AgroBAT – Airborne Soil-Analysis-Technology

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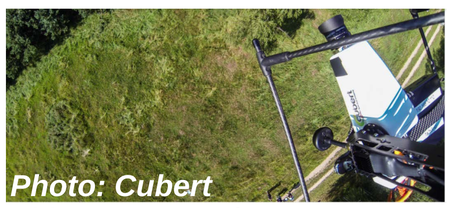
AgroBAT the project for airborne soil-analysis-technology enhances the infrastructure at the ATB and the research center Marquardt in the areas of „Precision Agriculture“ and „Digitization in Agriculture“. AgroBAT is funded by the European Regional Development Fund EFRE (InfraFEI).
The funding that AgroBAT receives enables the set-up of a long-term field test track with sensors for the collection of soil fertility and plant parameters with high spatial and temporal resolution. The funding also covers the technical equipment for the use of optical sensors on small unmanned aerial vehicles (UAV), for the capture of different phytonutrients and soil parameters. This research will contribute to increase the resource efficiency in agriculture.

Scientific goals

The aim of the field laboratory is the development and examination of smart sensor technology
a) to determine soil fertility and
b) to evaluate the plant condition.

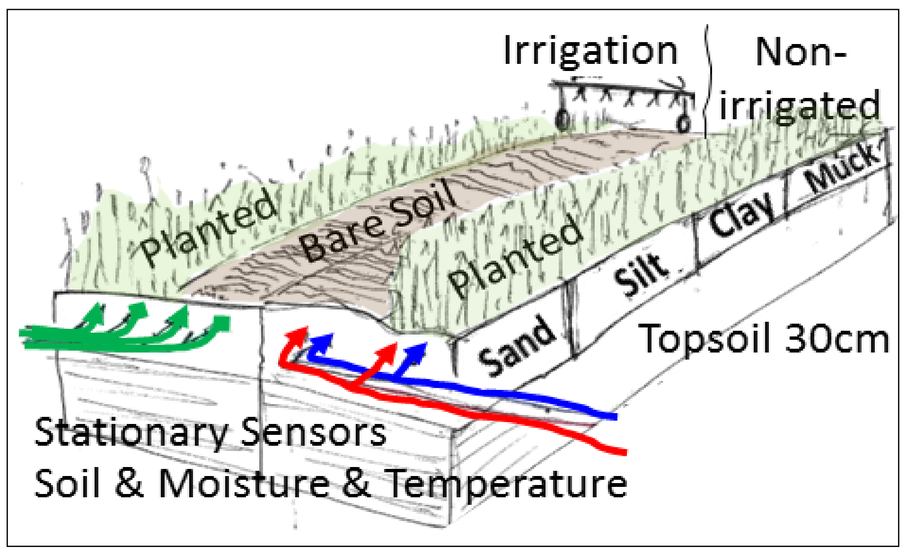


Airborne spectral cameras

ATB multi sensor platform

Field laboratory at the research center Marquardt

Consists of the following modules
- a soil sensor test track providing in situ reference measurements
- carrier platforms, to apply the sensors in the field (tractor, UAV),
- airborne sensor technology (equipment and processing),
- high performance workstations for digitizing agriculture tasks: image processing, artificial intelligence and Big Data analyses.



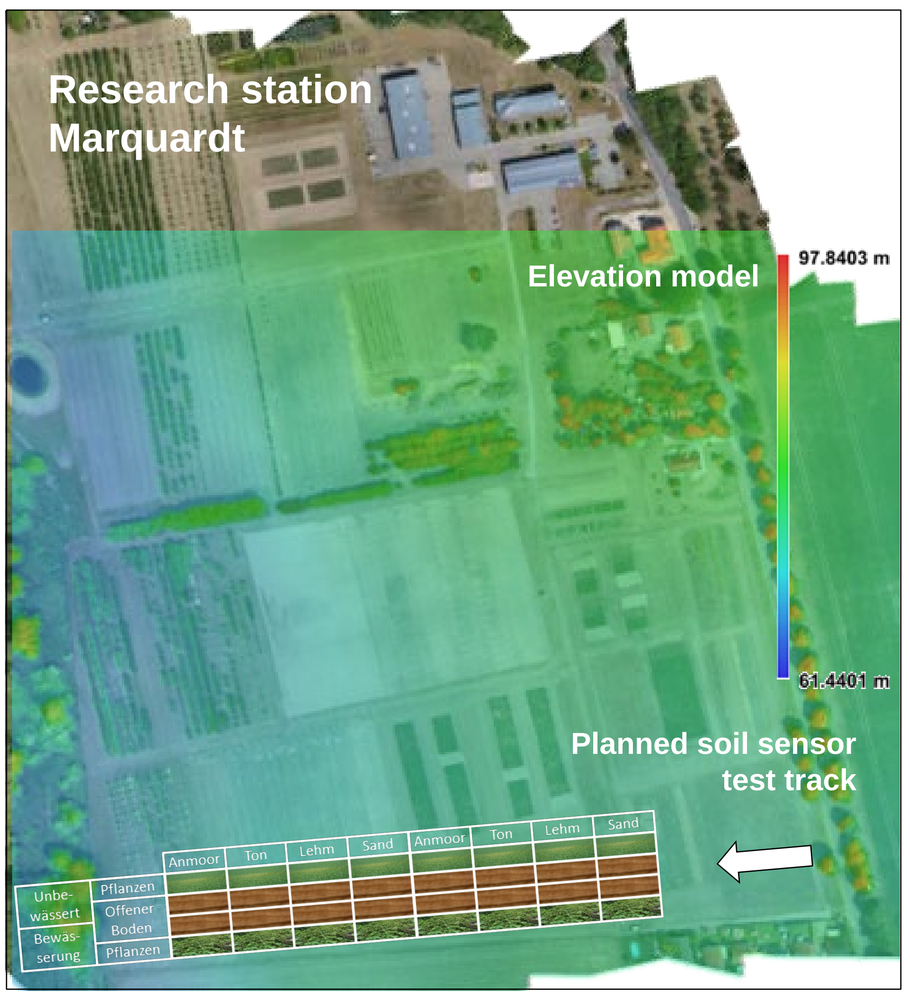
Planned field lab: test track for soil sensors

Expected output of the field laboratory

The investments will enable
- a maximum sample density in local and temporal dimensions through long-term tests,
- the comparison of the application potential of different sensors and sensor carrier systems,
- quickly testing new and presently unexplored measuring principles for the field of plant parameters and soil fertility on their „basic suitability“,
- examine sensor technology with regards to hitherto unknown correlations
- collecting high data volumes of a defined area to metrologically record causal relationships, in order to examine new data analysis methods in the field of machine learning for their aptitude, as well as
- assessment of sensor technology regarding application suitability in agricultural practice


Soil moisture sensors

ATB Hexacopter



Planned test track for soil sensors at Marquardt research center

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