

Home

Online Library HESS

- Recent Final Revised Papers
- Volumes and Issues**
- Special Issues
- Library Search
- Title and Author Search

Online Library HESSD

Alerts & RSS Feeds

General Information

Submission

Review

Production

Subscription

Comment on a Paper



[Volumes and Issues](#) [Contents of Issue 6](#)

Hydrol. Earth Syst. Sci., 13, 913-921, 2009
www.hydrol-earth-syst-sci.net/13/913/2009/

© Author(s) 2009. This work is distributed under the Creative Commons Attribution 3.0 License.

Uncertainty in river discharge observations: a quantitative analysis

G. Di Baldassarre¹ and A. Montanari²

¹Department of Hydroinformatics and Knowledge Management, UNESCO-IHE Institute for Water Education, Delft, The Netherlands

²Faculty of Engineering, University of Bologna, Bologna, Italy

Abstract. This study proposes a framework for analysing and quantifying the uncertainty of river flow data. Such uncertainty is often considered to be negligible with respect to other approximations affecting hydrological studies. Actually, given that river discharge data are usually obtained by means of the so-called rating curve method, a number of different sources of error affect the derived observations. These include: errors in measurements of river stage and discharge utilised to parameterise the rating curve, interpolation and extrapolation error of the rating curve, presence of unsteady flow conditions, and seasonal variations of the state of the vegetation (i.e. roughness). This study aims at analysing these sources of uncertainty using an original methodology. The novelty of the proposed framework lies in the estimation of rating curve uncertainty, which is based on hydraulic simulations. These latter are carried out on a reach of the Po River (Italy) by means of a one-dimensional (1-D) hydraulic model code (HEC-RAS). The results of the study show that errors in river flow data are indeed far from negligible.

[Final Revised Paper](#) (PDF, 1708 KB) [Discussion Paper](#) (HESSD)

Citation: Di Baldassarre, G. and Montanari, A.: Uncertainty in river discharge observations: a quantitative analysis, Hydrol. Earth Syst. Sci., 13, 913-921, 2009. [Bibtex](#) [EndNote](#) [Reference Manager](#)



Search HESS

Library Search

Author Search

News

- New Alert Service available
- New Service Charges
- Financial Support for Authors

Recent Papers

01 | HESS, 21 Jul 2009:
The hydrological response of baseflow in fractured mountain areas

02 | HESSD, 21 Jul 2009:
Less rain, more water in ponds: a remote sensing study of the dynamics of surface waters from 1950 to present in pastoral Sahel (Gourma region, Mali)

03 | HESSD, 21 Jul 2009:
Deriving a global river network map at flexible resolutions from a fine-resolution flow direction map with explicit representation of