GREEN ENERGY TRANSITION

Evapotranspiration and Renewable Energy for Austria

Alexandra Bojor – 04.12.2025
SISTEMA GmbH

gefördert durch:
FFG
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Consortium

SISTEMA
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AIT AUSTRIAN INSTITUTE OF TECHNOLOGY

GRÜN STATT GRAU

BOKU UNIVERSITY

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Project Objectives

- To develop services that can support climate adaptation strategies through integration and monitoring of evapotranspiration using the existing satellite missions and in situ data
- To assist in decision making processes related to both climate adaptation and mitigation
- To integrate the services in the GTIF Platform and providing and extent demonstrators of GTIF Capabilities

GET-ET Services

There are two services:

- **Evapotranspiration Monitoring:** where high resolution evapotranspiration maps using Copernicus Sentinel-2 data are created, to support forest, agriculture and urban areas.

- **Energy Transition:** where data representing the energetic potential of all renewable energy technologies in Austria in the 2030 – 2040 timeframe will be provided.

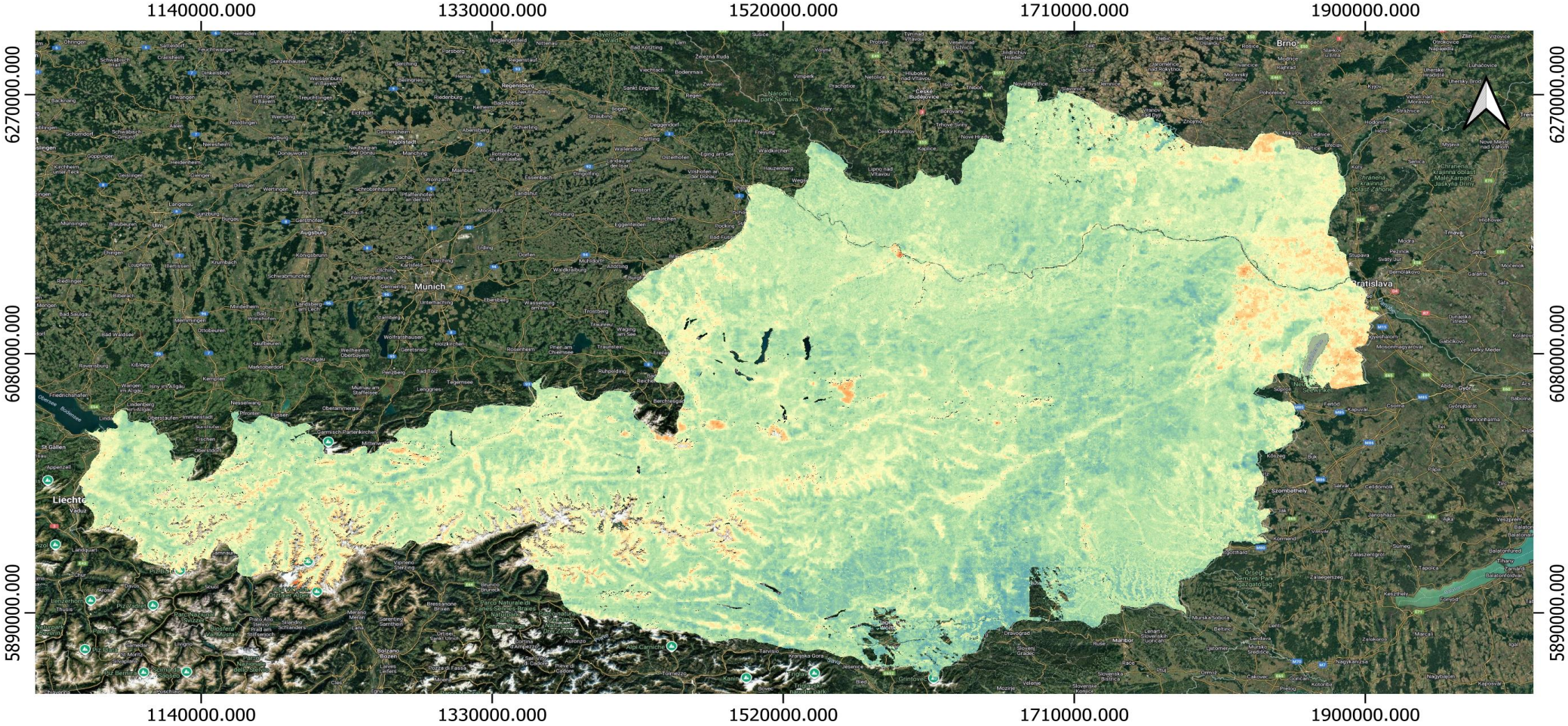
Evapotranspiration Monitoring

Objective: To perform evapotranspiration estimation maps over Austria at high resolution. The activity benefits from earth observation sensors such as Sentinel-2 and ECOSTRESS to implement a deep learning model.

Datasets:

- Sentinel-2: multispectral bands at 10 and 20m spatial resolution
- Copernicus DEM at 10m spatial resolution.
- ECOSTRESS: daily evapotranspiration in mm at 70m spatial resolution (as reference).

