

Summary R e p o r t
On the Activities of the
“International German Summer School on Hydrology 2011”
Bochum, 17-24 September, 2011

The fifth International German Summer School on Hydrology was held between 17 and 24 September 2011 here in Bochum, Ruhr-University. A total of 12 scientists from ten different countries participated in this course (List of participants is annexed). The majority of the participants come from developing regions like Africa and Asia.

The International German Summer School on Hydrology provides a program of hydrological training courses which vary each year. The focus of the courses lie on applied topics, which are given by German lecturers for an international audience. The courses are held at Ruhr-University Bochum, Germany, and all courses are given in English language.

The first International German Summer School on Hydrology was organized in 2007, and based on the positive response and encouraging feedbacks from participants of the subsequent years, the 2011 courses were offered for competitively selected applicants.

It has been seen that the number of applicants are dramatically increasing year by year and participants are selected in a very competitive manner. Among the selection criteria, a brief statement of motivation that centres the demand of the specific course for current and future career or research development, relevance of the course to the applicant’s career or research area and Qualification and duty of the applicant carry higher grades.

Most of the lecturers of the International German Summer School on Hydrology are staff members of the Ruhr-University Bochum (Faculty of Geosciences and Faculty of Civil Engineering).

The lectures included theoretical as well as practical lessons, which were held in lecture halls and excursions out the field.

‘Urban Hydrogeology’ was chosen to be the focus of IGSH 2011. The lectures were covering the following topics:

- **Factors influencing groundwater in Urban area**
- **Hydrochemistry of groundwaters in Urban area**
- **Transport characteristics in urban groundwater systems**
- **Case studies from different urban settings**

Participants were also encouraged to discuss on cases and personal experiences with regard to the hydrogeology of urban areas.

The theoretical lectures have been accompanied by a full day field excursion with the topic “Hydrogeology and water management in the Ruhrgebiet urban zone”. Participants had the opportunity to observe, appreciate and discuss on technical and technological developments of river-water treatment plants in Essen-Burgaltendorf water works, the management of abandoned coal mine water management and the influence of urban land use on groundwater quality and quantity. In addition the historical old town of Hattingen was visited.

Besides the scientific program, which covered most of the days from early morning until late in the evening, the participants were offered social and cultural programs. It included joint evening events in downtown and the Ruhrgebiet, a guided tour to Bochum and visits to museums that gives opportunities to learn some aspects of German culture and the surrounding landscapes.

During the course a cooperative and friendly environment dominated, which allowed the participants to get close contact to each other and with the lecturers. This still opens a good opportunity to establish scientific and social networks which will continue after the course.

At the end of the course, participants were given a questionnaire (Questionnaire is annexed) to write comments on different aspects of the course and reveal their satisfaction on the content of the course, the lecturers and on the overall organization of the program. (Statistical evaluation of questionnaire are annexed)

Lecturers, field-work directors and field assistants:

Prof. Dr. Stefan Wohnlich

Ruhr University of Bochum, Chair Applied Geology, Hydrogeologist

Prof. Dr. Frank Wisotsky

Ruhr University of Bochum, Applied Geology, Hydrochemist

Jun.-Prof. Dr. Andreas Englert

Ruhr University of Bochum, Applied Geology, Groundwater Modeller

Dipl.-Geol. Bödedecker, Gelsenwasser AG, Gelsenkirchen

Annexes:

1. Course program
2. List of Participants
3. Statistics of Participants
4. Open questionnaire
4. Statistical evaluation of Questionnaire
5. Photos

