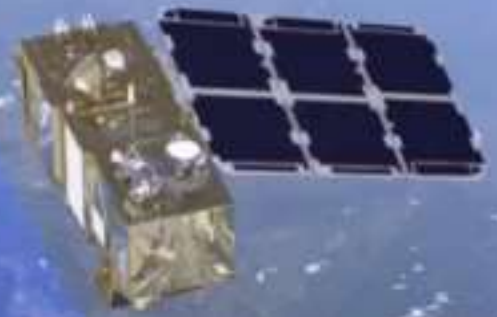
View from VISTA Remote Sensing in Geosciences GmbH

Key Statements for 6.4. and 6.5:
Increasing water efficiency and improving water management are critical to balancing the competing and growing water demands from various sectors and users.

- **Global Challenge of SDG 6 requires a Global Monitoring System.**
- **Satellite data is maybe the only objective, global monitoring instrument.**

Dr. Heike Bach
CEO VISTA GmbH



The Big Data Revolution

Copernicus is the largest producer of EO data in the world

Daily Data Production Sentinels

15 TB

All global landmass is observed every 5 days at 10m resolution

This has never happened before

This will fill the gap highlighted by Prof. Uhlenbrook:

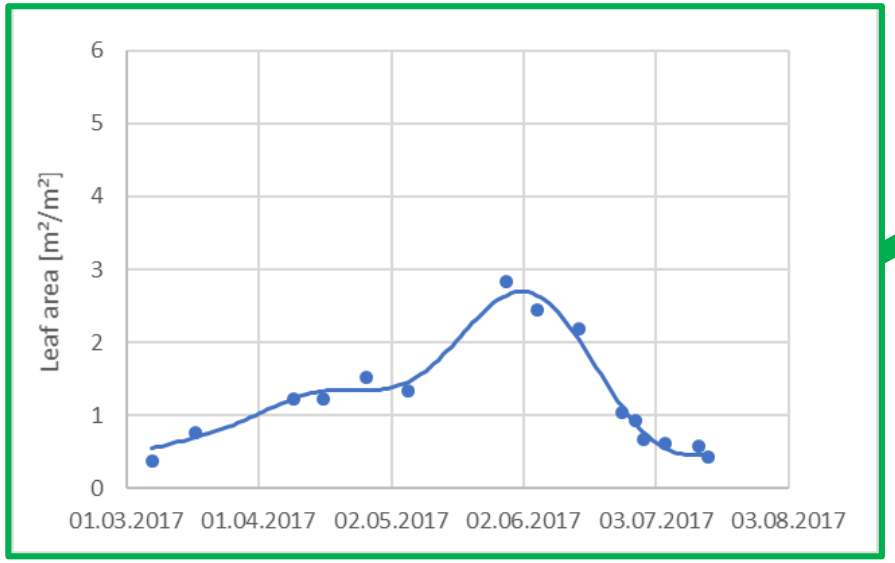
"We need more and better data (EO, big data, disaggregated data,..)"

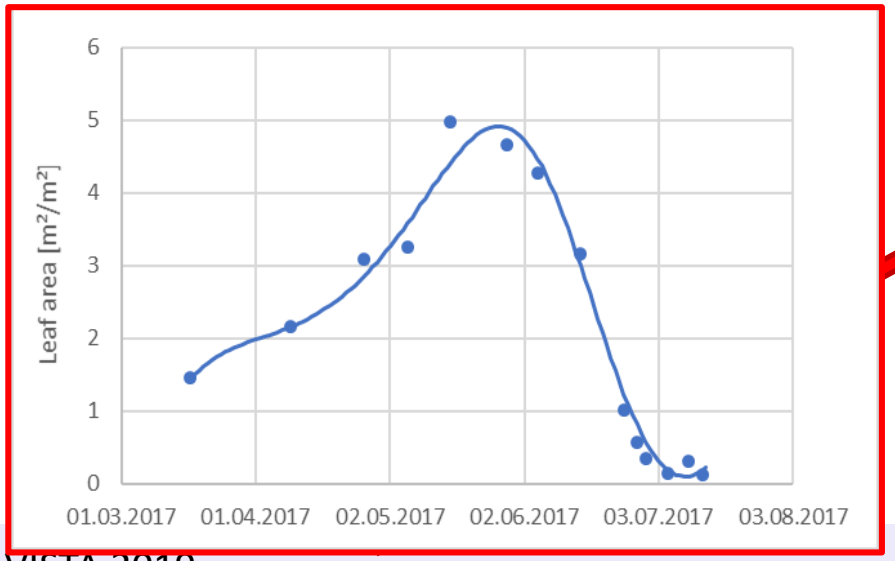
View from VISTA Remote Sensing in Geosciences GmbH

