

## ***Interactive comment on “Observational gridded runoff estimates for Europe (E-RUN version 1.0)” by Lukas Gudmundsson and Sonia I. Seneviratne***

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We would like to thank V. Moreydo for the open and overall positive rating of our manuscript and the associated data product. In the following we provide point by point answers to the reviewers comments. For the sake of clarity we first repeat the reviewer's comments (*in italic*) and then provide our response.

### **Comment 1:**

*Presented for the review is the gridded runoff estimates dataset for Europe along with the paper describing the methodological concepts, initial data and resulting dataset quality assessment. Both the dataset and the paper under review clearly deserve overall positive rating. The paper and the dataset are suitable for publication with several minor revisions. The paper gives a good insight into the creation of the dataset,*

C1

*as well as the reference to an earlier paper by the authors (referred to in the text as GS15), providing the methodology in more detail. It can be clearly seen that a significant amount of work has been carried out, especially concerning the unification of several European runoff databases. One of the common disadvantages of the datasets employed, despite its significant scientific value and outstanding compilation effort, is the unevenness in data availability, is obviously clear from the map of the stations used for the study. This results in decreased station density in the eastern part of the dataset domain. However, this disadvantage can by all means not be attributed to the authors of the paper under review, as they made a further effort to homogenize and condition the initial data. The dataset is presented in common NetCDF format and can be easily downloaded directly from PANGAEA website via the provided link. The selected format is convenient for data handling, subsetting and visualization.*

### **Reply 1:**

We thank reviewer #4 for the overall positive rating of our manuscript!

### **Comment 2:**

*Specific Comments:*

*One of the major concerns in the data is its spatial extent. There are three arguable regions in the resulting grid, which are not directly discussed in the paper (see image supplement for this comment). In my opinion, the grid points located to the east of 60° longitude might be excluded from the dataset, as there are no underlying observations (see region marked “1”).*

### **Reply 2:**

The spatial extent of the presented data is determined by the extend of the E-OBS data. We acknowledge however that it is difficult to determine the accuracy of the estimate east of 60° east. We will discuss this as a potential limitation in the revised data set.

### **Comment 3:**

*The region marked “2” shows grid cells over the major part of the Caspian sea, hence*

C2

*it's unclear what their runoff values may be attributed to. It has also been noted that the figures provided in the paper miss Caspian Sea shoreline.*

**Reply 3:**

1. We will consider to remove grid-cells over the Caspian Sea from the final data product.
2. We will take care to include the Caspian Sea in the maps.

**Comment 4:**

*Some of the cells in this region lack data for the period of 2005 – 2006 and 2010 – 2014. According to the other referees' comments this is an issue for several other regions as well. Map in Fig. 5 of the paper addresses this issue.*

**Reply 4:**

This is related to the availability of the E-OBS data. We will discuss this in the revised article.

**Comment 5:**

*The region marked "3" in the supplement image depicts northern Morocco, for which also no observations were available.*

**Reply 5:**

See Reply 2.

**Comment 6:**

*Furthermore, the grid extent does not cover the territory of Iceland.*

**Reply 6:**

Unfortunately the E-OBS data do only cover Iceland after 2005. We will discuss limited forcing-data coverage in the revised article.

C3

**Comment 7:**

*Technical corrections:*

*P10 L10: "validation is space" – "validation in space".*

**Reply 7:**

We will correct this.

**Comment 8:**

*Overall rating of the paper and the dataset is very positive; I greatly support the effort made by authors and will be looking forward to their research in the future.*

**Reply 8:**

Thanks a lot for the support of our work!

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