



DAAD

Deutscher Akademischer Austauschdienst
German Academic Exchange Service

GEFÖRDERT VOM



Bundesministerium
für Bildung
und Forschung

A NEW PASSAGE TO INDIA

Call

within the programme

“Indo-German Partnerships – Environmental Interactions in Focus”

Student mobilities for studies from the University of Cologne (UoC), Germany to the Bharati Vidyapeeth University (BVU) Pune, India

General overview:

The University of Cologne offers in the field of **Hydrogeography and Climatology:**

- **12** graduate student mobilities for the Summer School "Monitoring and Modelling of Water Fluxes and Water Resources in India" (from UoC to BVU) with a duration of **13** days.

Start of the mobility period at BVU for the Summer School students: September 22nd, 2019.

Financial Coverage:

Academic Level	Duration	Travel support	Individual support
Graduate students (preferably Geography, IMES or GSGS) from UoC to BVU	13 days	1.075 EUR	34,17 EUR per day

Insurance:

All grant holders have to take care of their own international travel insurance.

Tuition fees:

The receiving institution will not ask the grantee to pay fees for tuition, registration, examinations or for access to laboratory and library facilities during his/her mobility period. Nevertheless, the grantee may be charged a fee on the same basis as local students for costs such as student unions and the use of study-related materials or equipment.

In the framework of this call for applications, persons with disadvantaged backgrounds are strongly encouraged to apply and, in cases of equal qualification, aptitude and expertise, will be given preferential consideration.
Erasmus+ programme promotes equal opportunities and inclusion for all members regardless of gender, age, sexual orientation, religion and belief, disability and chronic illness, ethnic and social background. The actions aim at facilitating the access to the programme for participants with special needs. The University of Cologne and Jawaharlal Nehru University recognize that faculty, staff, and students need an environment in which they are respected and valued for their contributions in order to work and study effectively. This applies irrespective of their age, (dis)ability, gender reassignment, marriage and civil partnership, pregnancy and maternity, ethnic origin, religion and belief, sex and sexual orientation



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Required language skills:

English level C1

Application:

Please send your application documents to the project coordinator, Ms. Sarah-Marleen Dannenberg at s.dannenberg@verw.uni-koeln.de

The following documents are required in PDF-format:

- CV
- Letter of motivation containing relevant previous experience and educational goals
- Copy of transcript of records of current study program
- Copy of transcript of records of previous study program (typically B.Sc.)

The deadline for application submissions is **Monday, June 30th, 2019.**

Announcement and invitation of application for the Summer School

"Monitoring and Modelling of Water Fluxes and Water Resources in India"

to be held in Pune / India from 22 September until 4 October

Overview

Water is an essential prerequisite for nearly all environmental processes, human activities and ecosystem functions. Water is temporally and spatially dynamic and unevenly distributed. In addition to its significance as a physical substance, it has cultural, spiritual and economic significance. Thus, water supply and demand, water use and use conflicts, water management practice and alternatives to existing procedures even to the point of the legal framework must be addressed against the background of the given regional setting, employing the necessary scientific competences and methodological skills. Thus, water research is particularly relevant for man-environment studies.

Against this background, we offer a course in "Monitoring and Modelling of Water Fluxes and Water Resources in India" held as a summer school in Pune / India from Sept. 22 until October 4, 2019. This summer school is supported by the German Academic Exchange Service (DAAD) in the frame of the project "New Passage to India". The Graduate School of Geosciences Cologne (GSGS) provides additional funds. This course is organized and given by Prof. Karl Schneider and Dr. Wolfgang Korres with the support of Prof. Shamita Kumar, BVIEER/Pune.

Scope and Goals

The scope of the summer school is to provide the participants with the necessary expertise to understand current issues of water supply and water use in a mesoscale watershed in India, to acquire the scientific and methodological competence to tackle hydrological problems with numerical models and to use these skills to address possible solutions based upon reproducible scientific approaches. Suitable solutions must be developed against the background of the given regional setting. Thus, building the methodological and technical expertise must be accompanied by regional competence and a critical assessment of the modelling approaches and results based upon independent field data and literature research. The summer school not only aims at building the necessary scientific and intercultural expertise, but is particularly suitable to identify topics for future research (e.g. in the frame of M.Sc. or PhD theses) and to gain experience needed on the international job market.