Annex-1

IGSH 2011

Programme of IGSH_2011course on Urban Hydrogeology

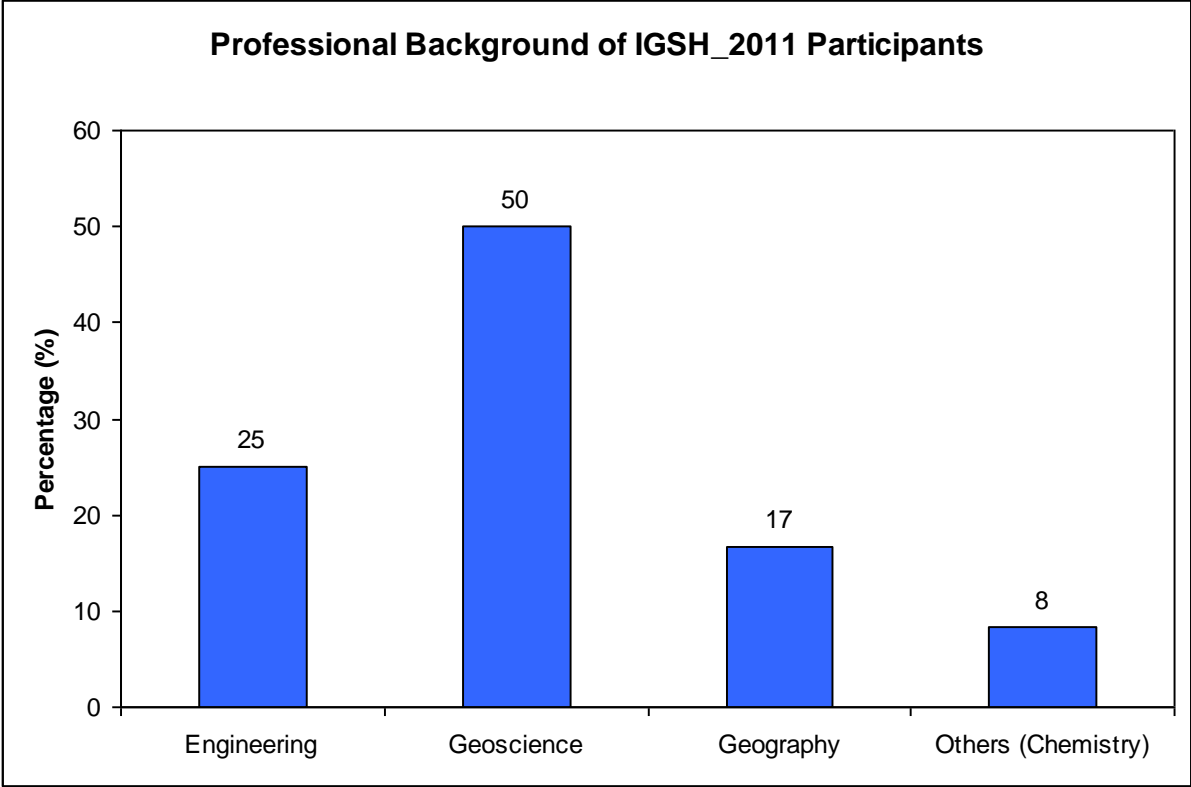
| | | | |
|----------------|---|--|---|
| Sa. 17.09.2011 | Arrival of Participants | | |
| Su. 18.09.2011 | Afternoon: Excursion Industrial Heritage of the Ruhr Area Evening: Welcome Party | | |
| Mo. 19.09.2011 | Lecturer: Prof. Dr. Stefan Wohnlich | Introduction to Groundwater | Introduction of the Lecturers and Participants |
| | | | Presentations by the participants: Case Studies - Expectations |
| | | | Lecture I + II: Hydraulic Parameters in Groundwater |
| | | | |
| Tu. 20.09.2011 | Lecturer: Prof. Dr. Stefan Wohnlich | Factors influencing Groundwater In urban areas | Lecture III: Transport Parameters in Groundwater |
| | | | Visit to the Laboratories |
| | | | Laboratory experiment on Groundwater Transport |
| | | | Lecture IV: Cases Study |
| We. 21.09.2011 | Lecturer: Prof. Dr. Stefan Wohnlich | Excursion | Phoenixsee-Project Dortmund |
| | | | Groundwater sanitation |
| | | | Water supply of the Ruhr Area |
| Th. 22.09.2011 | Lecturer: Prof. Dr. Frank Wisotzky | Hydrochemistry of Groundwater in Urban Areas | Field Observations |
| | | | Characteristics |
| | | | Stochastic Approach |
| Fr. 23.09.2011 | Lecturer: Jun. Prof. Dr. Andreas Englert | Transport characteristics in Urban Groundwater systems | Field Observations Characteristics Stochastic approach |
| Sa. 24.09.2011 | Free | | |
| Su. 25.09.2011 | Departure | | |

