#### *Conference Topic* 1. Integral risk management

## Cross-cutting Theme

H. Regional aspects in disaster reduction and risk management

Title

Integrated Research and Capacity Building in Geophysics

## Authors

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# Author CVs

Dr. Raymond Willemann is the Director of Planning for the IRIS Consortium and former Director of the International Seismological Centre. Dr. Arthur Lerner-Lam is Professor of Seismology at Columbia University, Director of the Columbia University Center for Geohazards and Risk Research and one of the lead authors of "Natural Disaster Hotspots: A Global Risk Analysis". Dr. Andrew Nyblade is Professor of Geosciences at Pennsylvania State University and the U.S. Principal Investigator for the AfricaArray project.

# Abstract

There have been special opportunities over the past several years to improve the way that newlyconstructed geophysical observatory in Southeast Asia and the Americas are linked with educational and civil institutions. Because these opportunities have been only partially fulfilled, there has been an insufficient reduction in the likelihood that the networks will not be employed to address societal goals or even fall into disuse within a few years. In contrast, the AfricaArray project continues to progress towards goals for linkages among education, research, mitigation and observatories. We convened a workshop to explore opportunities for adapting features of the AfricaArray project for similar efforts elsewhere.

We found closer parallels than we expected between geophysical infrastructure in the predominantly low-income countries of Africa with low risk of geophysical disasters and the mostly middle-income countries of Southeast Asia and the Americas with high risk of geophysical disasters. Except in larger countries of South America, workshop participants reported that there are very few geophysicists engaged in research and observatory operations, that geophysical education programs are nearly non-existent even at the undergraduate university level, and that many monitoring agencies continue to focus on limited missions even though closer relationships researchers could facilitate new services that would make important contributions to disaster mitigation.

Workshop participants began discussing plans for international research projects that, unlike many projects of even the recent past, would include long-term capacity building and disaster mitigation among their initial goals. Specific project objectives would include national or regional hazard mapping, development of indigenous education programs, training to address the needs of local monitoring agencies, strategic international university partnerships, commitments to open data, and installation of permanent analysis systems that include open-source software. Such projects are intrinsically more complex than pure research – partly because they require funding from multiple sources to address diverse goals – but experience in Africa is that integrated programs contribute to long-term capacity building while research-only projects do not.