Austria average Evapotranspiration map (7-21 June 2025)



Why is ET information useful for Austria ?

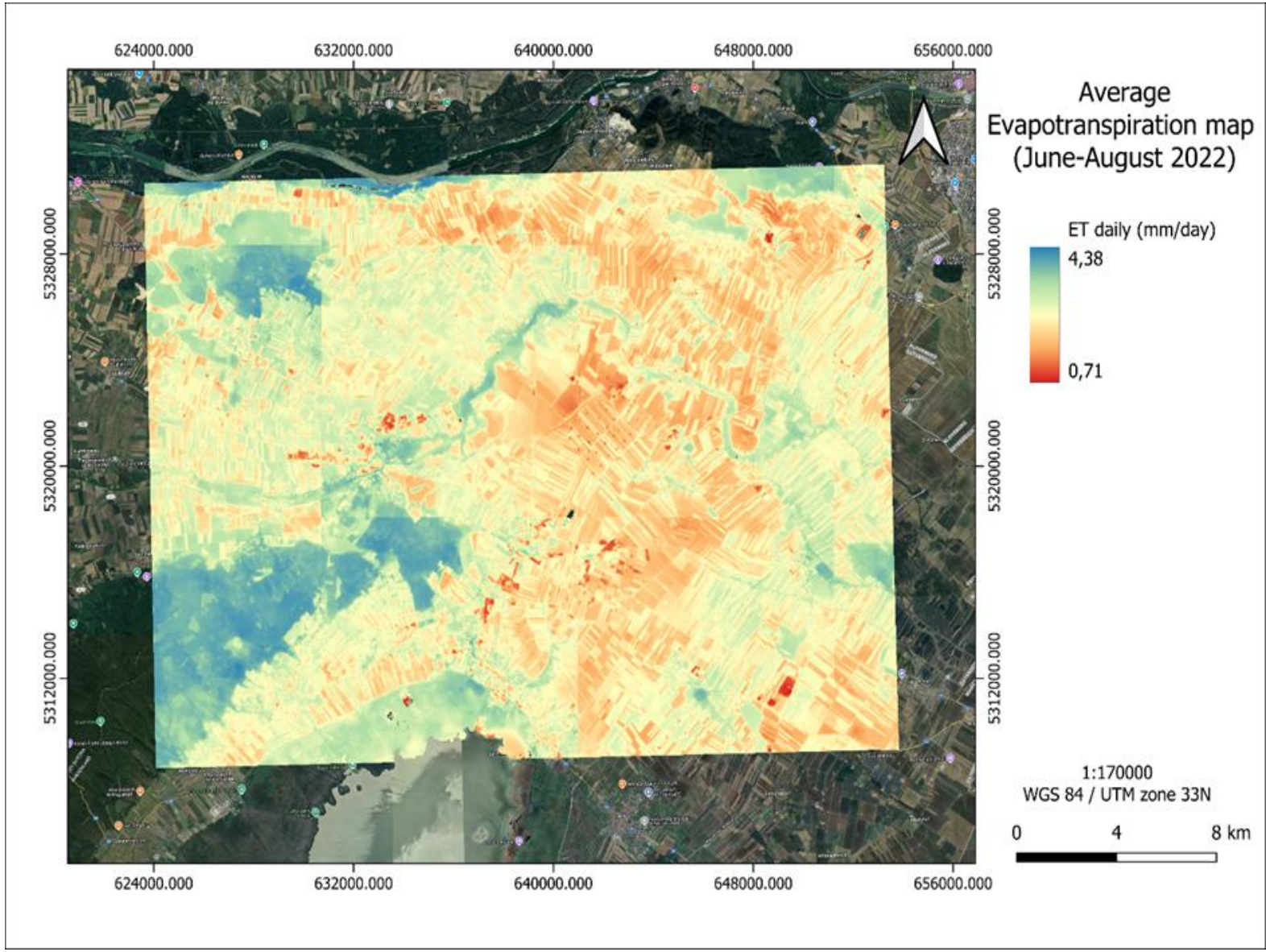
- Helps track water balance and drought risk — for agriculture and nature

- Informs urban planning and “green infrastructure” to mitigate heat and climate effects

- Basis for long-term climate impact and adaptation planning

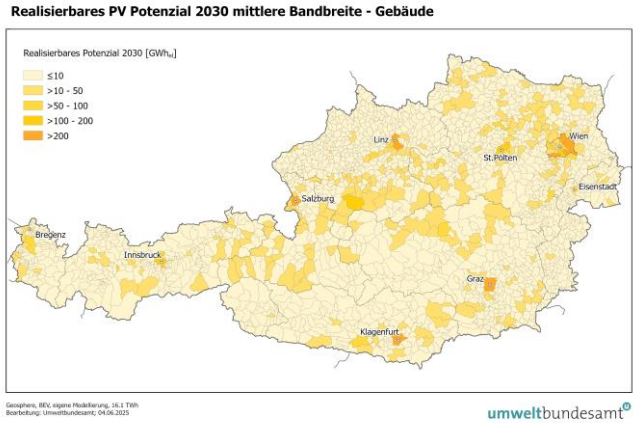
ET for Agriculture in Austria

- **Orange-Red Zones**: areas with intense evaporative demand and actively transpiring crops.
- **Yellow-Green Zone**: Partial soil-moisture limitation, vegetation still active but water deficits begin to constrain transpiration
- **Blue Zones**: Low average ET because open-water or bare salt pans are cooler and were partially dry in 2022; vegetation was sparse.

