

The Relevance of Earth Science for 21st Century Schools

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Planet Earth is so dynamic, fascinating and dangerous that it should be no surprise that tens of thousands of scientists are absorbed in careers dedicated to understanding it. But only a fortunate few students are introduced to the possibilities of exciting and rewarding careers in earth science in their teenage years.

Earth science is a vast playground for individuals who love to bring biology, physics, chemistry, ecology, mathematics and other disciplines to bear on figuring out how Nature works. For example, recent forecasts of future great earthquakes and tsunamis in western Sumatra have come from deciphering the growth bands of corals and the layers of plankton-rich swamp muds. Great tectonic rendings of the ground during recent large earthquakes in Tibet, Pakistan and Turkey have been figured out by the manipulation of electronic data collected by satellites before and after the earthquakes. Volcanoes attract scientists who enjoy tracking and forecasting the journey of molten rock through subterranean plumbing and out onto the surface and high into the atmosphere. That requires not only sophisticated scientific capabilities, but seismic and geodetic and chemical instruments as well. Scientists trying to forecast sea level rise over the next century will be making sensible mathematical, physical, and chemical supercomputed models of the behavior of the biosphere, oceans, atmosphere and ice sheets, based on collections of data from all these environments.

More than ever before in the short history of our species and the even shorter history of our civilization, humanity needs smart kids to take up careers in the earth sciences, if we are to meet the challenges of the natural world, as resources become ever more scarce, populations expand into naturally dynamic environments and as climate changes more strikingly than at any time since humans invented agriculture.