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## Datalogger development for tipping-bucket throughfall measurement with open-source tools

**Péter Kalicz**, Péter Csáki, Katalin Anita Zagyvai-Kiss, and Zoltán Gribovszki

University of Sopron, Institute of Geomatics and Civil Engineering, Hydrology, Sopron, Hungary (kalicz.peter@uni-sopron.hu)

Manual throughfall gauges can not apply to explore the temporal properties of precipitation redistribution. To follow the interception temporarily it is necessary to use automatic gauges. Commercial rainfall data-loggers are suitable but in a spatially heterogeneous environment, like agroforestry systems, need a large number to represent the spatial differences. To reduce the cost, we started to develop a microcontroller-based data logger.

As a test case, we develop new auxiliary equipment for an already working custom trough in our riparian alder plot. It is a large surface trough with a big container where water level change is sensed. This gauge works with a commercial data logger which will be used for validation purposes. The planned addition is a tipping bucket, which provides a digital signal directly. The simple task is to log the timestamp of the tips. After many iterations, an ARM Cortex-M0+ based architecture was selected, which integrates all the necessary components of a simple data logger. The development is fully open-source shared through git (<https://github.com/kaliczp/hvlog>). The presentation shares the experiences accumulated during the continuous development.

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