International Training Course 2019

The International Training Courses on ‘Seismology and Seismic Hazard Assessment’ aim at improving the earthquake hazard assessment and risk estimation through training on seismological analysis methods. They provide theoretical fundamentals and practical training in applied seismology, especially for geoscientists and engineers from developing countries. The course 2019 will be realized in Potsdam for the benefit of participants from earthquake-prone developing countries from August 12 to September 6, 2019. Information about the content of the training course as well as documents for applying to the course are available on the website of the GFZ. It is being organized for 25 course participants. Interested scientists and engineers can send their application and documents until April 26, 2019.

Report about the regional training course 2018 in Accra, Ghana

In September 2018 the International Training Course “Seismology, Seismic Data Analysis, Hazard Assessment, and Risk Mitigation” was realized in Accra, Ghana as regional course for Africa. It was co-organized by the Ghana Geological Survey Authority (GGSA) and the former course participants Saviour Alomatu (2005) and Nicholas Opoku (2015). Within the four weeks course, 26 participants – PhD students of different universities as well as employees of research institutions - from 18 African countries were trained in the fields of earthquake analysis and seismic hazard and risk assessment. The participants came from Algeria, Botswana (2), Burundi, Cameroon (2), Kenya (2), DR Congo, Egypt, Ethiopia (2), Madagascar, Malawi, Morocco (2), Mozambique, Nigeria, Ruanda, Sudan, South Africa und Ghana (5). Within the frame of the training course, GFZ established a new seismic broadband station ACRG of the seismic network GEOFON, run by GFZ, in Accra, to improve precision of locating earthquakes in this region. The data are provided globally be GGSA and GFZ in real time. The course was opened by Hans-Helge Sander, Deputy Head of the German Ambassy in Accra, Mrs. Barbara Oteng Gyasi, Deputy Minister of Lands and Natural Resources in Ghana, Daniel Boamah, Chief Executive Director of GGSA, and Torsten Dahm, Head of section Physics of Earthquakes and Volcanoes. The GGSA is in charge of the monitoring and assessment of natural hazards in Ghana.

Important Information - New opportunities for further qualification

Former course participants can apply for additional support from the International Training Course. In case you have an idea for a project, or an interest in gaining further qualifications, you can send us a short application (1 page). The proposed project should build upon the background you gained as a course participant. We can provide (for a short period of time) a limited number of instruments, as well as software tools for data analysis. The aim should be to produce a common publication for submission to an international journal. Any acquired data will have to be made publically available in an electronic form. You will need a partner (lecturer) from the training course. The time for the project should be “short” – we cannot support a Master or PhD project (note there are other funding possibilities offered by DAAD or the Humboldt Foundation). However, we can support your visit to the GFZ or another institution with a travel grant and even a short-term scholarship. A board of lecturers will select the projects to be supported. This extension is being financially supported by the Federal Foreign Ministry.

News

SeisComp3 training in Kabul and at the GFZ

We have successfully conducted basic Linux and SeisComp3 training to colleagues from Kabul University, Afghanistan Geological Survey and Norwegian Afghanistan Committee. We hope that in the future the knowledge will expand and we will have more advanced training provided.

Former course participants Najib Kakar (2015) and Prof. Akbar Mir (2004) organized a training on seismology and seismogram analysis with SeisComp3. From left to right: Ali Khan (Student), Jalil Rahman, Mohammad Yatim (both AGS - Department of Seismology), Najib Kakar (NAC), Prof. Mir Akbar, Ghulam Hazrat Askarzada (both Lecturer Kabul University), Saaid Saifur Rahman (Engineer at NAC), Abdul Habib Panjsheri (AGS - Department of Seismology - Taking picture)

Myanmar - New project started in January 2019

After the training course 2016 in Myanmar the planning for the new MYSCOALR-project started together with the DMH (Nay Pyi Taw) and other international partners. The overall scientific goals of the project are to understand the transition from continental to oceanic collision, the partitioning of deformation in the (on-land) accretionary prism and along the strike slip Sagaing fault system and to image the subducting Indian Plate beneath Myanmar and southwest China. GFZ will concentrate on seismological constraints on the current state of the slab and deformation processes within by using primarily double difference earthquake relocation, focal mechanism determination and local earthquake tomography. Local seismicity at the Sagaing Fault, e.g. close to capital Nay Pyi Taw is another interest of GFZ research. Former course participants and course lecturers from the DMH are involved in the project. More information on the activity can be found on the website and a recent Nature news article.


