

Call for grantee(s) within OpenSense Short-Term Scientific Mission Grant

Urban hydrology group at Czech Technical University welcome **grantees for Short Term Scientific Missions (STSMs)** related to **the topics of OpenSense Action**. Our research concerns rainfall monitoring and urban rainfall-runoff modeling with commercial microwave links (CMLs). We collect data from more than 2500 CMLs around Czech Republic and collaborate with T-Mobile CZ and water utilities on an operational CML rainfall monitoring system for urban water management. Our group also maintains in own measurement setup complementing CML observations with rain gauges, a disdrometer, and several temperature and humidity sensor.

Grantee visiting CTU can contribute to one of the following research projects:

- Analyzing effect of variable drop size distribution on attenuation of EM waves at E-band frequencies using dedicated experimental layout, where E-band CML operated within cellular backhaul is completed with rain-gauge and disdrometer observations.
- Country-wide analysis of E-band outages (1.5 year dataset from about 700 E-band CMLs). Evaluating the effect of outages on rainfall retrieval and feasibility of E-band CML use for monitoring heavy and extreme events.
- Improvement of quality control and processing algorithms in the system for operational CML rainfall monitoring in the city of Olomouc with a focus on algorithms not requiring reference rainfall observations from standard sensors.
- Or alternatively it can be research project specified by an applicant covering scope of OPENSENSE Action and activities of CTU Urban Hydrology group. The applicants can gain access to i) almost 5-year long dataset from about 250 CMLs in Prague CZ with reference rainfall observations from 23 city rain-gauges data, ii) dataset from a dedicated campaign in small urban catchment Prague-Letnany with 2 years of runoff observations and rainfall observations from seven rain gauges and 19 CMLs covering the catchment, iii) countrywide dataset of approx. 2500 CMLs including more about 700 CMLs operating at E-band. The proposed research can be related e.g. to long-term analysis of CML data, rainfall spatial reconstruction at high space-time resolution, or rainfall-runoff modeling with CML data.

The preferred duration of STSM is upon the applicant. However, the proposal has to meet all the criteria given in **First Call for STSM (Short-Term Scientific Mission) – 2022** and also general eligibility criteria given by COST Association for STSM grants.

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