Web: www.hydrology-summer school.de

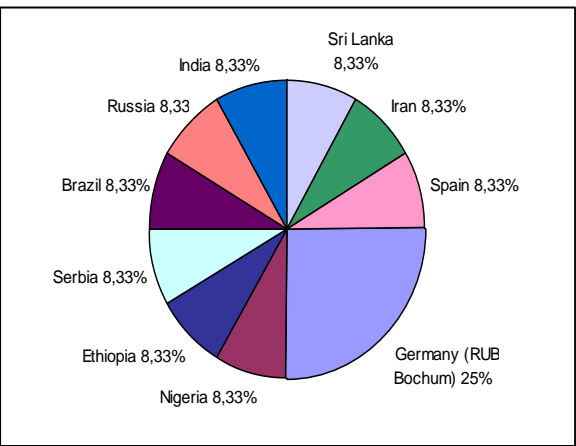
Annex-2 List of Participants

| No. | Family Name | First Name | Title | Sex | Country |
|-----|-----------------------|--------------------------|-------|--------|--------------|
| 1 | Randjelovic | Anja | Mrs. | Female | Serbia |
| 2 | Mahdavi Mazdeh | Ali | Dr. | Male | Iran |
| 3 | OYEDOTUN | Temitope Dare Timothy | Mr. | Male | UK (Nigeria) |
| 4 | Batista | Jonathan | Mr. | Male | Brazil |
| 5 | Piyadasa | Ranjana. Udaya. Kumara | Dr. | Male | Sri Lanka |
| 6 | Asha Tollke | Abrham | Mr. | Male | Ethiopia |
| 7 | HALKURIKE JAYADEVAIAH | SHIVA PRASAD | Mr. | Male | India |
| 8 | Adamovic | Marko | Mr. | Male | Spain |
| 9 | Bibikova | Tatiana | Dr. | Female | Russia |
| 10 | Alhamed | Mohammed | Mr. | Male | Germany |
| 11 | Weldesentbet | Shemelis | Mr. | Male | Germany |
| 12 | Damtew | Aychluhim | Mr. | Male | Germany |

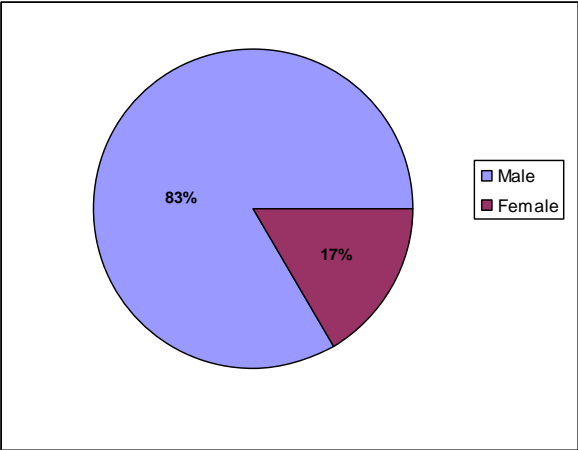
Annex-3 Statistics of Participants



Home Country



Gender



Annex-4 Open questionnaire

Urban Hydrogeology (17 Sep – 24 Sep 2011)

Course Participants Comment Collection Form

| Your reason(s) of attendance? | | |
|--------------------------------------|--|--|
| General interest in the topic | | |
| Special professional needs | | |
| Practical application | | |
| Renewal of knowledge | | |
| Other | | |

| What is your professional background? | | |
|--|--|--|
| Engineering | | |
| Geosciences | | |
| Geography | | |
| Other (Please specify) | | |

| Are your expectations fulfilled by the course with respect to: | | | | | |
|---|-------|-----|---------|----|---------|
| | fully | yes | neutral | no | no idea |
| Quality of contents | | | | | |
| Compressibility | | | | | |
| Practical applicability | | | | | |
| Time for discussions | | | | | |
| Number of examples and exercises | | | | | |
| Quality of exercises | | | | | |
| Duration of the course | | | | | |
| Quality of the course | | | | | |
| Scientific competence | | | | | |

