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Mauro GIUDICI's Curriculum Vitæ

Born in Milano, on July 29th, 1963.

Full Professor of Geophysics
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Professional activity

04/02/1987	Degree in Physics (with honours) from UNIMI
1987	Consultant for the Municipality of Milano
1988	UNISYS Grant recipient at C.I.L.E.A.
1989/90	PhD student in Geophysics at the University of Modena
From 16/11/1990 to 31/10/1999	Assistant Professor at UNIMI
From 01/11/1999 to 29/02/2012	Associate Professor at UNIMI
From 01/03/2012	Full Professor at UNIMI

Scientific Activity

- Development of mathematical models of ground water flow;
  - Study of aquifers with different hydrogeological situations (phreatic, confined, multilayered aquifers, unsaturated soils) and flow conditions (stationary and transient);
  - Applications to alluvial aquifers: urban area of Milano at different scales (city scale, single pumping station, province scale); apenninic alluvial fans; aquifer system of the Adda-Oglio hydrological basin;
  - Applications to fractured coastal aquifers (Salento peninsula, Southern Italy);
  - Change of scale of hydrodynamic parameters and study of the effects of facies heterogeneity on groundwater flow and transport;
  - Thermo-mechanical modelling of the Antarctic ice sheet to study the subglacial hydrographic network.
- Identification of physical parameters by solution of inverse problems;
  - Fundamental results on identifiability of physical parameters for transport equations;
  - Development of analytical and numerical techniques for solving the inverse problem of water flow in porous media and heat conduction.
- Geophysical prospecting;
  - Theoretical and experimental studies on electrical and electromagnetic prospecting with applications to geology (alpine and apenninic domains), hydrogeology and hydrostratigraphy (Po plain), geo-archaeology (Terramara Santa Rosa di Poviglio, Reggio Emilia, Italy);
  - Seismic and gravimetric prospecting.

Author of more than 110 publications, 2/3 of which with international diffusion[3].
Reviewer of papers for some of the most important scientific journals of geophysics. Associate editor of Hydrogeology Journal from 2006 to 2009 and of Hydrology and Earth System Sciences since November 2013.
Member of the following scientific associations: EGU-European Geosciences Union, formerly EGS–European Geophysical Society (Secretary of the subsection "Hydrology and Applied Mathematics" of the section "Hydrological Sciences" from May 1999 to April 2002; convener and chairman of sessions at the "General Assemblies" of the EGS); EAGE-European Association of Geoscientists and Engineers (formerly EEGS–Environmental and Engineering Geophysics Society); AGU–American Geophysical Union; IAMG–International

[1] From now on indicated with the acronym UNIMI.

[2] Vice-director of the Department from May 31, 2012 to September 30, 2014; Director of the Department from October 1, 2014 to September 30, 2017.

[3] Complete lists can be found searching for the following ID at some citation data bases: ORCID 0000-0002-6703-5748; Thomson Reuters ResearcherID A-5916-2013; Scopus Author ID 35606895900; Google Scholar ID VSz6AhUAAAAJ.

Association of Mathematical Geology; IAHS-International Association of Hydrological Sciences; AGI–Associazione Geofisica Italiana; SII-IHS-Società Idrologica Italiana.
Principal investigator of national research projects.
Consultant for public organizations and administrations, for private companies and for penal and civil courts on problems of management and contamination of ground water resources.
Reviewer of national and international (EU, Czech Republic, France, Germany, Austria) research projects, for the 1st VTR (*Evaluation of national research*) and for the CIVR (*Advisory panel for research evaluation*).

