Hybrid multi-model ensemble learning for reconstructing gridded runoff of Europe for 500 years

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The runoff dataset version v0.1

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1 Introduction

The data archive provides the reconstructed dataset capturing the annual runoff across Europe, partitioned into a grid format and preserved in NetCDFv4 (.nc) format for enhanced geospatial information.

1.1 Coordinate system and spatial resolution

Each grid cell in the dataset corresponds to a 0.5-degree spatial resolution, using the World Geodetic System 1984 (WGS84) as the standard coordinate frame.

1.2 Temporal resolution

The data encapsulates a yearly temporal resolution, offering a comprehensive outlook from 1500 to 1999. For example data for 1500 are represented by the layer 01/01/1500.

1.3 Units

Runoff measurements are quantified in millimeters per year (mm/year), providing hydrological data throughout the noted time frame.

1.4 Example

```
library(terra)
library(raster)

> dt_cc<-rast("HEMMF_ERUN_1500_1999.nc")
> dt_cc
class       : SpatRaster
dimensions  : 70, 104, 500  (nrow, ncol, nlyr)
resolution  : 0.5, 0.5  (x, y)
extent      : -12, 40, 35, 70  (xmin, xmax, ymin, ymax)
coord. ref. : lon/lat WGS 84 (EPSG:4326)
source      : HEMMF_ERUN_1500_1999.nc
varname     : runoff
names       : runoff_1, runoff_2, runoff_3, runoff_4, runoff_5, runoff_6, ...
unit        :  mm/year,  mm/year,  mm/year,  mm/year,  mm/year,
mm/year, ...
time (days) : 1500-01-01 to 1999-01-01
```

1.5 Citation

The specific data file, named 'HEMMF_ERUN_1500_1998.nc,' is conveniently structured to facilitate easy handling and interpretation of the information.

Please ensure to attribute the correct citation when utilizing this dataset, adhering to the subsequent reference: [Singh et al., 2023]

References

Ujjwal Singh, Petr Maca, Martin Hanel, Yannis Markonis, Rama Rao Nidamanuri, Sadaf Nasreen, Johanna Ruth Blöcher, Filip Strnad, Jiri Vorel, Lubomir Riha, and Akhilesh Singh Raghubanshi. Hybrid multi-model ensemble learning for reconstructing gridded runoff of europe for 500 years. *Information Fusion*, 97:101807, 2023. ISSN 1566-2535. doi: https://doi.org/10.1016/j.inffus.2023.101807. URL `https://www.sciencedirect.com/science/article/pii/S1566253523001161#d1e5346`.