GFZ Evaluation

The GFZ Potsdam and the work of its scientists in the five Research Units were being evaluated by an international board of reviewers in the time 26 February – 1 March 2018. The International Training Courses are part of the Research Unit 4 Natural hazards: Understanding risks and safeguarding the human habitat. The evaluation confirms an outstanding research of the RU4 and states "Research Unit 4 conducts innovative research on a diverse range of natural hazards, including earthquakes, volcanic processes, flooding, space weather and other hazards. Research infrastructure and software tools that have been developed, deployed and maintained within RU4 provide an outstanding contribution to global science. The introduction of the Hazard and Risk Team (HART) during this reporting period is particularly commendable. RU4 contributes to the international mission of GFZ by carrying out training in developing countries." Nice.

Back at the GFZ

Shiva Arvin - Iran

I am a Ph.D. student in seismology from Iran, I am working on P and S receiver function analysis in crust and mantle, and also seismic anisotropy and modeling seismic anisotropy in the mantle in continental collision region in NW Iran. I participated in the International Training Course "Seismology and Seismic Hazard Assessment" in 2015 in Germany. I found this course very interesting and since the organizer’s center (GFZ) is known as one of the best centers in geophysics in the world, it motivated me a lot to come back here as a researcher. I came in GFZ for 3 months as a visiting researcher, under supervision of Prof. Frederik Tilmann, working on seismic anisotropy based on teleseismic direct S phases by a new approach, called the Reference Station Technique, introduced by Eken and Tilmann(2014).

Hoby Razafindrakoto - Madagascar

I attended the International Training Course "Seismology and Seismic Hazard Assessment" in 2004 in Potsdam, Germany. I have enjoyed every part of it: the course, the hands-on, the field trip and having the chance to meet not only well-known scientists but also to get to know the other participants from different parts of the world. It has been a valuable experience for me as it is among the steps that paved my career path. After the training, I have been working as a research assistant at the Geophysical Institute and Observatory in Antananarivo, Madagascar. Then, I have moved to Saudi Arabia
to undertake a Ph.D. at KAUST-King Abdullah University of Science and Technology with Prof. Martin Mai. My research was directed towards the quantification of the uncertainty in finite-source inversion using Bayesian inference. I have also been working on spatial analyses of slip models. A set of benchmarks and metrics has been developed to assess and rank rupture models quantitatively. As case study, I examined the slip distributions of the 2011 Tohoku earthquake. After finishing my PhD, I was a Postdoctoral fellow at the University of Canterbury (Christchurch, New Zealand) with Prof. B. Bradley, working on physics-based ground motion simulation. My research work mainly focused on the ten most significant events during the 2010-2011 Canterbury earthquake sequence. The figure for instance, shows the generated ground velocity motions during the Mw6.2 Christchurch event based using a 3D velocity model and a kinematic source model. Last year, I moved back to Germany. I am currently working as a Research Scientist at GFZ section 2.6 with Prof. Fabrice Cotton. My primary research is still on physics-based ground motion simulation with the objective to evaluate its variability and to develop a new methodology to couple simulation-based and recorded data for the next ground motion model.

Mahinda Seneviratne - Sri Lanka

The UN course gave me the full exposures to many aspects of the seismology, data analysis and hazard studies. This knowledge have been using in my country towards making better understand of earth environment and quantification of earth dynamism. After returning home, we had a collaborative scientific project with GFZ 2.4 and 2.2 (Christian Haberland, photo right) on crustal structure and local seismicity. We have 2 Geofon nodes in the country and recently deployed a temporary network with the equipment support of GIPP to collect a sufficient data set. Now I’m here for analysis work and will be published some results soon.

Publications

Gonzalo A. Fernandez - Bolivia

Former course participant Gonzalo A. Fernandez (2014) from Bolivia published an interesting paper on the Focal mechanism of the 5.1Mw 2014 Loja earthquake, Bolivia (Journal of South American Earth Sciences 91 (2019) 102–107). The 2014 Loja earthquake occurred in a transition zone between extensional and compressional stresses, in an area of the Central Andes not sampled before. Two different focal mechanism solutions have been published: a strike-slip with a normal component by the U.S. Geological Survey (USGS) and a pure strike-slip by the Global Centroid Moment Tensor (GCMT), as shown in Fig. 2. In the article the authors report about a detailed analysis of the epicentral location and focal mechanism contributing to improve the stress map in the

Hamza Reci - Albania

Already in 2016 former course participant Hamca Reci (2010) from Albania published a paper on laboratory measurements on the determination of moisture content of wood. The paper shows the results of a series of laboratory measurements, carried out to study how the ground-penetrating radar (GPR) signal is affected by moisture variation in wood material. The GPR technique is promising for moisture evaluation in timber structures and their early-stage diagnosis.

Geoscientific Instrumentation, Methods and Data Systems, 5, 575–581, 2016
doi:10.5194/gi-5-575-2016

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