



Dear WATENV alumni, students, and friends,

We would again like to share with you stories and happenings from the WATENV community.

This year has been quite busy and WATENV has undergone some structural changes. The course is now consecutive, meaning it's more strongly tied to the faculty, and, good news for our students, there are no longer any study fees!

Wishing you all a „Fröhliche Weihnachtszeit“ and „Guten Rutsch“ into 2015!.....

Eva Starke (WATENV course manager)

WATENV News

New students in winter semester 2014/15

In October 2014, 24 new WATENV students began their studies at the Leibniz University. Our new students come from 14 different countries, namely Belize, China, Colombia, Ecuador, England, Hungary, India, Indonesia, Iran, Jordan, Mongolia, Pakistan, USA, and Vietnam.

The semester started off with an Intercultural Seminar, which included theoretical input and activities on

intercultural communication as well as team building and intercultural games.

Visit by WMO Representative

A representative of the World Meteorological Organization (WMO), Ms Hong Fan, has visited WATENV and the Leibniz Universität Hannover in March, for a campus visit and discussions about the future cooperation between WMO and WATENV concerning scholars joining our M.Sc. course.



The new WATENV cohort starting WS 2014/15



Two former WMO scholars/WATENV alumni greet the WMO representative: Ana from Argentina (left) and Klim from Uzbekistan (top).



Prof. Dr. Thomas Graf

Best WATENV Lecturer 2014

Prof. Dr. Thomas Graf from the Institute of Fluid Mechanics and Environmental Physics in Civil Engineering, was recently voted by the graduating WATENV students as their favourite lecturer across all subjects within the WATENV programme. Prof. Graf gave the highly popular lecture 'Flow & Transport Processes'!



Tam Nguyen

Best achieving WATENV Student 2014

Tam Nguyen from Vietnam received the award for the best achieving WATENV Graduate of 2014. Tam's Master's thesis was titled "Free Thermal Convection in Heterogeneous Porous Media". Congratulations Tam!

New WATENV Student Team

Each year, a new student team is formed to organise cultural and social activities for the current WATENV cohort.

The student team also supports the new students upon arrival and during the first weeks here in Hannover.

Photo: Larisa from Russia, Feri from Indonesia, Raúl from Honduras, Marcos from Colombia and Mahmoud from Palestine.



Field Research in Brazil – Carlos Lizarazo (Colombia) and Cynthia Caicedo (Ecuador)

In August of this year, DAAD scholarship holders Carlos Lizarazo and Cynthia Caicedo undertook field research in Brazil as part of their Master's theses projects. This trip was funded by both the German Academic Exchange Service (the DAAD) and the company Aqua and Waste, and facilitated and supervised by the Institute of Water Quality and Waste Management. Their research compared measured results between a lab scale Upflow Anaerobic Sludge Blanket (UASB) reactor, located in the waste water treatment plant in Hannover Germany, and a full scale UASB reactor in the wastewater treatment plant of Itabira in Brazil.



Carlos and Cynthia worked for five weeks in Brazil, taking samples and analysing waste water quality in the laboratory. For both students, the opportunity to travel to Brazil was not only important due to the research component, but also gave them both valuable practical experience in the operation of full scale anaerobic waste water treatment works. Last but not least, they were able to spend time with wonderful Brazilian people, see beautiful places and learn about their culture and traditions.

Recent Student Activities

Cultural Excursion to Spiekeroog

Spiekeroog is one of the East Frisian Islands which border Lower Saxony's coastline. It lies in the middle of the unique UNESCO world heritage site 'Wadden Sea'.

A mixed group of international WATENV students (1st and 3rd semesters) and German students of related study courses went to Spiekeroog on a cultural excursion from September 8th to 11th 2014.

After taking the ferry, we enjoyed a "Teetied" with a cup of hot chocolate and cake in a local cafe. Arriving at the hostel, which was located in the east of the island right in the middle of the dunes, we started to get to know each other better and spend a joyful evening with icebreaker games.

In the morning sessions on Tuesday and Wednesday the group had the chance to discover Spiekeroog's flora and fauna during two guided tours and a visit at the national park house and environmental education centre "Wittbülten".

On Tuesday afternoon the students had the great opportunity to learn more about Spiekeroog's history and spirit whilst participating in an interesting guided tour in the village Spiekeroog. People on Spiekeroog used to build houses with roofs that could be released in the case of a severe storm surge and were believed to swim – fortunately Spiekeroog was not flooded ever since, which is why the beautiful houses could still be sighted.

