

RainFlow™ : a new High Resolution Acoustic Rain Gauge

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(PROVISORY) ABSTRACT : *RainFlow* is a new high precision rain gauge developed for scientific and environmental applications. The sensor is designed specifically to provide high frequency resolution and high precision. The basic working principle is the analysing of sounds induced by the impacts of raindrops hitting a mechanical receptor, and picked-up by electroacoustics transducers. The receptor is a spherical vibrating shape which vibroacoustic behaviour is optimised to provide relevant sensitivity and discrimination of the rain drops shapes and dynamic characteristics. The system is able to function alone, may be added to an existing weather installation, or may be extended into a wide range rain measuring network including autonomous energy and automatic data storage and transmission.

The presentation will focus on the technical description of the sensor, calibration tests results and the implementation of the sensor for field-measurements of the distributions and intensities of ground precipitation in the frame of the CRUEX project (Crues Extremes), through a collaboration with the Laboratoire de Systèmes Energétiques (LASSEN).

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