Delta-T Devices CASE STUDY

Umweltanalytische Produkte GmbH

THE JENA EXPERIMENT

The Jena Experiment (funded by the German Research Foundation)

Extensive use of the Delta-T Devices PR2 Profile Probe across multiple long-term biodiversity/ecosystem function research experiments

The Jena Experiment

The Jena Experiment is a long-term biodiversity focused research project funded by the German Research Foundation (DFG).

The large scale project has been running since 2002 and involves over 100 scientists. The research is centred around discovering which mechanisms influence ecosystem functions and make them stable.

The project takes place on a 10 hectare site in Jena, Germany - which consists of approximately 600 plots of artificially assembled grasslands.

Each plot is different, some are monocultures, others are grassland mixtures with up to 60 different species of grasses, herbs or legumes. Some of the plots are covered with a roof to simulate climatic extremes such as drought.

Research at the Jena Experiment has found that plant productivity increases with increasing plant species richness. That means that meadows that have high diversity produce more biomass.

Ongoing research aims to better understand the mechanisms that underlie this effect by comparing low diversity plots with high diversity plots.

Of particular interest to the Jena Experiment scientific team is the issue of how plants, microorganisms and animals influence each other. Their research suggests that plant diversity has a positive effect on other organisms. For example, in plant species rich grasslands there are more species of pollinators and more earthworm activity - allowing plant roots to have better access to rain and soil water.

This activity means that a diverse eco system can have a positive influence on functions that are important for human wellbeing, in areas such as increasing yields and soil erosion control.

Delta-T Devices's involvement

Supplied by Delta-T Devices's German distributor UP GMBH, the PR2 Profile Probe has been an important part of the Jena Experiment's sensor network for nearly the entirety of the long running project.

Dr Anne Ebeling, Scientific Coordinator at the Jena Experiment, says that, "Soil moisture is an important parameter for many of the processes studied in our research – especially at depths below the immediate surface soil. For this reason we have been using the PR2 Profile Probe to measure moisture profiles down to one metre for many years."

Dr Ebeling further explains that, "The PR2 measures soil moisture at varying depths on a total of 240 experimental plots across the Jena facility. The readings are taken on a weekly basis in the spring and summer, and on a bi-weekly basis in the autumn and winter."

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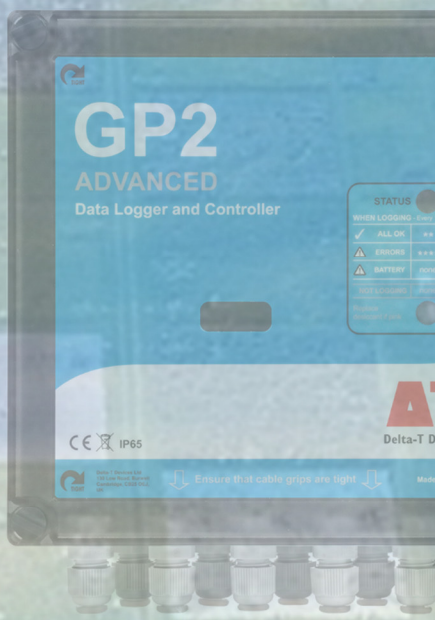
PR2 Profile Probe

No other soil moisture probe system enables researchers and consultants to monitor soil water profiles with such ease and flexibility.

The PR2 Profile Probe can be installed in a single location (connected to a logger) for continuous long-term measurements. It can also be used for multi-site portable readings – which are instantly displayed on an HH2 hand-held readout unit.

The PR2 can accurately measure soil moisture content in a range of soil types and across a wide range of nutrient levels (including saline soil conditions).

- **Soil moisture content profiles down to 1m**
- **Dual purpose – installed and portable**
- **Access tubes for easy probe insertion and removal**
- **SDI-12 interface option available**



Delta-T Devices

View 3 minute explainer video at: www.delta-t.co.uk

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