The long way back to the hostel was filled with the typical northern German sport "Boßeln" – with a lot of fun on the way, the two teams arrived back at the hostel. In the evening we baked twist bread and prepared marshmallows on a campfire made out of wind-blown timber we had collected beforehand. Beach time was



Wednesday's motto: First, three groups had the task to build something out of sand, this way two amazing sand castles and a giant turtle came into live at Spiekeroog's beach, other small games and a beach walk completed the afternoon.

Leaving the island on Thursday the group had had interesting and joyful three days on the island and has grown together.

Text by Kristina Elsner

Visit to Klimahaus, Bremerhaven

In the beginning of this semester many junior and senior WATENV students visited the coastal town Bremerhaven. The students spent most of the time in the museum "Klimahaus".

The "Klimahaus" is an experience-oriented museum where all the world's climates and a few selected cultures are exhibited. Ranging from the Swiss Alps to Niger's desert every climate was realistically simulated. Amongst others there was a real glacier, a tropical forest and even a dry desert. The students took a 5 hours visit and had time to see Bremerhaven's harbour.



More Recent Student Activities....

Excursion to Schloss Marienburg

The first visit of the semester took place in the vicinity of Hannover. The former residence of Hannover's nobility "Marienburg" is impressive evidence of the past splendour of the noble family of Hannover. During a guided tour the students could lively imagine the way the nobility used to live. Many exhibited items and explained customs were completely unknown to the foreign students and surprised them.

The castle was build for Queen Mary of Hannover during a time of great geopolitical commotion. Before the work could be finished, the Prussian army invaded Hannover's kingdom. The king of Hannover fled and abandoned the building site. Luckily the Prussians didn't destroy the castle. Hence, 150 years later it still exists!

Guided tour of Hamelin by the 'Pied Piper'

On a sunny June's day, WATENV students had a guided tour of the Weser Renaissance town of Hamelin by none other than the Pied Piper himself! The legend of the Pied Piper has intrigued many since its origins in the 13th century - and our guide presented us this history in his own unique and informative style. The trip ended with a retelling of the story at the magnificent Town Hall.

Visit to the Lower Saxon Parliament 'Landtag'

In the spring break several students visited the state parliament of Lower Saxony. The guide provided us an exciting insight into the political everyday life of the parliament and building. Even rooms that are closed during working days were visited. We were exceptionally lucky as the building is soon to undergo renovations, and this was the last opportunity to visit the building in its current state.

Visit to Goslar and Christmas Market

At the end of November, WATENV students visited the town of Goslar, a short journey from Hannover at the foot of the Harz Mountains and famous for its historic mines. The highlight however of this excursion was to visit the famous Christmas Market. Students learned many things about German Christmas traditions. Countless stands offered traditional drinks and food and many sellers offered handicraft products.

Texts by Malte Schilling



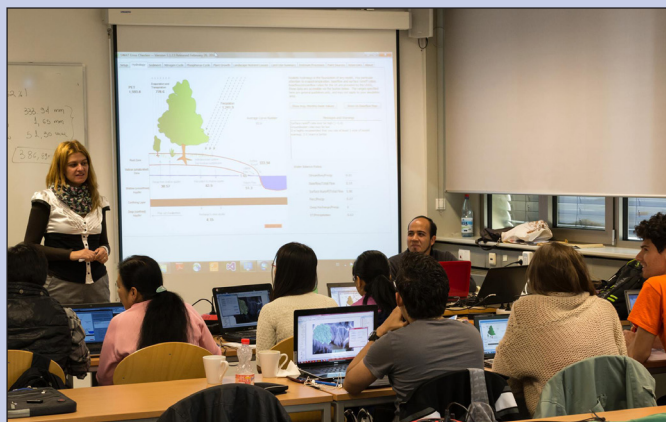
Photos (top to bottom): Schloss Marienburg, Guided tour of Hamelin, Visit to the Landtag, Visit to Goslar.

The Institute for Water Resources Management hosted a Summer School on Water Quality & Sediment Transport: Monitoring, Modelling and Management.

Instructors were associate professor Evangelos Baltas from the National Technical University of Athens, and assistant professor Ourania Tzoraki from Aegean University, Greece.

The professors gave lectures related to the hydrological, water quality and sediment transport. Ten students from seven different countries attended the course.

