

## **WASHTREET - Runoff velocity data using different Particle Image Velocimetry (PIV) techniques in a full scale urban drainage physical model.**

This dataset contains raw data and runoff velocities results obtained using seeded and unseeded Particle Image Velocimetry (PIV) techniques in an urban drainage physical model, which is placed in the Hydraulic Laboratory of the Centre for Technological Innovation in Construction and Civil Engineering (CITEEC) at the University of A Coruña (Spain). The objective of this work is to obtain an accurate representation of the surface velocity distribution as part of the [WASHTREET project](#), where a series of high-resolution experiments were performed measuring urban surface wash-off and sediment transport through gully pots and pipes under laboratory-controlled conditions. The experimental facility is a 36 m<sup>2</sup> full-scale street section and consists of a rainfall simulator placed over a concrete street surface with two gully pots that drain runoff into an underground pipe system. The dataset was used in the work developed in Naves et al. (2019) (DOI: <https://doi.org/10.1016/j.jhydrol.2019.05.003>).

A detailed description of experimental setup, procedure, postprocessing and results can be consulted in '*1\_TestsDescription.pdf*'. 4K resolution and 25 fps raw videos from which frames are extracted for the PIV analysis are provided for each experiment performed in separated zip files (named as '*2.(test ID)\_RawVideos\_(configuration).zip*'). Experiments includes three different steady rainfalls of 30, 50 and 80 mm/h of rain intensity and were recorded with and without added fluorescent traces. Data to orthorectify frames from videos are provided in '*3\_SpatialCalibration.zip*'. In addition, 60 seconds of steady conditions are extracted for each test and the frames are processed to obtain velocities from a PIV analysis. '*4\_ProcessedFrames\_SteadyFlow.zip*' includes the 1500 rectified and processed frames for each experiment to perform the PIV analysis. Results of runoff velocity distributions are included in '*5\_VelocityResults.zip*'.

Further details of the rainfall simulator, physical model geometry and more hydraulic and sediment transport results can be consulted in [WASHTREET hydraulic, wash-off and sediment transport experimental data](#). In addition, data regarding the use of photogrammetry to obtain the elevation map of this physical model is included in [WASHTREET Structure from Motion data](#).

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