



EnviroInfo²⁰¹³ –
Environmental Informatics and Renewable Energies

27th International Conference on Informatics for Environmental Protection
Bernd Page, Andreas G. Fleischer, Johannes Göbel, Volker Wohlgemuth (Eds.)

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Volker Wohlgemuth	University of Applied Sciences (HTW) Berlin, Germany Conference Co-Chair

Editors

Bernd Page

University of Hamburg, Department of Informatics
Vogt-Kölln-Straße 30, 22527 Hamburg, Germany

Andreas G. Fleischer

University of Hamburg, Department of Informatics
Vogt-Kölln-Straße 30, 22527 Hamburg, Germany

Johannes Göbel

University of Hamburg, Department of Informatics
Vogt-Kölln-Straße 30, 22527 Hamburg, Germany

Volker Wohlgemuth

University of Applied Sciences (HTW) Berlin, Department Engineering Sciences II
Wilhelminenhofstraße 75A, 12459 Berlin, Germany

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Preface:
Welcome to the 27th EnviroInfo 2013 Conference
at the University of Hamburg
“Environmental Informatics and Renewable Energies”!

Bernd Page¹, Andreas Fleischer¹, Johannes Göbel¹, Volker Wohlgemuth²

The EnviroInfo Conference Series

EnviroInfo 2013 is the 27th edition of the well-established international and interdisciplinary EnviroInfo conference series on leading environmental IC Technologies under the umbrella of the German Computer Society (GI), to make the world a better place for living. The GI Special Interest Group **Environmental Informatics, Informatics for Environmental Protection, Sustainability and Risk Management** (TC 4.6; see <http://enviroinfo.eu/de/node>) with numerous conferences and workshops has been shaping the Applied Informatics field of Environmental Informatics on a national as well as on the international level since many years. EnviroInfo aims at reporting on state-of-the-art environmental applications of ICT as well as the newest scientific and technological trends in the field of Environmental Informatics.

Our long conference tradition in the field of Environmental Informatics has been initiated as early as 1986 with the foundation of the Technical Committee “Informatics in Environmental Protection” (Environmental Informatics) in the German Society for Informatics (GI). More than 26 years later, 26 yearly EnviroInfo conferences (plus numerous smaller workshops) have been held in seven different European countries (Austria, Czech Republic, France, Germany, Italy, Poland, Switzerland) with approximately 3,500 papers submitted by 8,000 authors published in conference proceedings since the first event in 1986. Our 27th EnviroInfo conference will present 117 papers which have been submitted by authors from 25 countries.

From an early German/Austrian initiative, the conference has extended to the European level and beyond, concerning the venues, the participants, the institutions and the topics. Due to the interdisciplinary character of Environmental Informatics, one important goal of this conference series is to bring together experts from research, education, administration, and industry to exchange ideas and proposals for a solution of urgent problems and needs in the fields of environmental protection, renewable energies, as well as sustainable development and their ICT-assistance.

Each conference has a special thematic focus in Environmental Informatics. This year’s EnviroInfo is discussing Environmental Informatics and Renewable Energies (with some focus on wind energy) as the main conference theme and beyond that of course – like every year – the full range of cross-cutting topics in Environmental Informatics.

EnviroInfo 2013 is held at the University of Hamburg and organized by the Department of Informatics chaired by Prof. Bernd Page in cooperation with Prof. Volker Wohlgemuth (originally from this Department and now at HTW Berlin). The Hamburg Informatics Department has been one of the originators of this conference series and is hosting the conference for the third time in 2013.

¹ University of Hamburg, Department of Informatics, email: {page,fleischer,goebel}@informatik.uni-hamburg.de

² University of Applied Sciences (HTW) Berlin, email: volker.wohlgemuth@htw-berlin.de

The Host City of Hamburg

The host city of Hamburg is often referred to as Germany's Gateway to the World. It runs the country's biggest harbor and the second-busiest in Europe, being located at the river Elbe. It is also Germany's second largest city (after Berlin) with a population of over 1.8 million, while the Greater Hamburg Metropolitan area is home to well over four million people. The city is located on the North German Plain in the lower reaches of the Elbe river, about 100 km from the open North Sea. Hamburg is a metropolis on the waterfront: about 60 km of rivers and canals crisscross the city. The city is proud of its status as a "Free and Hanseatic City" being an independent state, one of the Germany's 16 federal states or "Bundesländer".

Hamburg was 2011's European Green Capital, a title which was awarded from among 35 applicants. The industry of renewable energies developed in Hamburg twice as fast as in the German average. More than 180 companies from this sector are represented in Hamburg. Hamburg founded the Renewable Energy Cluster in 2009 and is thus placed on a level with competitors from around the world. However software development and marketing for this special application domain is still in its infancy.

The Conference Site

The EnviroInfo2013 conference is held at the University of Hamburg, which is located in the Center of Hamburg. The University was founded in 1919. Now it is Germany's 5th largest university with approximately 40,000 students. The university has 270 buildings throughout the city, but its midpoint is the Von-Melle-Park Campus in Eimsbüttel. Students (55% are female) may choose from around 150 different subjects offered by six faculties. The Campus Von-Melle-Park is near the city center, a 5 minute walk from the Dammtor railway station, offering various long distance train connections and a subway link to the Central Station and the airport. The Department of Informatics is one of the oldest Informatics departments in Germany and hosts 1850 students in five different Bachelor programs and an additional five Master degree courses.

