A Pan-European data set of long flood time series for trend detection

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The COST Action ES0901 on "European procedures for flood frequency estimation" has initiated the collection of long hydrometric records (daily discharge) from across Europe. A small number of the longest records were collected from a total of 24 member countries. Quality of these data was assessed from the contributors, which is an essential condition for research purposes. However, some barriers arise, such as restrictions imposed by hydrometric authorities and legal constraints in data sharing. Some contributing countries have presented legal restrictions on public use of data. The database was supplemented with long term data available from the UNESCO-IHP FRIEND European Water database for countries where data were not available through the COST Action. Consequently, the database compiled in this project is the most comprehensive database of long term European flow data available, and it is composed of 96 gauging stations from 24 countries, with a mean record length of 95 years. The longest records are generally found in northern and central Europe, but records in excess of 40 years are available for every region.

Annual maximum series (AMS) of floods were identified from the series of mean daily discharges, assuming a given hydrological year from October to September, in order to avoid differences among countries. In addition, some countries sent AMS of instantaneous peak flows. Initial assessment of the trend in long term records was conducted using the Mann-Kendall test. The results show a very mixed picture, with both upward and downward trends apparent, but little or no spatial consistency. More in-depth studies on trend detection are planned in the forth coming months.