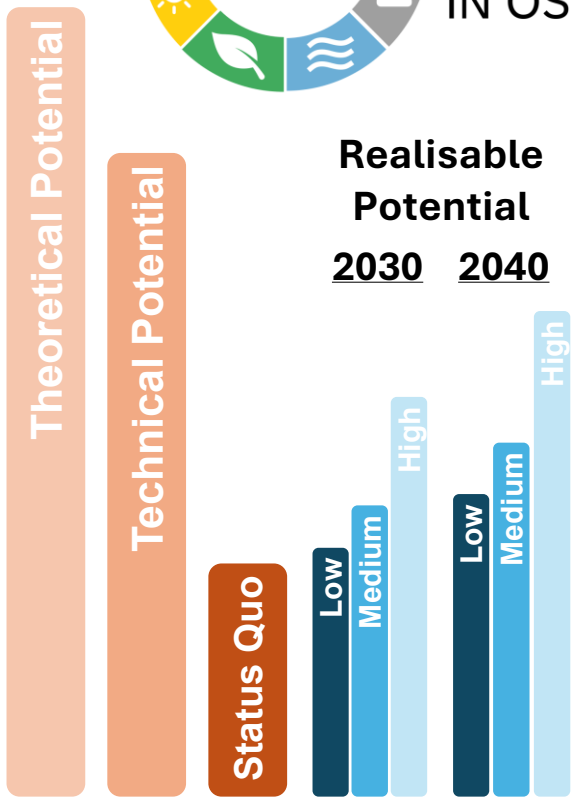


Enhanced GTIF representation of the KLIEN study on Renewable Energy Potentials in Austria by 2030 & 2040

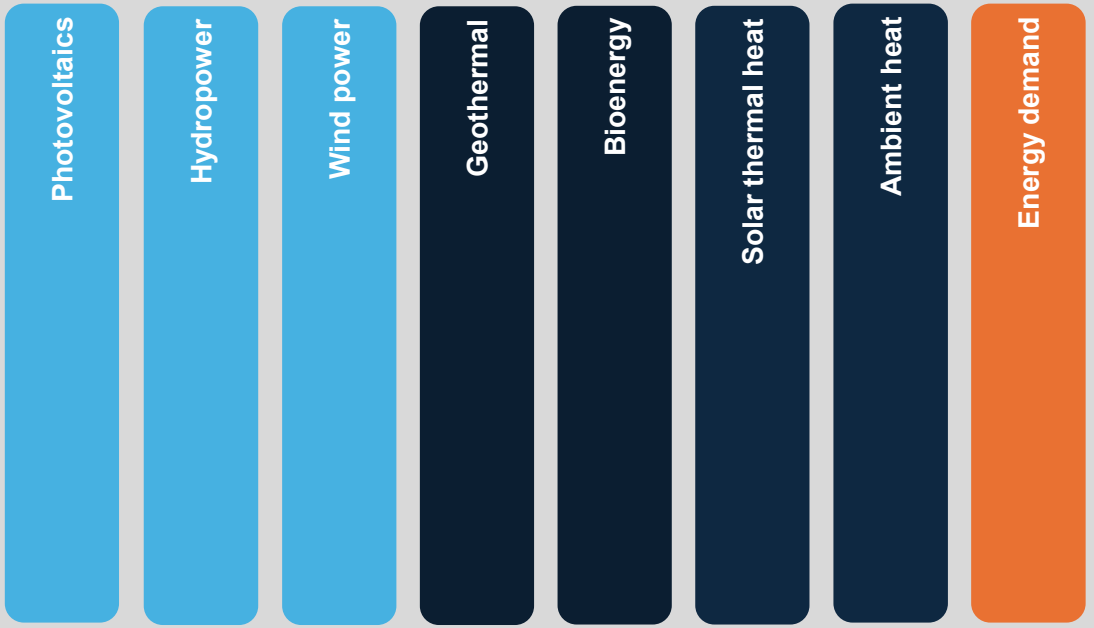
ERNEUERBARE ENERGIEPOTENZIALE
IN ÖSTERREICH 2030 & 2040



- The work in GET-ET aims to enhance **the functionalities of the GTIF representation** related to the KLIEN study on RE potentials in Austria, including user-friendliness and **providing additional context information** using the "GTIF narrative mode".
- To be **publicly accessible by end of January 2026**



- Data generally available at municipality level (i.e. more than 2000 within Austria) or at higher aggregation (wind. Hydro, lignobiomass)
- Data on energy and capacity related to
  - Technical potentials
  - Realisable technical potentials for 2030 and 2040
- Data on economic characteristics (LCOE, market values)



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THANK YOU!

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