

VESUVIUS 2000: AN INTERDISCIPLINARY INITIATIVE AIMED AT INTEGRATING NONLINEAR VOLCANIC ERUPTION VARIABILITY WITH DENSELY POPULATED AREA

Flavio Dobran

Global Volcanic and Environmental Systems Simulation (GVES); dobran@idt.net

Millions of people surround very dangerous volcanoes where effective risk mitigation strategies cannot be based on unreliable predictions of eruptions, poor evacuation infrastructures, and inadequate volcanic risk education of the population. Over three million people surround Vesuvius and Phlegrean Fields in the Bay of Naples, and an even greater number surround many other volcanoes in Mexico, the Philippines and elsewhere. Computer simulations and past eruption history of Vesuvius strongly suggest that a large explosive eruption will occur in the next 100 years and that it is necessary to prepare the territory through information campaigns and provision of economic incentives. VESUVIUS 2000 is an interdisciplinary volcanic risk mitigation initiative for the Vesuvius area with objectives: (1) development of a Global Volcanic Simulator or physico-mathematical model of the volcano capable of assessing future eruptions and their nonlinear variabilities, (2) assessment of the vulnerability of population and key industrial, cultural, and telecommunication structures and infrastructures on the territory for the purpose of establishing most vulnerable areas as a function of different eruption scenarios, (3) development of a proper educational methodology aimed at establishing new habits of mind conducive for the creation of security culture, (4) provision of economic investments aimed at cohabiting with the volcano. The ultimate objective of VESUVIUS 2000 is to produce an accurate probabilistic risk assessment, or expected human, material, socio-economic, environmental, and cultural losses due to future eruptions for the purpose of reorganizing the Vesuvius area and creating a much safer environment that can confront future eruptions with minimum socio-economic consequences. Details are available on the Internet (<http://idt.net/~dobran>).