Conference Highlights

A special EnviroInfo 2013 highlight is the EU-Session of the European Network Joint Research project EnerGEO (with twelve partner institutions from six European countries). EnerGEO aims at providing a versatile modeling platform that will enable planners, environmentalists and governments to calculate, forecast and monitor the environmental impact of changes in the energy mix on local, regional and global scales. This EU-session is organized together with another European research project group ENDORSE which is jointly developing new user-driven services for analysis, evaluation and assessment of investment risks in renewable energy systems. Together they are carrying out their final project workshops organized by Prof.Dr. Isabel Blanc from the French technical university MINES Paris TECH under the title „Web services for assessment of Resources and Impacts of Renewable Energies“.

Another special session is provided by the interdisciplinary joint research group Smart Nord with 40 scientists from several Lower Saxony universities sponsored by the Lower Saxony Ministry for Science and Culture. This joint Smart Grid project is aiming together with industrial partners at the development of ICT contributions for a coordinated, distributed provision of effective power, controlling power range, and wattless power in supply nets. At EnviroInfo 2013 the latest of their frequent workshops has been organized by the project head Prof. Michael Sonnenschein from the University of Oldenburg.

Other sessions with reference to the main conference theme "Environmental Informatics and Renewable Energies" include ICT for Renewable Energies, Wind Farms or Energy Management.

A number of invited talks on exciting subjects provide the conference program with a special touch. Already the highly ranked opening session is occupied by most challenging welcome addresses and presentations including Dr. Janez Potočnik, European Commissioner for the Environment, Dr. Carl-Christian Buhr, EU Cabinet Member of Vice President for the Digital Agenda, with a talk entitled “Cross-Cutting Informatics in Horizon 2020” as well as our acting GI president Prof. Oliver Günther, PhD, GI-President and President of Potsdam University, who is talking about “From SDI to Online Dating: Looking Back at Social Responsibility in Computing”.

The conference program is enriched by a number of excellent planetary presentations including

- Prof. Dr. Isabelle Blanc, MINES ParisTech – Observation, Impacts, Energy Center (O.I.E.):
“Coupling Resources & Impacts to measure environmental performance of Renewable Energies”
- Prof. Dr. Thomas Ludwig, Director of German Climate Computing Center in Hamburg (DKRZ):
“Green Supercomputing – On the Energy Consumption of Modern E-Sciences”
- Prof. Dr. Lorenz M. Hilty, University of Zürich:
“Smart Solutions, Energy Efficiency and Sustainability”
- Prof. Dr. Olaf Hohmeyer, University of Flensburg: “Energy and Resource Efficiency”
- Prof. Dr. Michael Sonnenschein, Carl von Ossietzky University Oldenburg:
“Smart Grids for Optimised Utilisation of Renewable Energy Supply”
- Prof. Dr. Horst Oberquelle, University of Hamburg: “Konrad Zuse: Computer Pioneer and Painter”
- Michael Böttinger, German Climate Computing Center Hamburg (DKRZ):
“Earth System Modeling for Visualization of Climate Change”
- Prof. Dr. Hennes Albers, HS Bremen, Prof. Dr. Bernd Page, Philip Joschko, et.al., University of Hamburg: “Business Process Modelling and Simulation of Operations and Maintenance Processes in Offshore-Wind Farms – The SystOp-Project”

Beyond that, we have invited students to join this conference in a self-organized student workshop. The students have the opportunity to get an insight into this outstanding scientific community in Environmental Informatics as well as to establish close contact with relevant industry to learn about the professional challenges in this field. For the eleventh time, the TC “Environmental Informatics” of the German Informatics Society (GI) will award a prize for an excellent student’s contribution in the field of Environmental Informatics. The winners will receive prize money and will have the opportunity to present their work to the scientific community on our conference.

Last but not least, the editors would like to thank all participants for contributing to our EnviroInfo 2013 conference and to the conference proceedings. Special thanks go to the acting members of the programme committee (see page iii), to the members of our organizing team (see page iv), not to forget our helping student hands from Hamburg and Berlin.

Special thanks to our sponsors (see page v) for their helpful financial support and finally to our alma mater, the University of Hamburg, for being our generous host for the EnviroInfo and allowing us to make use their lecture halls and seminar rooms as well as their technical equipment free of charge during EnviroInfo 2013.

We wish all participants of the EnviroInfo 2013 most interesting presentations from their field of interest as well as manifold discussions and fruitful exchanges of ideas with other colleagues from different disciplines of sciences and from industry!

Enjoy EnviroInfo 2013!

Enjoy the beautiful city of Hamburg!

See you next year for EnviroInfo 2014 in Oldenburg!

Hamburg, 2. September, 2013

Bernd Page, Andreas Fleischer, Johannes Göbel, Volker Wohlgemuth

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