

Interactive comment on “The European Flood Alert System – Part 1: Concept and development” by J. Thielen et al.

Anonymous Referee #2

Received and published: 31 March 2008

Referee’s comments to the paper “The European Flood Alert System. I. Concept and Development”; Authors: J. Thielen, J. Bartholmes, M. - H. Ramos, A. de Roo

Introduction and general framework

The paper addresses a topic, which is discussed very often in the hydrological community and water management institutions; how to approach medium range flood forecasts and warnings. The subject is very important particularly for operational water management purposes. The approaches used in the solution of this serious problem need a deep knowledge of precipitation; runoff processes. The authors present quite a complex approach to the solution of this important task for improving

Full Screen / Esc

Printer-friendly Version

Interactive Discussion

Discussion Paper



the system of hydrological forecasting in rather large river basins in Europe by combining DWD and ECMWF medium-term meteorological forecasts to produce hydrological forecasts for 3 to 10 days ahead. The authors also present examples from real life case studies. Publishing of such results is particularly useful for practitioners involved in flood management, especially flood forecasting specialists.

The title of the paper clearly reflects its content, the abstract provides a concise and complete summary. The amount and quality of the supplementary material on model development and performance is less appropriate. Some additions and proposals could be added to increase the information content of the model development and increase the interpretability of the conclusions. The overall presentation is well structured and clear. The language is fluent and precise.

Sufficient attention was paid to the review of the topic. The objectives of the study were quite clearly defined. Two items were stressed: the results of EFAS should serve as complementary information to national hydrological services and provide the EC with a reliable overview of ongoing and expected flooding in large river basins in Europe. Moreover the system should be useful for supporting crises management in the future in the case of large transnational flood events. Work on the development of EFAS also called for an enormous effort connected with obtaining the input data and the subsequent evaluation of these forecasts by the end users. The paper documents the historical and scientific background of this development.

On the development of the EFAS

The development was divided into 3 phases; they are separately commented upon below.

The scientific feasibility study (Phase 1) The EFAS started as a project under the EU's 5th Framework Programme and required cooperation on quite a large scale. The first studies from Meuse (1995), Po flood (1994) and extreme Odra floods (1997) were among the first approaches that provided forecasts and warning with lead

[Full Screen / Esc](#)[Printer-friendly Version](#)[Interactive Discussion](#)[Discussion Paper](#)

time of 2 – 3 days in international basins. Is there a particular reason why these studies were focused only on the mentioned limited number flood events? In the mentioned time period many European rivers were plagued by severe floods, further comparisons might also be interesting.

Identification of enduser needs (Phase 2) Success of implementing the outcomes of studies like this depends on quite close cooperation between the institutions responsible for monitoring the rivers. Therefore suitable amount of attention was paid in the paper to the description of the needs of institutions implementing the system.

Prototype development (Phase 3) Adequate place was given in the paper to the description of the data inputs, since for water forecasting data it was important to have good quality hydrological and meteorological data in real time and additional data on soil, land use, topography, channel network; interpolating data onto 50x50 km grids. In addition it was needed to receive the historic data, cross-section, and reservoir data and so on. The large organisation effort from authors needed for cooperation among states to obtain all important inputs is documented.

EFAS is based on the LISFLOOD hydrological model. A description of the model and its philosophy has already been described in several publications. It would be useful to comment in the paper which factors were decisive in the selection of this particular model. Did the comparison with other models show its advantages or was it only a matter of convenience? Criteria to the threshold exceedance could be documented by providing additional figures.

EFAS has been running forecasts twice a day since 2005. The results are systematically verified by feed-back questionnaires and workshops and show quite good success. The development of modelling result visualisation products for ensemble flood forecasting constitutes the one of main contributions of EFAS. The forms of visualisation presented are quite clear and instructive. In the presented form they can serve as additional information for national hydrological services to help in decision process on

Full Screen / Esc

Printer-friendly Version

Interactive Discussion

Discussion Paper



flood warning.

Adding additional particular results demonstrating a comparison of the forecasts and real life data would be useful. Comments as to how these aided the problem solving in the particular catchments and were supporting for international co-operation would also be of interest.

Conclusions

The paper is rather short, general and descriptive. It helps the reader understand the problem and provide a good summary of the main points as well. It is clear that the use of the EFAS results of can be seen as innovative for operational hydrology in a warning system. The system described in the paper presents a step forward in the exploitation of available information for the improvement of these forecasts. On the other hand the in the given form the paper is more a historical review of the system development and introduction to the system. The scientific part of the paper is less developed and the amount of results presented is not adequate for HESS. In order to recommend this paper to HESS the scientific component would need a major revision. A companion paper in HESSD contains more in this respect. I would recommend the authors to join both papers into a comprehensive paper on the development and performance evaluation of EFAS.

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 5, 257, 2008.

Full Screen / Esc

Printer-friendly Version

Interactive Discussion

Discussion Paper