Teaching Activity

Responsible of the following course units: *Laboratory of Earth Physics* for the *Degree Course in Physics* from 1995/96 to 2003/04 (UNIMI); *Geophysical fluid dynamics* for the *Degree Course in Geological Sciences* from 2000/01 to 2003/04 (UNIMI); *Ground water hydrology* for the *Degree Course in Environmental and Land Engineering* in 2001/02 and 2002/03 (Politecnico di Milano).
Responsible of the following course units after the national University system reform: *Microclimatology for cultural heritage* for the *Laurea magistrale course in Diagnostic and conservation science for cultural heritage* since 2015/16 (UNIMI); *Fundamentals of environmental modelling* for the *Laurea magistrale course in Physics* from 2005/06 to 2016/17 (UNIMI); *Earth Physics* for the *Laurea and Laurea magistrale courses in Physics* since 2010/11 (UNIMI); *Applied geophysics* for the *Laurea course in Geological Sciences* in 2010/11 (UNIMI); *Geophysical fluid dynamics* from 2010/11 to 2014/15 and *Shallow geophysical exploration* from 2011/12 to 2016/17 for the *Laurea magistrale course in Earth Sciences* (UNIMI); *Laboratory of Earth Physics* for the *Laurea and Laurea magistrale courses in Physics* from 2004/05 to 2009/2010 (UNIMI); *Electrical and electromagnetic prospecting* for the *Laurea course in Geological Sciences* from 2006/07 to 2009/10 (UNIMI); *Basic applied geophysics* for the *Laurea course in Geological Sciences* in 2007/08 and 2008/09 (University of Parma).
Co-ordinator of the Master course in "Hydrodynamics in porous geological formations" in 2000/01 (UNIMI).
International teaching activity within the ERASMUS/SOCRATES Programme of the European Union.
Exercises, lectures and seminars for course units of the Degree courses in Geological Sciences and Physics (UNIMI).
Supervisor of eight PhD theses in Earth Sciences, one in Polar Sciences, one in Physics, Astrophysics and Applied Physics and of more than 100 Masters' Degree theses in Physics, Geological Sciences and Environmental and Land Engineering.

Selected publications

International publications in the last five years (2012-2016).

1 dell'Arciprete, D., Bersezio, R., Felletti, F., Giudici, M., Comunian, A., and Ph. Renard, Comparison of three geostatistical methods for hydrofacies simulation: a test on alluvial sediments. *Hydrogeology Journal*, 20, 299-311, DOI:10.1007/s10040-011-0808-0, 2012.

2 Vassena, C., Rienzner, M., Ponzini, G., Giudici, M., Gandolfi, C., Durante, C., and D. Agostani, Modeling water resources of an highly irrigated alluvial plain: coupling and calibrating soil and ground water models. *Hydrogeology Journal*, 20, 449-467, DOI:10.1007/s10040-011-0822-2, 2012.

3 Baratelli, F., Giudici, M., and C. Vassena, A sensitivity analysis for an evolution model of the Antarctic ice sheet. *Reliability engineering & system safety*, 107, 64-70, DOI:10.1016/j.ress.2011.07.003, 2012.

4 Mele, M., Bersezio, R., and M. Giudici, Hydrogeophysical imaging of alluvial aquifers: electrostratigraphic units in the Quaternary Po alluvial plain (Italy). *International Journal of Earth Sciences*, 101, 2005-2025, DOI:10.1007/s00531-012-0754-7, 2012.

5 Giudici, M., Baratelli, F., Castellani, G., and C. Vassena, Modeling the Antarctic ice sheet and ice shelves: assessing the effects of uncertainty on the model parameters by sensitivity analysis, in *Ice Sheets: Dynamics, Formation and Environmental Concerns* (J. Müller & L. Koch, Eds.), 121-142. Nova Science Publishers, Inc., Hauppauge, N.Y., ISBN 978-1-61942-367-1, 2012.

6 Giudici, M., Margiotta, S., Mazzone, F., Negri, S., and C. Vassena, Modeling hydrostratigraphy and groundwater flow of a fractured and karst aquifer in a Mediterranean basin (Salento peninsula,

southeastern Italy). *Environmental Earth Sciences*, 67, 1891-1907, DOI:10.1007/s12665-012-1631-1, 2012.

