# International Training Courses of the GFZ on "Seismology and Seismic Hazard Assessment"

By 2003 a total of 579 participants from 90 countries, amongst them 107 lady participants, had attended these courses (cf. List of participating countries). Since 1992 they are held alternately in Germany ( 1992, 1994, 1996, 2000, 2002 2004, 2005..) as world-wide open courses and as regional courses in earthquake-prone countries of developing regions, so 1993 in India and Iran for Asia and the Near East, 1995 in Nicaragua for Latin America and the Caribbean, 1997 in Kenya for Africa, 1999 in China for Asia and the Pacifics and 2001 in Chile for Latin America and the Caribbean and 2003 in South Africa for participants from Africa and the Near East.

The course duration is 4 to 6 weeks. A 5-weeks course typically comprizes about 100 hours of lectures, 80 hours of practical exercises, 25 hours of demonstrations or workshop presentations by participants and about 3 to 5 days of scientific field excursions (see Fig. 1) to seismological facilities and research centers as well as to famous geological outcrops, seismotectonic features and/or volcanoes (see Photos ).

The courses focus on the:

- creation of awareness about the causes and consequences of geological hazards and risks due to earthquakes, tsunamis and volcanic eruptions;
- introduction into the theoretical fundamentals and technical tools of seismological practice in its many fold disaster-relevant aspects;
- skill development by means of extensive practical exercises related to all basic tasks of applied seismology;
- development of interdisciplinary problem-understanding by revealing the inter relatedness of individual tasks and by building the interfaces needed for a successful co-operation with neighbouring disciplines in the field of disaster mitigation.

The successful participation in the course is acknowledged by a course certificate.

The courses address the following general topics (cf. Fig.1:)

- features and causes of earthquakes, tsunamis and volcanic eruptions;
- fundamentals of seismology, seismometry and seismological practice;
- principles of selecting, installing and running seismological networks for earthquake and volcano monitoring, prediction research and early warning;
- location and energetic classification of seismic events;
- detailed analysis of seismic recordings;
- seismic source processes and parameters;
- macroseismic and strong motion parameters;

- earthquake statistics;
- quantification of earthquake damage, hazard and risk;
- direct and indirect effects of strong earthquake ground motions;
- earthquake zonation and microzonation;
- introduction into the vulnerability of structures and engineering measures of earthquake resistant design with emphasis on low-cost rural housing in developing countries;
- GIS approach to earthquakes scenario modelling, risk assessment and disaster management.

These standard topics e.g., in Course Programme 2002 may be modified or amended according to the specific conditions and needs in developing regions (see Course Programme 1997, Course Programme 1999 , Course Programme 2001 , Course Programme 2003).
Summary reports are available for all courses since 1992.

The core team of lecturers of the GFZ is complemented by specialists from other research institutions or universities of Germany, France, Japan, Norway, Slovenia, Switzerland, USA and other industrialized countries. In case of regional courses in developing countries experts from the host countries and the region will join the team of instructors.

The course capacity is about 25 participants. Grants from several German ministries and agencies, first and foremost by the German Federal Foreign Office (AA), but also from international sponsors such as UNESCO Paris, OCHA Geneva, SIDA Stockholm, CIDA Ottawa, IRIS Seattle and institutions in hosting developing countries allow every year to provide about 20 to 25 cost-covering fellowships. They include tuition fee, bed and boarding, printed lecture material, text books and software as well as some travel grants for selected participants from developing countries. About 5 more "self-paying" qualified applicants from industrialized countries can be accepted every year too.

Prerequisites for the acceptance by the Academic Board of the course are:

- academic degree (B.Sc., MSc., diploma or PhD) in geosciences, physics, geology or engineering of a recognized university;
- preferably several years of professional experience in subjects covered by the course;
- proper command of English which is the only working language of the course;
- own contributions to the workshop sessions and / or georaphic - cultural evenings;
- timely submission of the filled-in application form according to the specifications given in the annual course circular & program.

The latter is available for the forthcoming courses both on the web site http://www.gfz-potsdam.de/pb2/pb21/index_e.html and as hardcopy from the secretariat of the course in January/February every year. Since the number of applications outrates by far the number of available fellowships early submission of these documents is recommended.

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A list of photographs

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