

KERRY SIEH

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Kerry Sieh is the Director of the Earth Observatory of Singapore and a member of the US National Academy of Sciences. Prof. Sieh initiated the field of paleoseismology thirty-five years ago, with the discovery of how fast California's infamous San Andreas fault slips and how often it generates great earthquakes. Subsequently, in the formative years of the Southern California Earthquake Center, Sieh led its efforts to characterise earthquake faults beneath Los Angeles. Over the past two decades he and his colleagues have used coral reefs and GPS measurements to understand the patterns of great earthquakes on the Sunda megathrust, offshore Sumatra. These discoveries have led to useful forecasts of recent and impending large Sumatran earthquakes and tsunamis. Prof. Sieh has a strong interest in and record of using science to help communities live more safely and sustainably.

Prof. Sieh's specialties, paleoseismology and neotectonics, employ geological data and methods to understand the geometries of active faults, the earthquakes they generate, and the crustal deformation their movements produce. He first developed these techniques in southern California and subsequently applied them to faults in other parts of the world, including southern China, Taiwan, Myanmar, Bangladesh and Indonesia.

Before becoming Director of the Earth Observatory of Singapore, Professor Sieh was the Robert P. Sharp professor of geology at the California Institute of Technology. There in 2002 he co-founded Caltech's Tectonics Observatory, a US\$30-million privately funded scientific effort. He conceived of the Earth Observatory in 2007 and left Caltech for NTU in 2008 to build it. He became the first holder of the AXA-Nanyang Chair in Natural Hazards at NTU in 2012.

Our low-likelihood/high risk hurdle: Geohazard examples

Many geohazards have such long recurrence times that societies do not place a priority on learning about them, adapting to them or mitigating the attendant risks. I'll give several examples from the dramatic realms of earthquakes, tsunamis, and volcanic eruptions and from the more stealthy arena of climate and sea-level hazard. I suspect that there may even be a genetic basis for ignoring these very low-likelihood but very high-risk threats. As our presence on Earth becomes ever larger, more exposed, more complex, and more fragile, it will be critical to continue to devise better ways to keep these lurking hazards in the eyes and minds of vulnerable communities. I'll discuss two examples that the Earth Observatory is currently pursuing at the interface of science and public response — one in Phuket, Thailand, and the other in Aceh, Sumatra.