Content of the summer school

The course will cover the following topics, which is reflected in the tentative schedule:

1. Day: Introduction and Excursion to the headwatershed of the Mula-Mutha and the Mulshi dam
2. Day: Excursion to the irrigated agriculturally used downstream area
3. Day: Water balance: Application and use of the water balance equation, analysis of water balance components, introduction to calculation and application methods
Error calculation and error propagation
4. Day: Precipitation: Measurement of precipitation, correction of precipitation measurements, handling of data with unknown quality, methods to fill gaps in time series, methods of spatial interpolation and regionalization
5. Day: Evapotranspiration: Measurement of evapotranspiration, methods to calculate potential evaporation, integration of evapotranspiration in a simple water balance model

6. Day: Runoff: Calculation of runoff with a simple water balance model, comparison of modeled and measured runoff data
7. Day: Cultural events and experience
8. Day: Ecohydrological modelling: Introduction to the Soil and Water Assessment Tool (SWAT).
Input data formats and setup of the SWAT-Model for the Mula-Mutha Watershed, India.
Calibration and validation of the model and the interpretation of the model results.
9. Day: Ecohydrological modelling (continued)
10. Day: Ecohydrological modelling (continued)
11. Day: Ecohydrological modelling (continued)
12. Day: Students research plan session and wrap up

Each day will have a lecture, hand on experience and a reflection and discussion part. The purpose of the excursions is to get insight into hydrological properties and water related issues in the Mula-Mutha watershed. The excursions include field measurements of basic hydrological measurements to understand the empirical basis for model parameterization and model validation. Based upon this general understanding and on the discussion of the theoretical concepts, we will address the transfer to practical application. This is done in a two-step approach: a) examples using a spreadsheet software to understand approaches and procedures to hydrological problem solving and b) application of an integrated software tool: the Soil and Water Assessment Tool (SWAT).

Finally, the students are asked to develop their own research question and pathways to address and analyze this question based on the competence gained in the summer school. The solutions and results will be compiled into a report, which employs a SWAT-based hydrological analysis. The report and independent (but guided) problem analysis will be done after the summer school. As it is not feasible to complete the student research projects within the given timeframe of the summer school, independent further studies will be needed and required according to the rules and regulations of the study programs. Support will be provided by Prof. Schneider and Dr. Korres in the frame of weekly follow up meetings which are planned tentatively for Friday 1 – 3 p.m. Students in Pune are invited to participation via telecom. To achieve credits, grading will be necessary, and done based on the report. Grading issues are correctness of the solution, presentation of the method and results, and of the line of reasoning and conclusions drawn from the results in terms of hydrological evaluation of the watershed and the SWAT model results. The credits achieved in this summer school are accepted as credits in the frame of the above-mentioned programs.

Who should attend?

This summer school is particularly suitable for students studying in the programs M.Sc. in Geography, IMES students specializing in hydrology and / or water resources research, students interested / preparing for participation a PhD program, GSGS members and BVIEER students. Prior participation in the lecture in Physical Hydrology is highly recommended, alternative equivalent qualifications in fundamental hydrology are acceptable. Basic GIS knowledge (with Arc-GIS) is recommended.

Students who are interested in combining building of scientific, methodological and technical competence in water resource monitoring and modelling with regional expertise in India are particularly invited to apply. Participation is limited. Up to 9 students are supported through DAAD and up to 3 students through GSGS. Up to 12 students from BVIEER / India will also attend the summer school, thus allowing for intensive scientific and cultural exchange. The summer school will be held in English. English level C1 will be required. If you have doubts about your language qualification, please consult Prof. Schneider.

How to apply?

Please send your application documents to the project coordinator, Ms. Sarah-Marleen Dannenberg at s.dannenberg@verw.uni-koeln.de. BVIEER students will apply directly to Prof. Shamita Kumar.

The following documents are required in PDF-format:

- CV
- Letter of motivation containing relevant previous experience and educational goals
- Copy of transcript of records of current study program
- Copy of transcript of records of previous study program (typically B.Sc.)

The deadline for application submissions is **Sunday, June 30, 2019**. Acceptance letters will be issued by Monday, June 17, 2019. All accepted participants from Univ. of Cologne must attend an information session where all further preparatory information regarding administration, travel, funding, visa issues, deadlines, security issues etc. will be addressed. This information session will be announced in due time.

Date, Place and Financial Support

The summer school will be from 22 September until 4 October. We plan to arrive in Pune on 21 September giving one day for rest and acclimatization. The summer school will be held at BVIEER in Pune/ India.

Accepted students from University of Cologne will receive with a stipend of 1519 € per student. The stipend will be used for travel and accommodation. Common costs for travel (bus, accommodation etc.) will be subtracted from the stipend. While most of the costs are covered through DAAD and GSGS funds, there might be a small co-pay necessary. All further details will be provided during the information session.

For more information contact

University of Cologne students: please contact Prof. Dr. Karl Schneider

BVIEER students: please contact Prof. Dr. Shamita Kumar