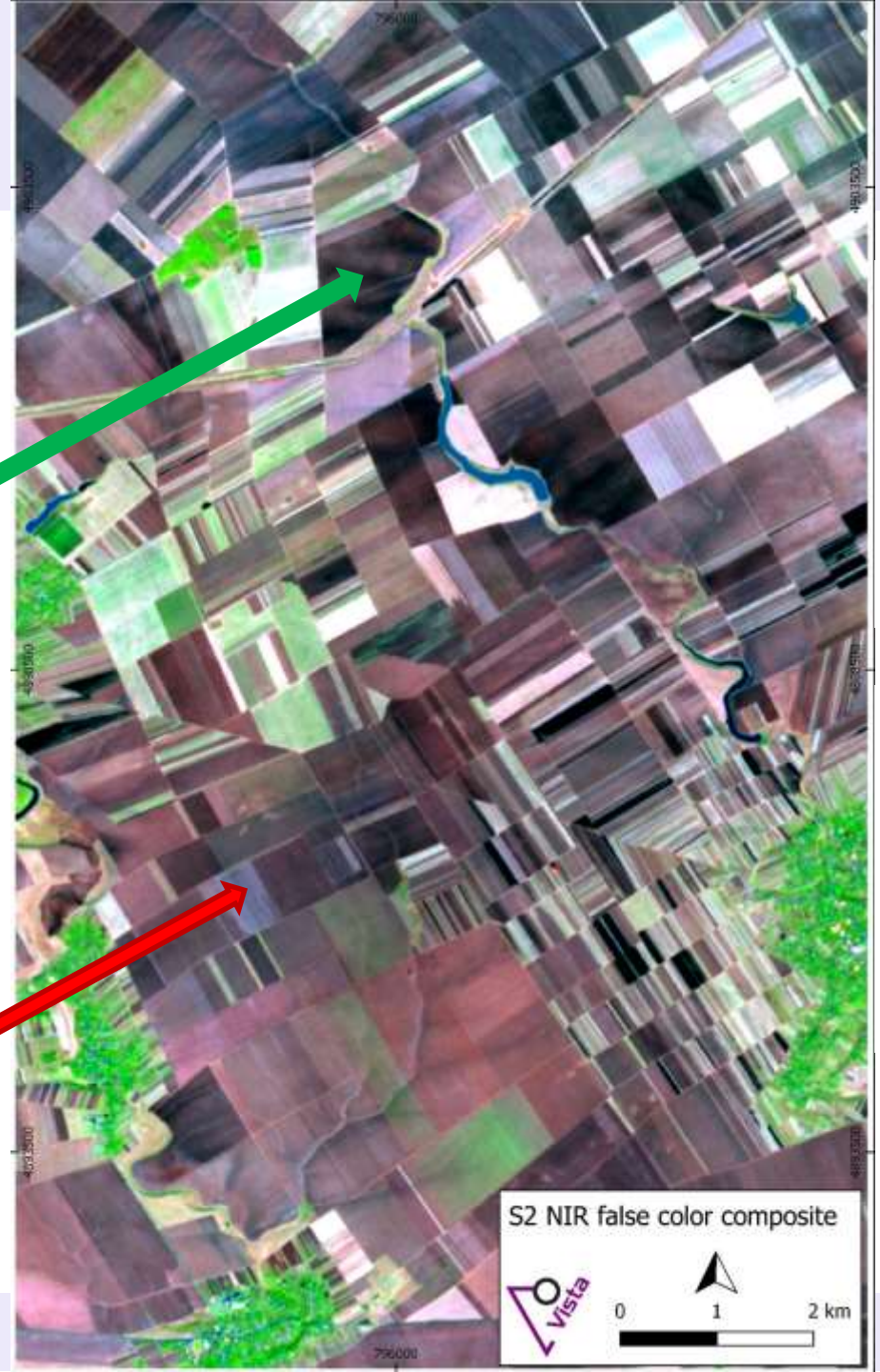
Increasing water efficiency and improving water management are critical to balancing the competing and growing water demands from various sectors and users.