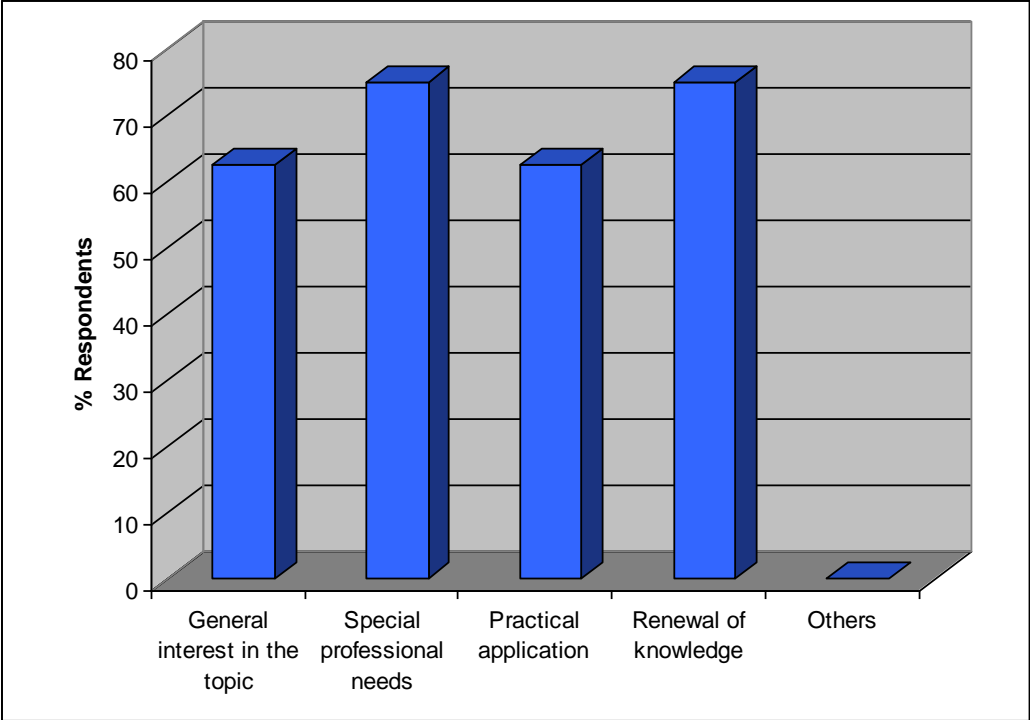
| Scientific competence | very good | good | average | no idea |
|--------------------------------|-----------|------|---------|---------|
| Prof. Dr. S. Wohnlich | | | | |
| Prof. Dr. Frank Wisotsky | | | | |
| Jun. Prof. Dr. Andreas Englert | | | | |

| | yes | neutral | no |
|--|-----|---------|----|
| Have you got enough time for questions? | | | |
| Have all questions been satisfactorily answered? | | | |