7 Giudici, M., Bersezio, R., Felletti, R., Baratelli, F., Cattaneo, L., Cavalli, E., dell'Arciprete, D., Mele, M., Pessina, L., and C. Vassena, A multidisciplinary study of sediments' connectivity and transport parameters for aquifer analogues, in *Models – Repositories of Knowledge* (S.E. Oswald, O. Kolditz & S: Attinger, Eds.), 223-228, IAHS Publ. 355, ISBN 978-1-907161-34-6, 2012.

8 Mele, M., Bersezio, R., Giudici, M., Inzoli, S., Cavalli, E. and A. Zaja, Resistivity imaging of Pleistocene alluvial aquifers in a contractional tectonic setting: a case history from the Po plain (northern Italy). *Journal of Applied Geophysics*, 93, 114–126, DOI:10.1016/j.jappgeo.2013.03.015, 2013.

9 Ortuani, B., Benedetto, A., Giudici, M., Mele, M., and F. Tosti, A non-invasive approach to monitor variability of soil water content with electromagnetic methods. *Procedia Environmental Sciences*, 19, 446-455, DOI:10.1016/j.proenv.2013.06.051, 2013.

10 Mele, M., Cremaschi, M., Giudici, M., Lozej, A., Pizzi, C., and A. Bassi, The terramare and the surrounding hydraulic structures: a geophysical survey of the Santa Rosa site at Poviglio (Bronze Age, Northern Italy). *Journal of Archaeological Sciences*, 40, 4648-4662, DOI:10.1016/j.jas.2013.06.033, 2013.

11 De Filippis, G., Giudici, M., Margiotta, S., Mazzone, F., Negri, S., and C. Vassena, Numerical modeling of the groundwater flow in the fractured and karst aquifer of the Salento peninsula (Southern Italy). *Acque sotterranee – Italian Journal of Groundwater* (ISSN 1828-454X), AS04016, 17-28, DOI:10.7343/AS-016-013-0040, 2013.

12 Cattaneo, L., Vassena, C., Giudici, M., and B. Petrucci, Modeling groundwater recharge in an alluvial aquifer of Somaliland with the groundwater flow model YAGMOD. *Acque sotterranee – Italian Journal of Groundwater* (ISSN 1828-454X), AS04018, 47-57, DOI:10.7343/AS-018-13-0042, 2013.

13 Benedetto, A., Tosti, F., Ortuani, B., Giudici, M., and M. Mele, Soil Moisture Mapping with GPR for Pavement Applications. *7th International Workshop on Advanced Ground Penetrating Radar (IWAGPR),* ISBN 978-1-4799-0937-7, DOI:10.1109/IWAGPR.2013.6601550, 2013.

14 Serrano, R.P., Guadagnini, L., Riva, M., Giudici, M., and A. Guadagnini, Impact of two geostatistical hydro-facies simulation strategies on head statistics under non-uniform groundwater flow. *Journal of Hydrology*, 508C, 343-355, DOI:10.1016/j.jhydrol.2013.11.009, 2014.

15 Mele, M., Inzoli, S., Giudici, M., and R. Bersezio, Relating electrical conduction of alluvial sediments to textural properties and pore-fluid conductivity. *Geophysical prospecting*, 62, 631–645, DOI:10.1111/1365-2478.12102, 2014.

16 dell'Arciprete, D., Vassena, C., Baratelli, F., Giudici, M., Bersezio, R., and F. Felletti, Connectivity and Single/dual domain transport models: tests on a point-bar/channel analogue. *Hydrogeology Journal,* 22, 761-778, DOI:10.1007/s10040-014-1105-5, 2014.

17 Baratelli, F., Giudici, M., and G. Parravicini, Single- and Dual-domain Models of Solute Transport in Alluvial Sediments: the Effects of Heterogeneity Structure and Spatial Scale. *Transport in Porous Media*, 105, 2, 315-348, DOI:10.1007/s11242-014-0371-y, 2014.

18 Giudici, M., Baratelli, F., Comunian, A., Vassena, C., and L: Cattaneo, Model calibration for ice sheets and glaciers dynamics: a general theory of inverse problems in glaciology, *The Cryosphere Discussion* (eISSN 1994-0440), 8, 5511-5537, DOI:10.5194/tcd-8-5511-2014, 2014.