- **Global Challenge of SDG 6 requires a Global Monitoring System.**
- **Satellite data is maybe the only objective, global monitoring instrument.**
- **Digitalization is intrinsic in Earth Observation with satellites.**
- **Agricultural Water use is the largest quantity to be managed.**
- **Digitalization on Agriculture was a top priority e.g. Global Forum for Food and Agriculture 2019 in Berlin (Minister Klöckner)**

2. Actual Yield and WUE from Sentinel-2 and PROMET







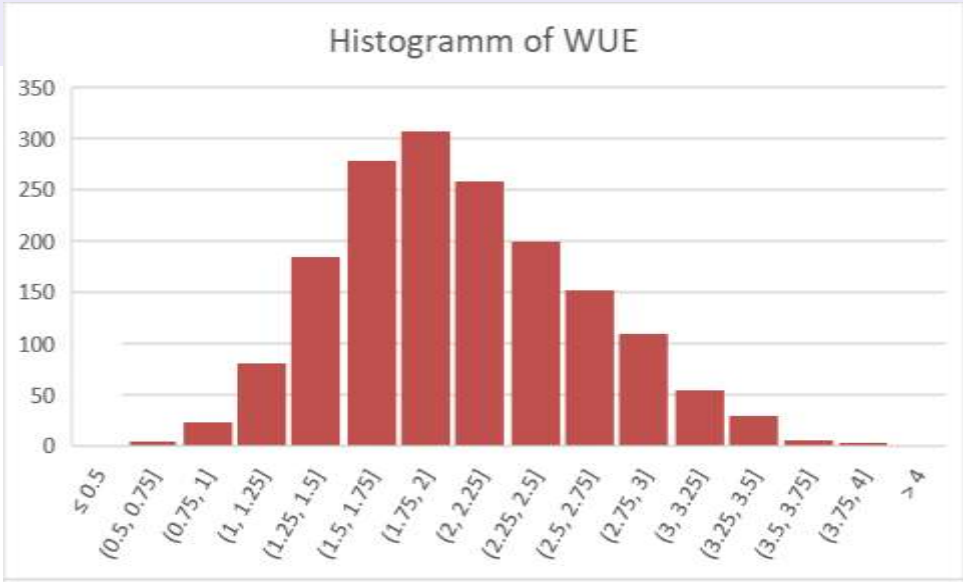
3.50 t/ha and WUE 1.53 kg/m³

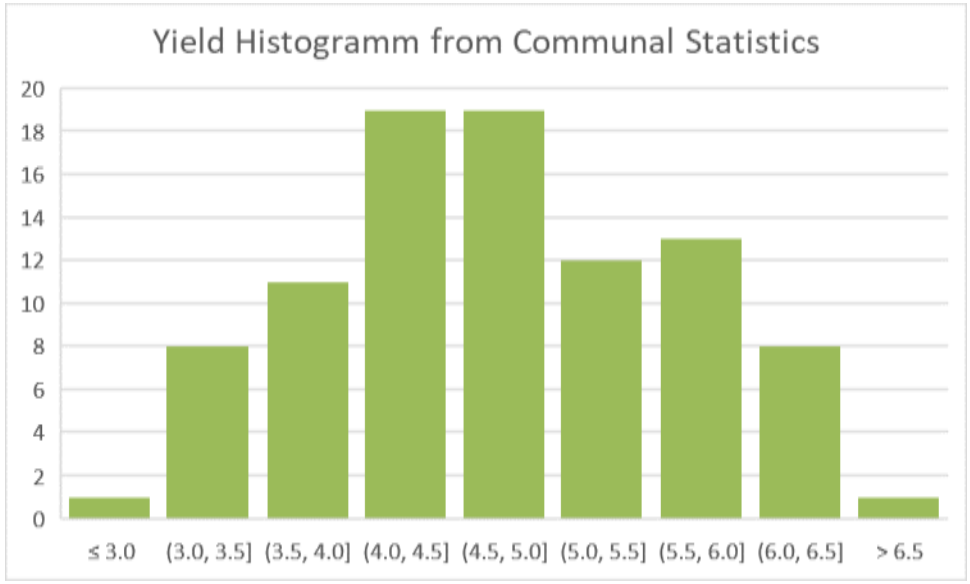
4.22 t/ha and WUE 2.18 kg/m³

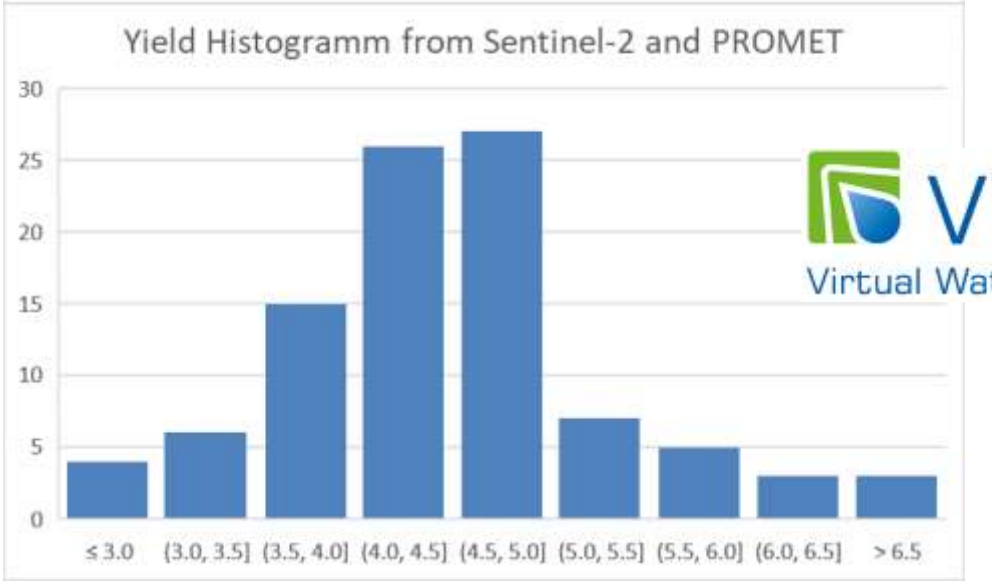
ViWA Virtual Water Values

Example for Integrated Watershed Management (large areas)

1. Actual Yield and WUE from Sentinel-2 and PROMET compared to statistics





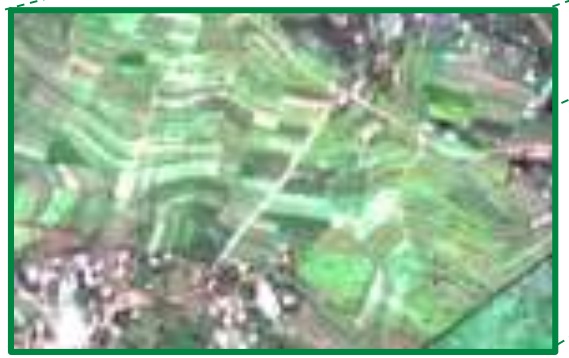


ViWA
Virtual Water Values

Example of Transfer of Results for Regional Water Management (farm scale): Sambian Commercial Farm

