

GTIF

Demonstrator for Austria

Green Transition Information Factory

Project achievements

NoR Sponsoring Report

EOX IT Services <https://eox.at>

 @EOX-A

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Project Overview <https://gtif.esa.int/>

- Development started in Spring 2022, first full release in May 2023
- High visibility and recognition in various events
- Aimed to accelerate Austria's transition towards green energy and sustainable practices
- Established a centralized hub for information dissemination and collaboration among stakeholders
- Focused on raising awareness, fostering innovation, and driving policy change
- Initial seed for GTIF Kick Starters initiative concepts


Anca Anghel @ancapopescu7 · Apr 25, 2023
 #GTIF Green Transition Information Factory #demo by @pdgriffiths81 at the @ESA_EO booth @EuroGeosciences #egu2023 #egu23 #earthobservation



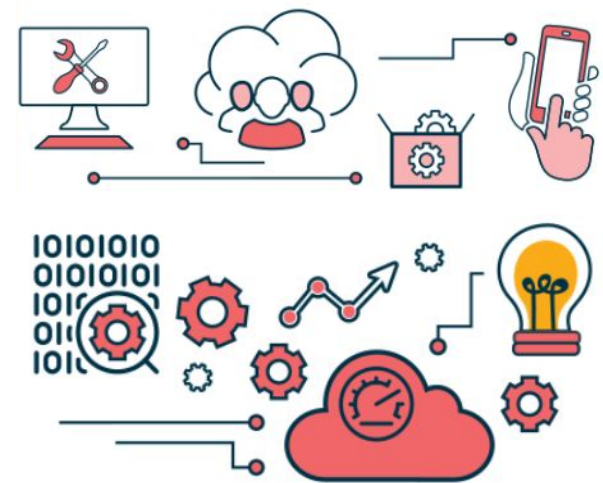


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GTIF Approach

Capture User Requirements → Address national priorities & information needs →

Develop GTIF capabilities:
Indicators, value-added products, interactive tools

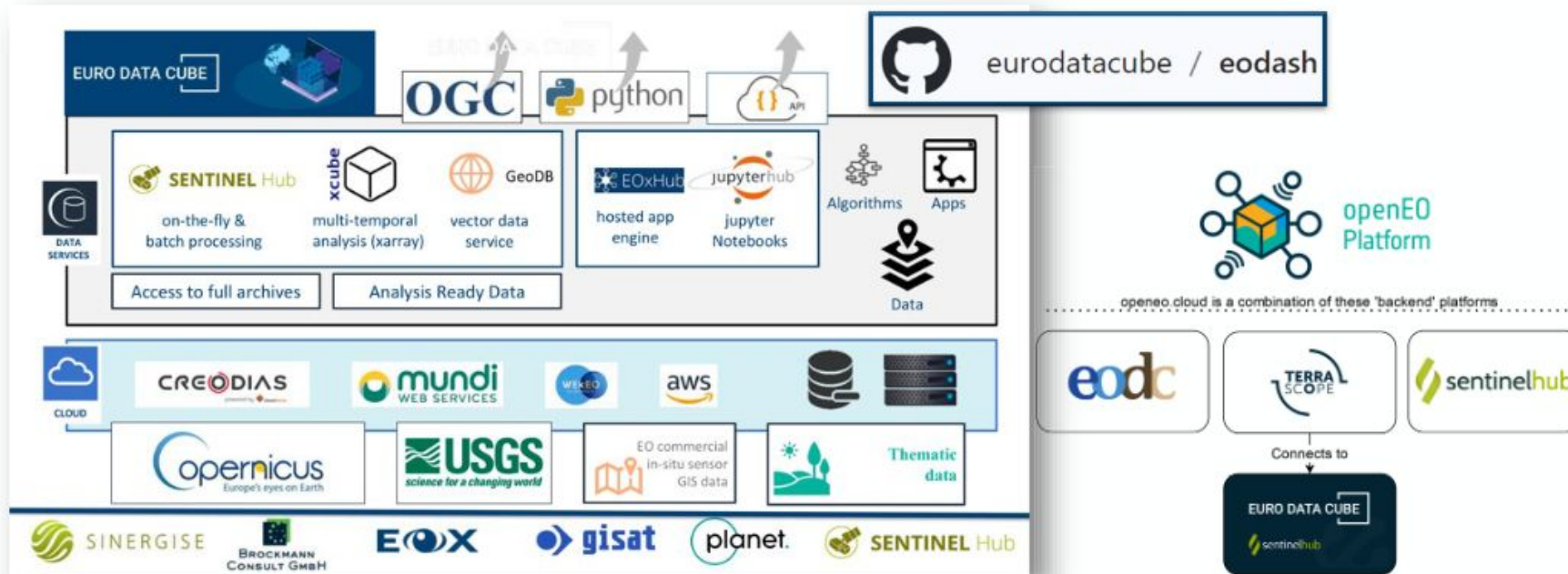


GTIF - Mayor Events

- User consultation at Ministry for Climate Action (BMK)
- EGU23 General Assembly (ESA booth)
- BiDS – Big Data from Space 2023 (ESA booth)