This course examined the hydrology, the nutrients cycle and sediment transport at catchment scale. Water balance, rainfall runoff models, sizing of reservoir, design floods for a spillway and statistical hydrology were discussed under different scenarios. The freshwater nutrients classification under WFD Directive 2000/60 and classifications schemes developed by various European countries were analysed. Special focus was given on eutrophication issues and on methodologies to estimate nutrient fluxes from the terrestrial areas such as export coefficient approach, MONERIS and Dillon model. Erosion processes were analysed with emphasis in USLE approach. Classification and the use of models, data assessment problems, model calibration and evaluation. A general introduction of the SWAT simulator was provided. Hydrology, water quality and sediment transport modelling and management by the use of SWAT model was given in detail.



WATENV students working with a hydrological model during the course.



Participants of the summer school.



Organiser and host of the summer school, Dr. Jörg Dietrich of the Institute for Water Resources Management at Leibniz Universität Hannover, and lecturer Assistant Professor Ourania Tzoraki from Aegean University, Greece.

In September and October 2014, 17 students graduated as M.Sc. in Water Resources and Environmental Management. The 17 graduates and their respective Master Thesis topics are:

- Dagmawi Teklu Asfaw (Ethiopia) - "Evaluation of satellite rainfall estimation data and spatial interpolation of rainfall for the Ethiopian rift valley lakes catchment"
- Marinda Amitia (Indonesia) - "Regionalization of Hydrological Model Parameters and Flow Indices for Ungauged Catchment"
- Vega Kumala (Indonesia) - "Comparison of Life Cycle Inventory systems on the example of Solid Waste Management Systems Hannover Region, Germany 2012"
- Van Tam Nguyen (Vietnam) - "Free Thermal Convection in Heterogeneous Porous Media"
- Ross Pidoto (Australia) - "Seasonal precipitation forecasting with a special focus on the estimation of low rainfall periods for the Melbourne region"
- Ravi Krishna Chiraktar (Nepal) - "Evaluation of rain gauge radar data missing products in comparison to univariate rainfall interpolation for urban hydrological modelling"
- Klimenty Valiev (Uzbekistan) - "Numerical solution of Saint-Venant-Equations"
- Thi Minh An Truong (Vietnam) - "Development of technical models according to the MINZE approach with implementation of a mathematical model for N₂O transfer liquid/gas"
- Bora Shehu (Albania) - "Correction of GRACE data for the influence of surface water, soil and vegetation moisture. A case study on the quantification of groundwater recharge rates in the Cuvelai-Etosha-Basin (CEB), Namibia"
- Adhin Harrum Wulaningtyas (Indonesia) - "Integration of energy balances into plant-wide dynamic modelling "
- Carlos Mario Lizarazo Rincon (Colombia) - "Determination and comparison of hydrolysis rates of particulate matter for domestic waste water in laboratory and full scale UASB reactors"
- Cynthia Caicedo (Ecuador) - "Quantification of dissolved methane in different anaerobic systems treating domestic wastewater"
- Moni Mohan Mondal (Bangladesh) - "Sewage sludge management concept for commercial IT-campus operated by INFOSYS"
- Gloria Mwasangwale (Malawi) - "Assessing the effects of land use changes on water resources using the Water Evaluation and Planning Model /WEAP21). A case study of Bua River Basin, Malawi."
- Ranila Rana (Nepal) - "Investigations about the improvement of Nitrate monitoring for catchment modelling."
- Arthur Chinsman-Williams (Sierra Leone) - "Simulation of irrigation water demand for agricultural sites in Sierra Leone"
- Zaw Win Aung (Myanmar) - "Water supply options for the growing megacity of Yangon-scenarios with the WEAP model"

Congratulations to all our graduates and we wish them the best luck in their future careers and endeavours!



Photo: Our graduates enjoying their farewell celebration in late September at Maschsee Lake.

Irma Ayes Rivera, Honduras

Irma Ayes Rivera graduated from the WATENV Master's Programme in September 2012. In early 2013 she began work in her native Honduras as an intern at the Honduran Institute of Earth Sciences at the Honduran National Autonomous University. In this role, Irma has worked with many different stakeholders across a broad range of projects.

Her first project was supporting the revision of the Honduran Hydrological References Manual. "My primary task was to collect daily precipitation data from various sources and then perform statistical analysis on this data to develop precipitation maps for different return periods. Luckily many of the skills required for this task were directly transferable from the WATENV Programme".

