Project: **961**
Project title: **BINGO**
Project lead: **Uwe Ulbrich**
Report period: **2017-01-01 to 2017-12-31**

Status of Simulations Proposed for 2017 (up to 26.10.2017):

1. Downscaling of extremal episodes from 0.11° MiKlip predictions (2015-2024) to 0.02° (2.2 km).

Previously (during 2016) we used CCLM to downscale 0.44° MiKlip predictions (2015-2024, 10 members) to 0.11° over two sub-European domains which covered the research sites of the BINGO project. For 2017, we proposed identifying extremal episodes from these simulations and downscaling them to 0.02°, for all research sites. This mirrors the approach adopted in 2016 for the evaluation period (1979-2015), in which CCLM was driven by ERA-Interim reanalysis.

The proposed downscaling has been completed. The data were additionally post-processed and made available via our data-exchange platform, so that our project partners can use them to force their hydrological models at the different research sites.

2. Downscaling of historical/future CORDEX simulations to 0.02°

We had also proposed performing similar dynamical downscaling to 0.02° of historical and future 0.11° EURO-CORDEX simulations for the BINGO project. **This downscaling has also been completed.**

3. High temporal resolution simulations

In our request for additional resources for the second half (01.07 – 31.12) of 2017, we proposed carrying out a 1-year simulation over the EURO-CORDEX domain at 0.11° and saving precipitation at 5-minute frequency. This was in order to (1) facilitate the temporal disaggregation of hourly to sub-hourly modelled precipitation for two of our project partners who work with urban drainage models and prefer 5-minute input as boundary conditions, and (2) study the realism of sub-hourly precipitation in models with parametrized convection. These simulations are currently in preparation and are expected to be completed by the end of November 2017.

4. Additional realisations of stongest extremal episodes

Also proposed in our request for additional resources for the second half of 2017 was the creation of additional realisations for selected extremal episodes. As mentioned in our application for 2017, we downscale to 0.02° just one realisation of each identified

extremal episode. This is a trade-off due to the higher-than-desired number of days our method identifies as being potentially extreme. The motivation for creating additional ensembles was to better understand uncertainties at convective scale. In the request we described our plan to create 10-member ensembles of the 10 strongest events for all research sites. This approach was modified slightly, and instead we created a full new ensemble of extremal episodes for just one research site (the Wupper catchment) for summer and winter. Taking account of the aforementioned change in approach, **these simulations have also been completed.**