19 De Filippis, G., Margiotta, S., Negri, S., and M. Giudici, The geothermal potential of the underground of the Salento peninsula (southern Italy). *Environmental Earth Sciences* (ISSN 1866-6280; elISSN 1866-6299), 73, 6733-6746, DOI:10.1007/s12665-014-4011-1, 2015.

20 Mele, M., Ceresa, N., Bersezio, R., Giudici, M., Inzoli, S., and E. Cavalli, Resolving electrolayers from VES: A contribution from modeling the electrical response of a tightly constrained alluvial stratigraphy. *Journal of Applied Geophysics* (ISSN 0926-9851), 119, 25-35, DOI:10.1016/j.jappgeo.2015.05.002, 2015.

21 Benedetto, A., Tosti, F., Ortuani, B., Giudici, M., and M. Mele, Mapping the spatial variation of soil moisture at the large scale using GPR for pavement applications. *Near Surface Geophysics* (ISSN 1569-4445; elISSN 1873-0604), 13, 269-278, DOI:10.3997/1873-0604.2015006, 2015.

22 Giudici, M., Mele, M., Inzoli, S., Comunian, A., and R. Bersezio, The application of hydrogeophysics to study water-based ecosystem services in alluvial plains. *First Break* (ISSN 0263-5046; elISSN 1365-2397), 33, 55-60, 2015.

23 Inzoli, S., and M. Giudici, A comparison between single- and multi-objective optimization to fit spectral induced polarization data from laboratory measurements on alluvial sediments. *Journal of applied geophysics* (ISSN 0926-9851), 122, 149-158, DOI:10.1016/j.jappgeo.2015.09.017, 2015.

24 Cattaneo, L., Comunian, A., De Filippis, G., Giudici, M., and C. Vassena, Modeling groundwater flow in heterogeneous porous media with YAGMod. *Computation,* 4, 2, DOI:10.3390/computation4010002, 2016.

25 Comunian, A., De Micheli, L., Lazzati, C., Felletti, F., Giacobbo, F., Giudici, M., and R. Bersezio, Hierarchical simulation of aquifer heterogeneity: implications of different simulation settings on solute transport modeling. *Hydrogeology Journal*, 24, 2, 319-334, DOI:10.1007/s10040-015-1343-1, 2016.

26 Ortuani, B., Chiaradia, E.A., Priori, S., L'Abate, G., Canone, D., Comunian, A., Giudici, M., Mele, M., and A. Facchi, Mapping soil water capacity through EMI survey to delineate site-specific management units within an irrigated field. *Soil Science*, 181, 252–263, DOI:10.1097/SS.0000000000000159, 2016.

27 Giudici, M., D'Orsi, P., Caironi, V., Baratelli, F., Cattaneo, L., Comunian, A., De Filippis, G., Dell'Arciprete, D., Durante, C., Inzoli, S., Mele, M., and C. Vassena, Exposing high-school students to Geosciences through seminars, laboratory and field demonstrations. *Rendiconti on line della Società Geologica Italiana*, 40, 18-21, DOI:10.3301/ROL.2016.66, 2016.

28 De Filippis, G., Foglia, L., Giudici, M., Mehl, S., Margiotta, S., and S. Negri, Seawater intrusion in karstic, coastal aquifers: current challenges and future scenarios in the Taranto area (southern Italy). *Science of the Total Environment*, 573, 1340-1351, DOI:10.1016/j.scitotenv.2016.07.005, 2016.

29 Inzoli, S., Giudici, M., and J. A. Huisman, Estimation of sediment texture from spectral induced polarization data using cluster and principal component analyses. *Near Surface Geophysics*, 14, 433-447, DOI:10.3997/1873-0604.2016033, 2016.

30 De Filippis, G., Giudici, M., Margiotta, S., and S. Negri, Conceptualization and characterization of a coastal multi-layered aquifer system in the Taranto Gulf (southern Italy). *Environmental Earth Sciences*, DOI:10.1007/s12665-016-5507-7, 2016.

Bibliometric indices

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