Architecture



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- Allowed data hosting and servicing (within EuroDataCube)
 - SentinelHub raster data hosting and rendering services
 - GeoDB vector data hosting and rendering services
 - Processing execution within EDC cloud (EOxHub)
 - Bucket storage capabilities within EDC cloud (EOxHub)
- Provided support from service providers
 - Data ingestion support and improvements
 - Process service implementation and deployment

GTIF - Data summary

Energy Transition domain

Name	Description	Datasets	Partner
Wind Energy	Site Suitability Assessment & Trade-off Explorer	Wind power density - similar approach to the New European Wind Atlas (NEWA)	DHI
Wind Turbines	Wind Turbine Detections	ML detections on S2 data	DHI
Solar Energy	Site Suitability Assessment & Trade-off Explorer	Solar irradiation - based on ERA5 reanalysis data (CCCS) and Copernicus EEA-10 (DEM)	DHI
Hydro Power	dynamic hydro reservoir monitoring /altimetry & optical)	Surface area (from optical S2 and SAR) Water level (from Sentinel 3A/B)	DHI
Micro Hydropower	Micro hydro energy potential analysis	Terra Climate and terrain data from Copernicus DEM	DHI

GTIF - Data summary

Mobility transition domain

Name	Description	Datasets	Partner
Coarse particulate matter (PM10)	Daily aggregated maps of PM10 concentration	CAMS Data (derived from multiple sources, satellite, stations, models, ...); Integration from AlpineEarth	DLR
Fine particulate matter (PM2.5)	Daily aggregated maps of PM2.5 concentration	CAMS Data (derived from multiple sources, satellite, stations, models, ...); Integration from AlpineEarth	DLR
Nitrogen Dioxide (NO2)	NO2 maps obtained from the Copernicus Sentinel 5p Satellite	Data extraction and aggregation of S5p	SISTEMA
Correlation explorer	AQ-mobility	Mobility data from phone app location data, binning to S5p pixels for correlation	Mindearth SISTEMA
Innsbruck hot-spot	Surface NO2 emissions	Surface NO2 emissions measured at Innsbruck Atmospheric Observatory (IAO)	ESA
Moving truck detections	Primary Roads;	ML detections based on Sentinel 2 images	Rhea
Human Mobility Patterns	Mobility data	Mobility data with hourly resolution over the whole Austria from phone app location data	Mindearth
Dynamic Human Presence	Mobility data	Mobility data with hourly resolution over the whole Austria from phone app location data	Mindearth

GTIF - Data summary

Sustainable cities domain

Name	Description	Datasets	Partner
Heat Island Trend Analysis		Land Surface Temperature (LST) data	OHB
Green Roofs (1)	Green Roof Impact score for selected cities	DOP RGBI 2018 – 2022 (provided by BML) and ALS DOM 1m (provided by BML), OpenStreetMap building outlines, Landsat Imagery of 2021	DLR
Green Roofs (2)	Green Roof Impact score for entire Austria	DOP RGBI 2018 – 2022 (provided by BML) and ALS DOM 1m (provided by BML), OpenStreetMap building outlines, Landsat Imagery of 2021	DLR
Solar Roofs (1)	Photovoltaic Power Production Potential, roof suitability and existing installations for selected cities	DOP RGBI 2018 – 2022 (provided by BML) and ALS DOM 1m (provided by BML), OpenStreetMap building outlines, Landsat Imagery of 2021	DLR
Solar Roofs (2)	Photovoltaic Power Production Potential, roof suitability and existing installations for entire Austria	DOP RGBI 2018 – 2022 (provided by BML) and ALS DOM 1m (provided by BML), OpenStreetMap building outlines, Landsat Imagery of 2021	DLR

GTIF - Data summary

Carbon accounting domain

Name	Description	Datasets	Partner
Forest map	Forest map with changes (2021)		Joanneum
Above Ground Biomass	from global estimate 2020		Gamma Remote Sensing
Annual forest mask	from 2022	ML detections based on Sentinel 2 data	Joanneum
Forest change detection	management parameters	ML detections based on Sentinel 2 data	Joanneum

GTIF - Data summary

EO Adaptation Services domain

Name	Description	Datasets	Partner
Alpine Drought Observatory		Data from ADO	ADO
Forest Disturbance Type		ML detections based on Sentinel 2 data	Joanneum
Forest Explorer	Assessment Tool		
Heat Explorer		Data from GeoVille	GeoVille
Snow Depth		Data from EO4Alps-Snow	eurac, sinergise, mobygis
Snow Water Equivalent		Data from EO4Alps-Snow	eurac, sinergise, mobygis