagery using computer vision |
| 16:05 | | | COFFEE BREAK |
| AI4EO (8) - 16.30-18.05h - CHAIRS: Anca Anghelea (ESA) , Delphine Nobileau (Capgemini) | | | |
| KEYNOTE | Marco Trombetti | Translated | Startup Experience Within The AI Sector |
| | Kathryn Berger | Agrimetrics | In-season crop mapping using Sentinel-1 |
| | Antonio Tabasco | GMV | Smart integrated data analysis for agriculture support decision-making and management – Sensing4Farming |
| | Mathew Yarger | Iota Foundation | The New Age of Collective Sharing: Incentivizing Open Data and Algorithms |
| | | | DISCUSSION, CONCLUSIONS OF THE DAY |
| 18:05 | | | e-poster |

| Day 4 - THURSDAY 12 SEPT | | | |
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| EO Next  (1) - 9.15-10.50h - CHIARS: Amanda Regan (ESA) , Fabio Dell'Acqua (Univeristy of Pavia) | | | |
| KEYNOTE | Marco Esposito | Cosine Remote Sensing | HyperScout-2: highly integration of hyperspectral and thermal sensing for breakthrough in-space applications |
| | Leonardo Amoruso | Planetek Italia S.r.l. | AI Express In-orbit Smart Services for Small Satellite |
| | Victor Sonck | ML6 | The Future of Edge Inference: Edge TPU |
| | Massimiliano Pastena | ESA | PhiSAT-1 and FSSCat: ESA Earth Observation Directorate NewSpace initiatives |
| | Alizee Malavart | Surrey Satellite Technology Ltd | DarkCarb: An Innovative Approach to Infrared Imaging |
| | Charles Black | Sen | A freemium consumer model for Earth Observation? It's time to democratize space for the benefit of all humanity. |
| 10:50 | | | COFFEE BREAK |
| EO Next  (2) - 11.30-13.05h - CHAIRS: Michele Castorina (ESA) , Michael Schultz (Heidelberg University) | | | |
| KEYNOTE | Peter Platzer | Spire Global Luxembourg | Spire's Terraflop Brain in Spae for In-situ AI |
| | Jacqueline Le Moigne | NASA | NASA Earth Science Technology Office (ESTO) Advanced Information Systems Technology Program (AIST) New Observing Strategies (NOS) Testbed |
| | Davide Castelletti | Capella Space | Capella's hourly-revisit VHR SAR constellation for multi-temporal change detection |
| | Murray Kerr | DEIMOS | EO-ALERT: A Novel Flight Segment Architecture for EO Satellites Providing Very Low Latency Data Products |
| | Andrew Hanna | Blacksky | Persistent Revisit Magnified by Machine Learning and the BlackSky Constellation |
| | Adina Gillespie | GHGSat | Monitoring of Greenhouse Gas Emissions From Facilities at High Resolution With the GHGSat-D Satellite |
| | | | DISCUSSION |
| 13:30 | | | LUNCH |
| Research Infrastructure (1) - 14.30-16.05h - CHAIRS: Patrick Griffiths (ESA) , Monika Krzyzanowska (Cloudferro) | | | |
| KEYNOTE | Renaud Allioux | Earthcube | From 15 years to 2 months of Mapping: How AI pushes the boundaries of image processing |
| | Domenico Grandoni | e-geos | CLEOS (Cloud Earth Observation Services), e-GEOS concept of Satellite Data Platform |
| | Alejandro Mousist | Thales Alenia Space In Spain | EO Scanning with Deep Learning on large areas efficiently |
| | Alyssa Harris | Development Seed | Minable Metadata as Building Blocks for ATBDs |
| | Christian Briese | EODC | Enabling access to EO within the European Open Science Cloud |
| | Bernard Valentin | Space Applications Services | Multiplatform application development and execution |
| 16:05 | | | COFFEE BREAK |

| Research Infrastructure (2) - 16.30-18.15h - CHAIRS: Philippe Mougnaud (ESA), Sebastian Clerc (ACRI-ST) | | | |
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| KEYNOTE | Gregory Giuliani | University Geneve | SWISS Data Cube |
| | Peter Baumann | Rasdaman | United We Stand: Datacube Federations for Planetary-Scale Location-Transparent Fusion |
| | Gunnar Brandt | Brockmann Consult Gmbh | How Virtual Laboratories and Analysis-ready data foster research in Earth System Sciences |
| | Oliver Baines | University Of Nottingham | Geodiversity: Buffering Arctic Plant Communities Against Rapid Climatic Change? A Use Case for the Earth System Data Lab |
| | Felix Cremer | Friedrich-Schiller Universität Jena | pyroSAR: a python package to provide Sentinel-1 time series in data cubes |
| | DISCUSSION, CONCLUSIONS OF THE DAY | | |
| 18:15 | e-poster | | |

| Day 5 - FRIDAY 13 SEPT | | | |
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| Research Infrastructure (3) - 09.15-10.15h - CHAIRS: Guenther Landgraf (ESA) , Audrey Paccini (CS) | | | |
| | Remi Dannunzio | FAO | The Use of FAO Open Source Tools and Platforms for Capacity Building: Challenges and Way Forward |
| | Robin Expert | Airbus Ds Geo Intelligence | Airbus Open Innovation Innitiative |
| | Alyssa Harris | Development Seed | The Multi-Mission Algorithm and Analysis Platform: Sharing Data and Algorithms Across Agencies and Scientists |
| | Luis De Juan | Capgemini | Resource management of image-processing workflows with Deep Reinforcement Learning |
| 10:35 | COFFEE BREAK | | |
| Research Infrastructure (4) - 11.00-12.00h - CHAIRS: Christian Briese (EODC) , Domenico Grandoni (e-geos) | | | |
| | Jayanti Sharma | MDA | Creating an End-to-End SAR Deep Learning Pipeline |
| | Renne Terqujeff | VTT | Forestry TEP Enables EO Service Providers to Boost Their Operations |
| | Stefano Natali | Sistema Gmbh | TOP: Your playground for Copernicus atmospheric sciences data |
| | DISCUSSION, SUMMARY OF ALL CONCLUSIONS FROM SESSIONS & SIDE EVENTS | | |