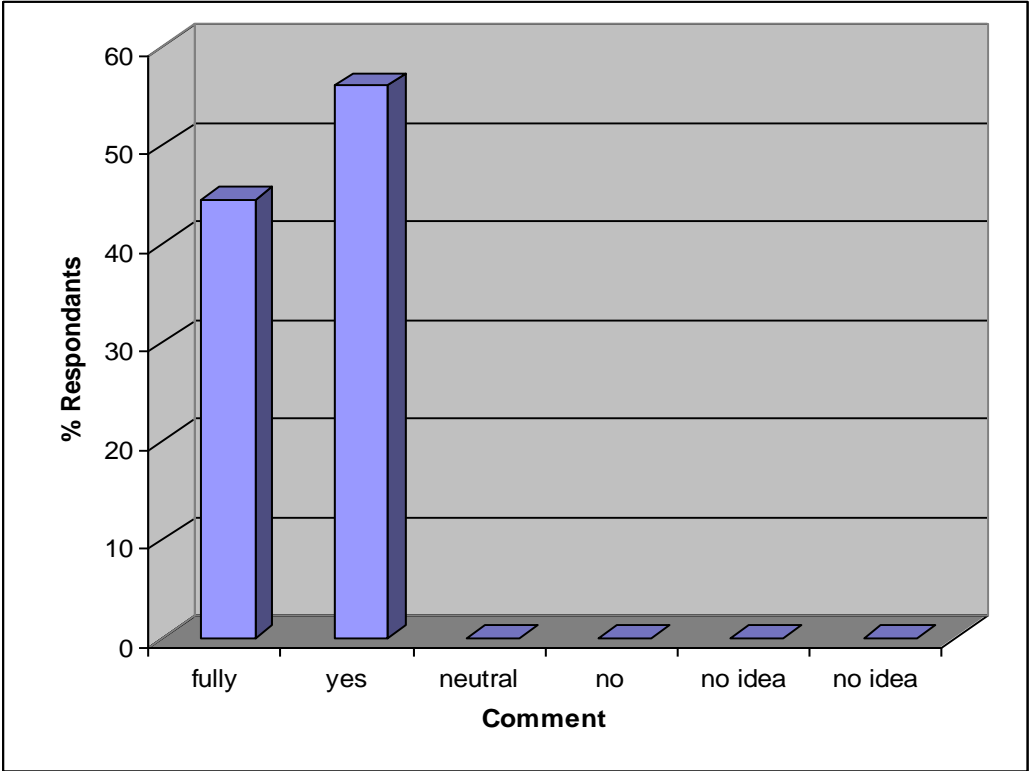
| Have you been satisfied with the organizations of the course? | very much | yes | neutral | no | no idea |
|--|-----------|-----|---------|----|---------|
| Local organization | | | | | |
| Lecture room | | | | | |
| Equipment of the lecture rooms | | | | | |
| Meals and services | | | | | |
| Accommodation | | | | | |

