



AgroSoil is a fully automated system that provides 4D highly accurate global soil moisture estimates in near real-time, cloud-free, daily at high spatial and vertical resolution. AgroSoil uses Earth Observation data and ground measurements to define moisture adequacy of soils and its reservoir capabilities.

AgroSoil services can support water management in agricultural fields, monitoring of droughts, risk assessment for agricultural insurance and many more applications. AgroSoil can easily be tailored to client's specifications.

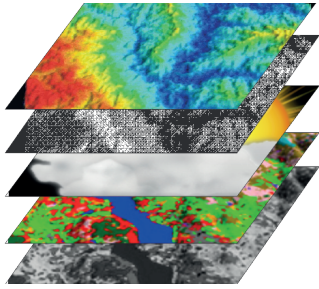
With the Product Award 2022, AgroSoil was acknowledged by the European Association of Remote Sensing Companies (EARSC) as the most innovative Earth Observation product of the year contributing to the EU Green Deal.

TO WHOM

INSURANCE	B2B	AGRICULTURE	INTER-/NATIONAL AUTHORITIES	MANY MORE

CAPABILITIES

AUTOMATED PROCESS CHAIN	FLEXIBLE	RELIABLE	MULTI-SOURCE BASE DATA
CUSTOMER SPECIFIC EXTENSIONS	GLOBAL	QUALITY CONTROLLED	



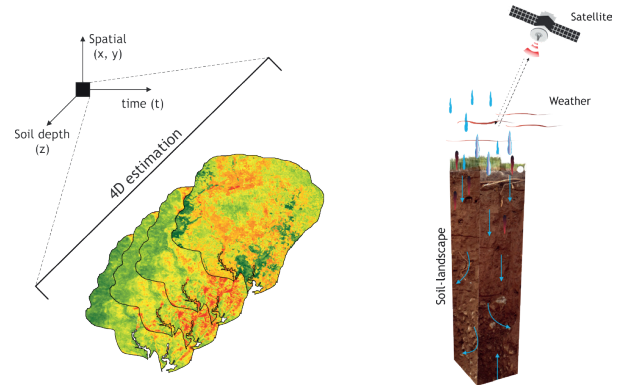
Stack features

Data Sources

AgroSoil uses a stack of EO and in situ input datasets that captures soil-landscape representations. This includes EO products from Copernicus, ESA and NASA, such as data from Sentinel-1, SMAP, ERA5 and high resolution Digital Elevation Models, as well as Weather Data, data on Soil Properties and Pedotransfer Functions.

Methods

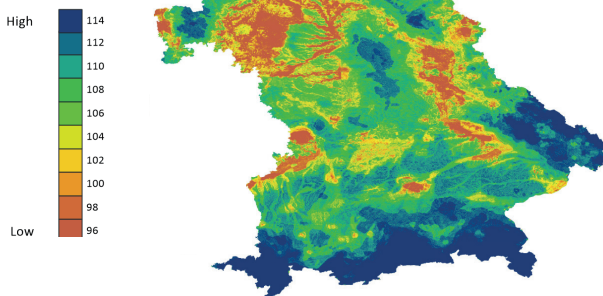
AgroSoil is optimized from cutting edge machine learning techniques to estimate soil moisture for 0-100 cm soil depth. AgroSoil enhances well-known predictive soil mapping approaches and accounts for vertical correlations, proximity and spatio-temporal relations in its estimates.



Stack predictions

Soil-atmosphere

Plant usable field capacity [%nFK]



Plant usable field capacity - Bavaria at 10m resolution

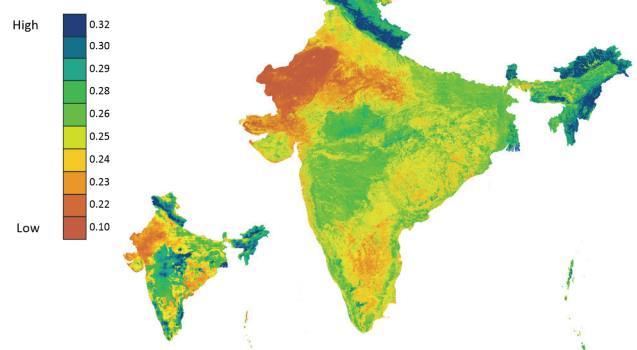
Accuracy

AgroSoil has been validated across diverse land cover types and landscapes, including Germany, Ghana, and India. The product provides a very high accuracy due to enhanced representation of the soilscape and its environmental forcings.

Key Facts and Figures

- Fully automated process-chain
- **Spatial resolution:** High (5-30m) and low (100m)
- **Temporal resolution:** Daily, weekly, biweekly, monthly, with < 48 hour latency
- **Vertical resolution:** At 5, 15, 30, 60 and 100 cm or aggregated depth (0-50cm)
- **Validation:** Global $R^2 = 0.91$
- **Available time frames:** From 1981 until present

Volumetric soil moisture [m3/m3]



Volumetric soil moisture - India at 30m resolution



Current soil moisture estimates follow GlobalSoilMaps specifications. Other products such as soil water storage are available on-request.

For further information please contact AgroSoil@gaf.de