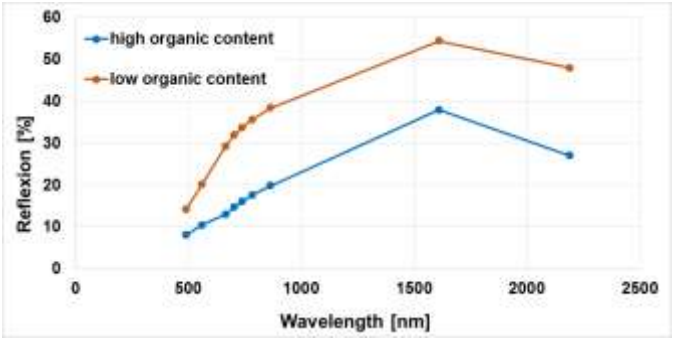
Food Security

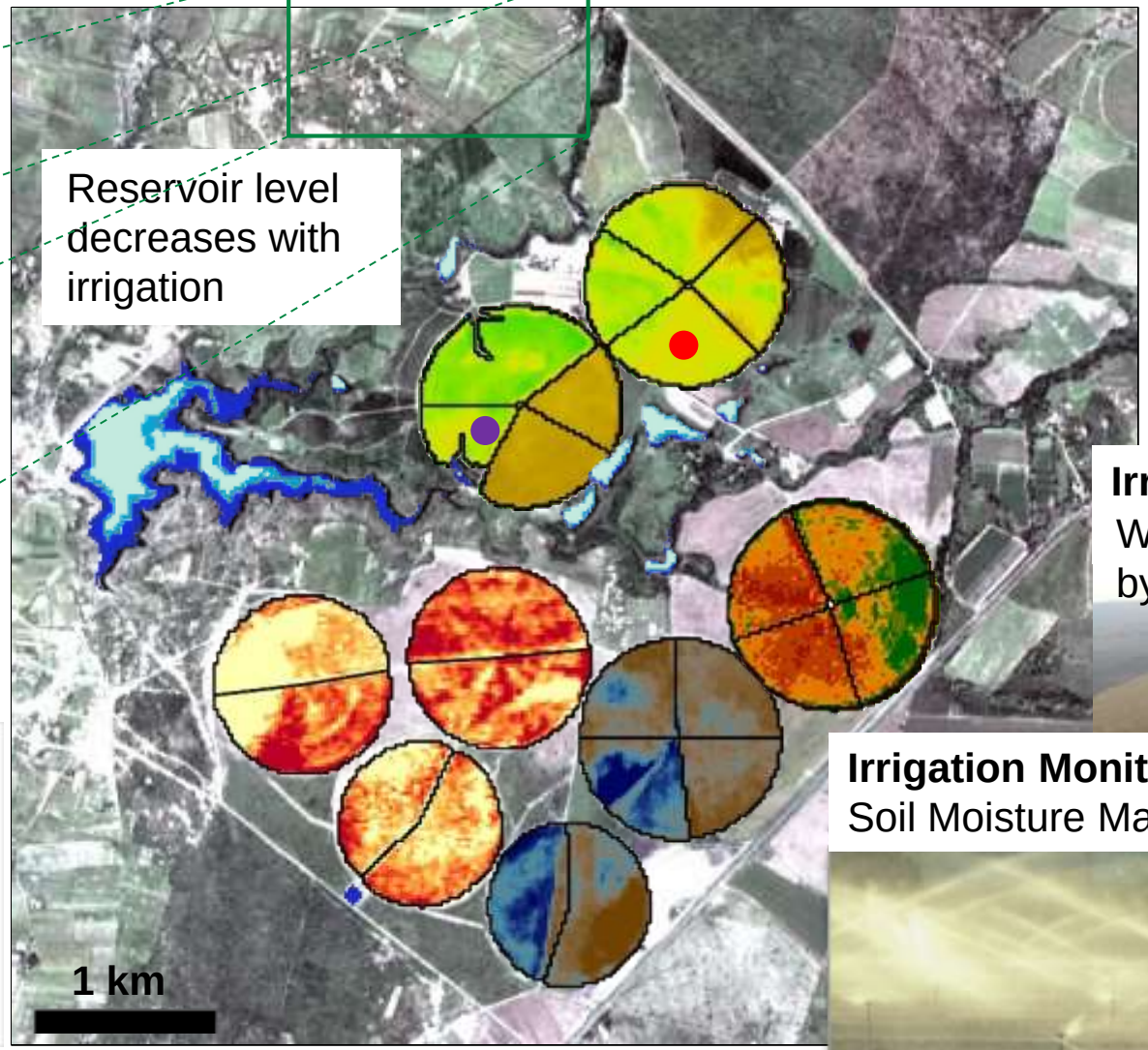
Spatial resolution of S-2 now also allows monitoring of small holder farms.