In co-operation with the United Nations Development Programme and the Natural Resources and Environment Ministry, Irma collaborated in additional projects including an assessment of the state of natural water resources within Honduras and a literature review assessing the indicators of climate change using a socio-economic approach. Upcoming projects include the development of a regional downscaled Weather Research and Forecasting (WRF) model for Honduras, to be funded by the Swiss Agency for Development and Cooperation.

From September 2013, Irma has been developing the Environmental Engineering module for Civil Engineering students, also at the National Autonomous University of Honduras. Here, the WATENV modules Flow and Transport Processes and Sanitary Engineering have specifically helped her greatly in this task.

For Irma, the greatest advantage of studying the WATENV Programme was gaining an international perspective to water and environmental management. "Studying in Germany in an international environment with classmates from all over the world gave me insights into water management from many different socio-economic and cultural points of view". With this experience Irma has also been able to begin to provide environmental consulting services within Honduras. "For me it makes little sense not to apply and share what I have learnt until now, so in addition to the work that I do at the University, I have also started environmental consulting within my country".



Ogopotse Batlokwa Pule, Botswana

Ogopotse Batlokwa Pule completed the WATENV programme in September 2013. After graduation, Ogopotse found work as a Water Resources Engineer with the Department of Water Affairs in his native Botswana. Ogopotse is currently working on the establishment of a flood forecasting system for Botswana, which is directly related to his Master's thesis topic on the use of validation of satellite rainfall estimates against ground data. He also utilises on a day to day basis the tools used and knowledge learned in the hydrological modelling course and furthermore through work during his studies as a scientific helper (HiWi). "I am forever thankful to my thesis supervisors on the many tools I learned especially on data analysis, Fortran programming, R statistical analysis, and data visualisation using ArcGIS, as I use these tools in my day to day work" says Ogopotse.



Another important project that Ogopotse is involved in is the development of National Water Accounts for Botswana. For this task Ogopotse is grateful for the knowledge gained during the elective course Environmental Economics in the areas of natural capital accounting. Ogopotse also plays a key role in procurement and engineering designs for installation of new discharge and stage gauging instruments. "I am amazed at how useful my notes on the hydrometric field exercise have been!"

The Okavango Delta is a unique natural resource recognised by UNESCO as a World Heritage Area and is of vital importance to Botswana and its population. Ogopotse is developing an integrated hydrological model as part of the Okavango Delta management plan. Lastly Ogopotse is also undertaking a study in co-operation with the University of Botswana on the impacts of small dams on downstream yields.

Photo: Ogopotse in front of Makgadikgadi Lake. This project deals with water management of the area that seeks to preserve flamingos and other bird species.

Carlo Schmid Scholarship for Internships in International Organisations – Ranila Rana, Nepal

Ranila Rana graduated from the WATENV Programme in September of this year. She is currently in Geneva as part of the Carlo Schmid Programme, a highly competitive scholarship programme which places a select group of interns at international and EU organisations. Ranila has a placement at the World Meteorological Organisation (WMO) in their hydrology and water resources division. "Learning from professionals with decades of experience is boosting my knowledge already gained through my education" reports Ranila. "This is building my confidence in the professional world, and having just finished the WATENV Master's course, I feel prepared to now continue my professional career in the field of hydrology and water resources".



Photo: Ranila with colleagues in Geneva

Recent published papers by WATENV Alumni:

- Jahanbazi, Mitra; Egger, Ulrich (2014): Application and comparison of two different dual drainage models to assess urban flooding. *Urban Water Journal*, Volume 11, Issue 7, p584–595.



Season's greetings from all the WATENV staff, and should you be in the Hannover area, the WATENV Christmas party will take place on December 8th, all WATENV alumni are of course invited!

Thanks to all who contributed to this newsletter edition, especially Ross Pidoto and Malte Schilling.

Contact WATENV – Master of Science in Water Resources and Environmental Management

Institute of Water Resources Management, Hydrology and Agricultural Hydraulic Engineering
Leibniz Universität, Hannover, Germany

Address: Appelstr. 9A
30167 Hannover, Germany

Telephone: +49 511 762 53 74

Fax: +49 511 762 37 31

Email: watenv@iww.uni-hannover.de

Web: www.watenv.de



Supported by:
DAAD

Deutscher Akademischer Austausch Dienst
German Academic Exchange Service