Annex-4 Statistical evaluation of Questionnaire

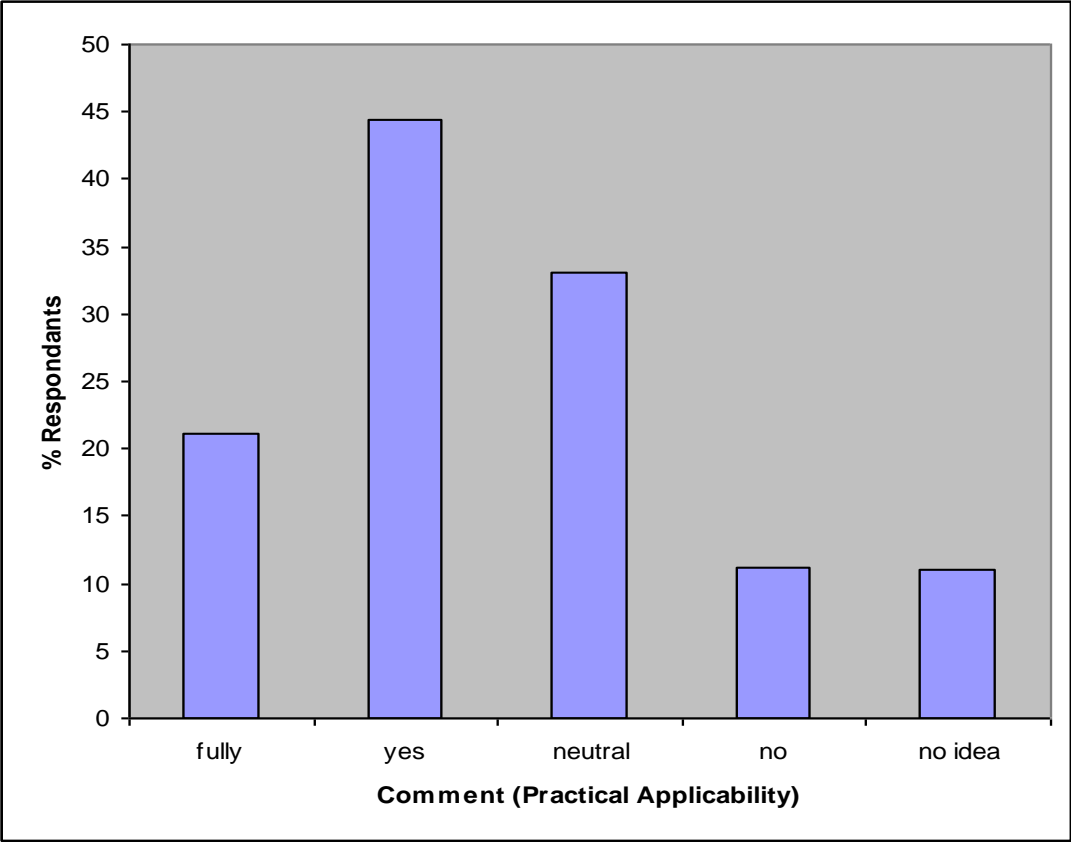
A - Reason(s) of attendance



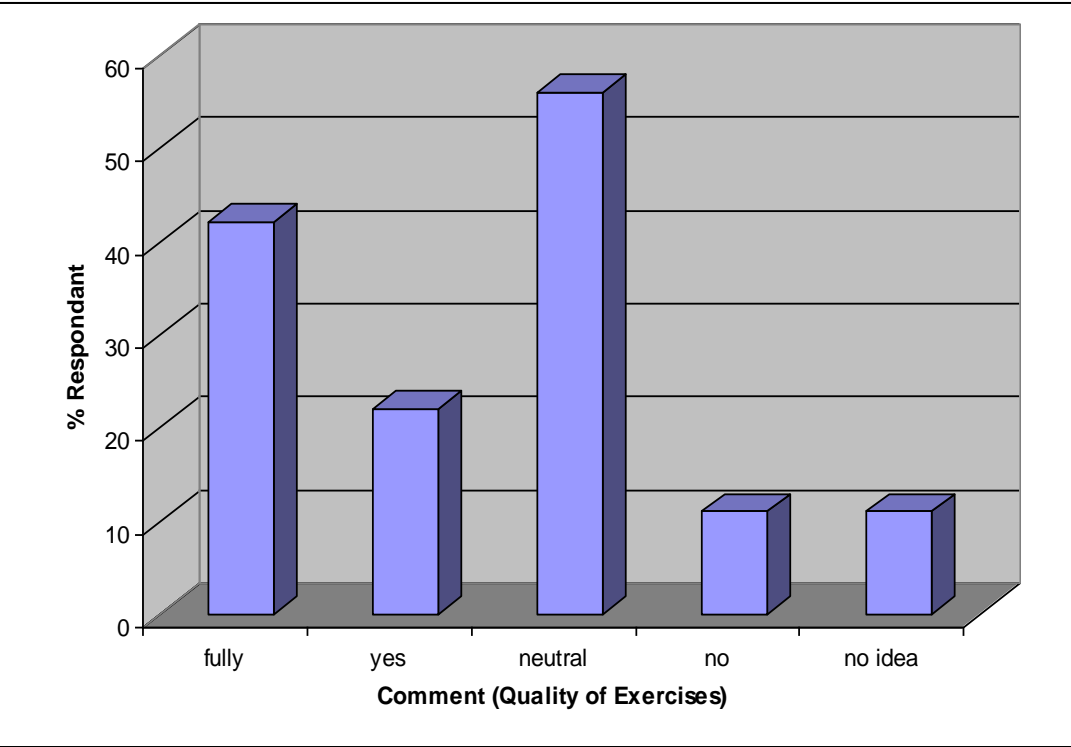
B – Quality of content of the course



C – Practical Applicability



D – Quality of Exercises



Annex-5 Photos



Photo during field excursion



Lecture Photos



Photo shots during attendance certificate award