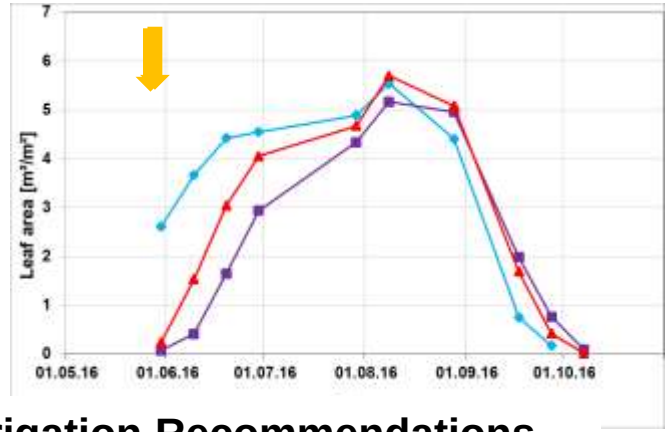
Soil Quality / Degradation

Mapping of organic content based on spectral features





Crop Growth Monitoring



Irrigation Recommendations

Weekly advices increased yield by 25% and saved water by 16%

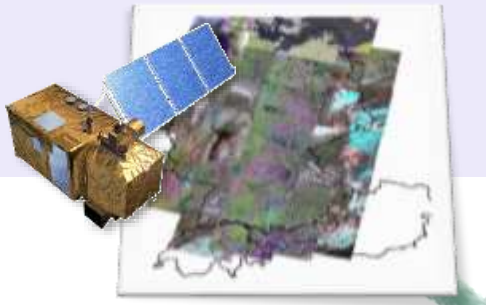
Irrigation Monitoring

Soil Moisture Mapping

Challenges and opportunities for transferring GRoW results into practice

- Deliver what is needed by customers / clients
- Transfer to practise without loosing quality
- Example: use of ViWA results for large scale / regional yield predictions

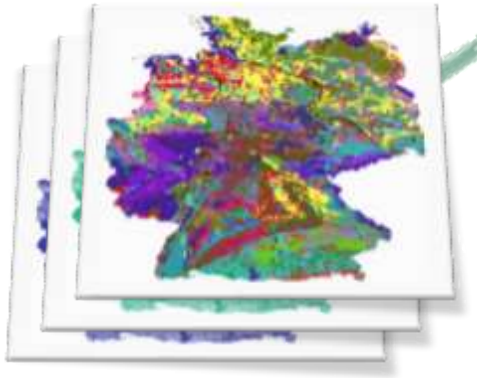
YPSILON - Yield Prediction by Satellite



Satellite data

Statistics

Weather data



Soil, Topography …

$f(x)$

Knowledge

Leaf Area Water Stress
Crop Type Irrigation Yield