

Project: **961**

Project title: **BINGO**

Project lead: **Uwe Ulbrich**

Report period: **2018-01-01 to 2018-12-31**

### **Status of Simulations Proposed for 2018 (up to 24.10.2018):**

#### **1. Downscaling of extremal episodes from 0.11° to 0.02° (2.2 km).**

All of the core downscaling of extremal episodes for BINGO has been **completed**. Model data are currently being prepared for transfer to the HPSS Doku archive. In addition to this, we performed additional extremal episode simulations for one of the catchments in BINGO <<http://www.projectbingo.eu>> project (the Wupper catchment) and published a paper about our method for identifying potentially extreme days for convection-permitting downscaling in Hydrology and Earth System Sciences<sup>[1]</sup>.

[1] E. P. Meredith, H. W. Rust, and U. Ulbrich. **A classification algorithm for selective dynamical downscaling of precipitation extremes**. *Hydrology and Earth System Sciences*, 22(8):4183-4200, 2018. doi: 10.5194/hess-22-4183-2018. <<https://www.hydrol-earth-syst-sci.net/22/4183/2018/>>.

#### **2. Analysis of sub-hourly model precipitation at convection-permitting (0.02°) scale**

The high-resolution time-slice simulations proposed in 2017 have also been **completed**. We simulated 4-month (July-October) time slices at 0.02° resolution for each year of the ERA-Interim period (1979-2016). The global model was ERA-Interim reanalysis. In a slight change to our original proposal (30 years for two research sites), we instead performed the simulations for just one BINGO research site, though over a longer time period and using a bigger simulation domain. We have already presented results from our experiment at the EGU2018<sup>[2]</sup> and MedCliVar 2018. Analysis is ongoing and we hope to publish a study on our results in 2019.

[2] <https://meetingorganizer.copernicus.org/EGU2018/EGU2018-3136.pdf>

#### **3. Mediane Sensitivity Experiments**

In our proposal for additional resources for the second half of 2018, we proposed carrying out an ensemble sensitivity experiment testing the sensitivity of an observed Mediane to sea surface temperature anomalies. These simulations have also been **completed**. The results have been made into a paper, which is currently under review as a discussion paper at Natural Hazards and Earth System Sciences<sup>[3]</sup>.

[3] R. Noyelle, U. Ulbrich, N. Becker, and E. P. Meredith. Assessing the impact of SSTs

on a simulated medicane using ensemble simulations. Natural Hazards and Earth System Sciences Discussions, 2018:1-23, 2018. doi: 10.5194/nhess-2018-230. URL: <<https://www.nat-hazards-earth-syst-sci-discuss.net/nhess-2018-230/>>.

### **Status of Data Archiving Proposed for 2018 (HPSS Doku):**

**1. Medium-resolution Experiments.** In our original request for 2018 we requested 30 TB of HPSS Doku archive space to archive the medium-resolution ( $0.11^\circ$ ) experiments of the BINGO project. This archiving has been **completed**, taking up a total of 34 TB.

**2. High-resolution Experiments.** In our request for additional resources for the second half of 2018 we requested an additional 35 TB of HPSS Doku archive space for the high-resolution ( $0.02^\circ$ ) experiments of the BINGO project. The high-resolution extremal episodes conducted for the BINGO project, as well as those in Meredith et al. (2018), are currently being prepared for transfer to the HPSS Doku Archive. This will take up another 15 TB of HPSS Doku space.

Combined with the 34 TB used for the medium-resolution experiments and the 15 TB planned for the high-resolution experiments, we will thus have used 49 of the 65 TB allocated for 2018. We will unfortunately not be able to use the remaining 16 TB during 2018, as the data intended for this space are still being analysed and publications are planned. We would therefore like to transfer this 16 TB to 2019, which we will include in our request for 2019.