



EARTH OBSERVATION SUMMER SCHOOL 2026

Data Science for Earth Observation: Hands-on
Training in Python, R and Julia

AGENDA



Open Geo HUB
Connect • Create • Share • Repeat

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FACULTY of
AERONAUTICS and
ASTRONAUTICS

Day 0: Sunday, August 16, 2026

Time	
17:00 - 20:00	Ice Breaker: Alman Bira Evi Beyoğlu

Day 1: Monday, August 17, 2026

Time	Lecture Room 1	Lecture Room 2
8:00 - 9:00	REGISTRATIONS	
9:00 - 10:00	Plenary introduction, including introduction to the hackathons by Tom Hengl — Keynote: “Introduction to ITU” by ITU Rector Prof. Dr. Hasan Mandal	
10:00 - 10:30		
10:30 - 11:00	COFFEE BREAK	

11:00 - 12:00	Lecture: “Fundamentals of Satellite Image Quality and Interpretation” by Kaan Kalkan	
12:00 - 13:30	LUNCH BREAK	
13:30 - 15:00	Tutorial: “Building reproducible spatial workflows in R” by Jakub Nowosad	Tutorial: “Crash Course on SpatioTemporal Asset Catalogs (STAC) and Cloud-Optimized Geospatial Data Access” by Mustafa Serkan Isik
15:00 - 15:30	COFFEE BREAK	
15:30-16:30	Introduction to the Hackathons	
16:30 - 18:00	Research speed dating	

Day 2: Tuesday, August 18, 2026

Time	Lecture Room 1	Lecture Room 2
9:00 - 9:30	Keynote: “Türkiye’s Remote Sensing Ecosystem: Capabilities, Infrastructure and Future Vision” by Kaan Kalkan	
9:30 - 10:30	Lecture: “Monitoring and Benchmarking Geospatial Workflows for Efficient and Reproducible Earth Observation” by Serkan Girgin	
10:30 - 11:00	COFFEE BREAK	

11:00 - 12:00	Lecture: “Introduction to Julia” by Daniel Loos	
12:00 - 13:30	LUNCH BREAK	
13:30 - 15:00	Tutorial: “Flood detection using satellite data (Part I: Introduction)” by Krzysztof Dyba	Tutorial: “GRASS as a GIS” by Ondrej Pesek
15:00 - 15:30	COFFEE BREAK	
15:30-17:00	Lecture: “Seeing the Earth in Microwaves: SAR Physics, Operational Missions, and the Road Ahead” by Esra Erten	Tutorial: “Flood detection using satellite data (Part II: Machine learning)” by Krzysztof Dyba
17:00 - 18:00	Hackathon Consultation	

Day 3: Wednesday, August 19, 2026

Time	Lecture Room 1	Lecture Room 2
9:00 - 9:30	Keynote: “Scaling High-Resolution Grassland Insights: Delivering 10 m Daily Productivity Data in Near-Real-Time using Sentinel-2” by Leandro Parente	
9:30 - 10:30	Lecture: “Where can your spatial model be trusted? Reliable validation of spatial machine learning” by Jakub Nowosad	

10:30 - 11:00	COFFEE BREAK	
11:00 - 12:00	Lecture: “Data Cubes in Julia” by Daniel Loos	
12:00 - 13:30	LUNCH BREAK	
13:30 - 15:00	Tutorial: Introduction to TorchGeo: Deep learning with geospatial data” by Adam Stewart	Tutorial: “Mining existing land cover products for ensemble classification” by Mateo Moreno
15:00 - 15:30	COFFEE BREAK	
15:30-17:00	Tutorial: “Time-series analysis using R terra packages” by Tomislav Hengl	Tutorial: “Machine Learning Models with Uncertainty Quantification” by Yu-feng Ho
	Social Dinner (Seyir Restaurant in the Campus)	

Day 4: Thursday, August 20, 2026

Time	Lecture Room 1	Lecture Room 2
9:00 - 9:30	Keynote: “A new hope: Breaking the barriers of earth observation with open data, open processing capacity, open code and AI” by András Zlinszky	
9:30 - 10:30	— Lecture: “All models are NOT created equal: Evaluation of model performance” by Adam Stewart	
10:30 - 11:00	COFFEE BREAK	
11:00 - 12:00	Discussion panel: “The art of coding in the age of Mythos: is English the only language you need?”	
12:00 - 13:30	LUNCH BREAK	
13:30 - 15:00	Tutorial: “Boosting your geocomputation workflow using Pi coding agent” by Leandro Parente	Tutorial: “Spatial visualization with tmap” by Jakub Nowosad
15:00 - 15:30	COFFEE BREAK	
15:30-17:00	Tutorial: “Benchmarking Geospatial Workflows with Geobench: A Hands-on Tutorial” by Serkan Girgin	Tutorial: “Analysis of land surface temperature based on thermal satellite data” by Krzysztof Dyba
17:00 - 18:00	Hackathon Consultation	

Day 5: Friday, August 21, 2026

Time	Lecture Room 1	Lecture Room 2
8:30 - 9:30	Lecture: “Preprocessing with GDAL: A gentle introduction to the command line” by Adam Stewart	
9:30 - 10:30	— Lecture: “Open satellite imagery and environmental datasets in Copernicus Browser” by András Zlinszky	
10:30 - 11:00	COFFEE BREAK	
11:00 - 12:30	Tutorial: “Pixels to Patterns: ML Data Preparation using openEO in Copernicus Data Space Ecosystem” by Pratichhya Sharma	Tutorial: “Deep Learning Guided Crop Boundary Delineation from Multimodal Satellite Images” by Mehmet Furkan Celik
12:30 - 13:30	LUNCH BREAK	
13:30 - 15:00	Tutorial: “Derive and Apply Multiscale Terrain Variables in Environmental Research” by Yufeng-Ho	Tutorial: “How to become an EO coder using AI: Sentinel Hub custom scripts and CDSE Jupyter Lab” by András Zlinszky
15:00 - 15:30	COFFEE BREAK	
15:30-17:00	3mins pitch (top 10) Closing and announcement of hackathon winners by Tom Hengl	

Day 6: Saturday, August 22, 2026

Time	
10:00 - 17:00	Field Excursion: Visiting the Prince Island with ferry