TEMBO Africa

Transformative Environmental Monitoring to Boost Observations in Africa

Intervalometer

Overview

TEMBO Africa Intervalometer provides insights in the structure of rainfall as it reaches the ground, measuring drop arrivals on a drum. By capturing when each drop hits, the device helps distinguish between different rainfall-producing mechanisms (like steady rain, showers, or storms), while the generation of such high-precision data can also be used to improve and calibrate satellite-based rainfall estimates.

Where?

50 intervalometers are planned to be placed at TAHMO stations in Ghana and Zambia.

For whom?

Intervalometers are ideal for agriculture insurance, flood early warnings and dam reservoir management.

From raindrops to insights

💸Very **low-cost** precipitation measurements (The current alternative is the use of laser disdrometers, which cost € 3,000 or more).

🌧**Additional rainfall info**, with real-time intensity measurements, which matters for run-off and water storage, as well as information about the type of rainfall.

🛡**Less affected** by dust and insects in contrast to the laser disdrometer.

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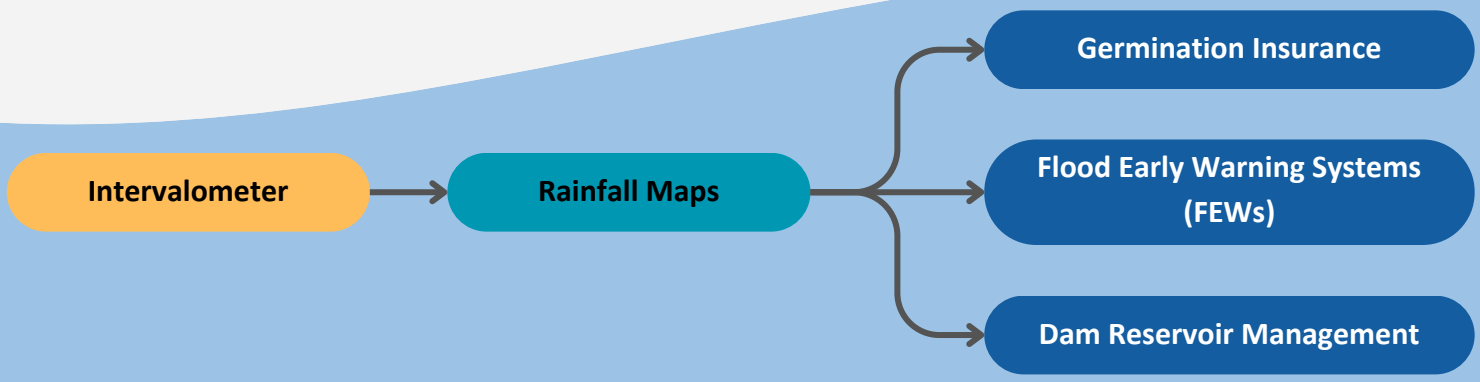
A sensor that can be used for one of the TEMBO products, while it can be leveraged by all services, thanks to a broader 'Lego®-ised' approach!



How it works

Raindrop hits the drum
A raindrop falls onto a small 15 cm² drum surface, which contains a piezo-electric sensor underneath.

Signal generation
When a drop strikes the drum, the piezo element generates a tiny electrical pulse corresponding to that impact.

Signal processing
This signal is sent to a connected processing unit that records rainfall structure and intensity.

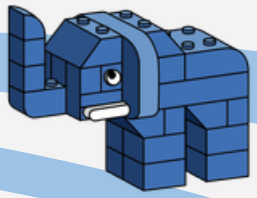
Data interpretation
The above records are analysed to distinguish different rainfall types (e.g., steady vs. convective storms), assess rainfall dynamics, and monitor rainfall intensity in real-time.

Improvement of satellite and radar data
The fine-grained arrival data supports real-time calibration and validation of satellite-based rainfall estimates and radar retrieval algorithms.

Responsible partner for the Intervalometer

TU Delft

Contact us and learn more!



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