

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

Impact
Factor
2.270

ISI
indexed

ARCHIVED IN



PORTICO

[Volumes and Issues](#) [Contents of Issue 3](#)

Hydrol. Earth Syst. Sci., 7, 297-303, 2003

www.hydrol-earth-syst-sci.net/7/297/2003/

© Author(s) 2003. This work is licensed under a Creative Commons License.

The use of hydrological and geoelectrical data to fix the boundary conditions of a ground water flow model: a case study

M. Giudici, M. Manera, and E. Romano

Università degli Studi di Milano, Dipartimento di Scienze della Terra, Sezione di Geofisica, via Cicognara 7, I-20129 Milano, Italy

Email for corresponding author: Mauro.Giudici@unimi.it

Abstract. To assess whether the hydrometric level of an artificial lake in a quarry near Milan (Italy) could be assigned as a Dirichlet boundary condition for the phreatic aquifer in a fine scale groundwater flow model, hydrological measurements of piezometric head and rainfall rate time series have been analysed by spectral and statistical methods. The piezometric head close to the quarry lake proved to be well correlated with seasonal variations in the rainfall. Furthermore, geoelectrical tomography detected no semi-permeable layer between the phreatic aquifer and the lake, so the contact between surface and ground water is good. Finally, a time-varying prescribed head condition can be applied for ground water flow modelling.

Keywords: ground water flow, boundary conditions, surface and ground water interactions, geoelectrical tomography, statistical analysis.

[Final Revised Paper](#) (PDF, 630 KB)

Citation: Giudici, M., Manera, M., and Romano, E.: The use of hydrological and geoelectrical data to fix the boundary conditions of a ground water flow model: a case study, Hydrol. Earth Syst. Sci., 7, 297-303, 2003. [Bibtex](#) [EndNote](#) [Reference Manager](#)

Copernicus Publications
The Innovative Open Access Publisher

Search HESS

Library Search

Author Search

News

- [New Service Charges](#)
- [Financial Support for Authors](#)
- [ISI Impact Factor: 2.270](#)

Recent Papers

01 | HESSD, 12 Mar 2009:
Distributed modeling of land surface water and energy budgets in the inland Heihe river basin of China

02 | HESSD, 12 Mar 2009:
Comparison of six algorithms to determine the soil thermal diffusivity at a site in the Loess Plateau of China

03 | HESS, 11 Mar 2009:
Large-scale lysimeter site St. Arnold, Germany: analysis of 40 years of precipitation, leachate and evapotranspiration