Volcanic hazard in Mexico: a comprehensive on-line database for risk mitigation

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Researchers are currently working on several key aspects of the Mexican volcanoes, such as remote sensing, field data of old and recent volcaniclastic deposits, structural framework, monitoring (rainfall data and visual observation of lahars), and laboratory experiment (analogue models and numerical simulations - fall3D, titan2D). Each investigation is focused on specific processes, but it is fundamental to visualize the global status of the volcano in order to understand its behavior and to mitigate future hazards. The Mexican Volcanoes @nline represents a novel initiative aimed to collect, on a systematic basis, the complete set of data obtained so far on the volcanoes, and to continuously update the database with new data. All the information is compiled from published works and updated frequently. Maps, such as the geological map of the Mexican volcanos and the associated hazard zonation, as well as point data, such as stratigraphic sections, sedimentology and diagrams of rainfall intensities, are presented in Google Earth format in order to be easily accessed by the scientific community and the general public. An important section of this online database is the presentation of numerical simulations results for ash dispersion associated with the principal Mexican active volcanoes. Daily prediction of ash flow dispersion (based on real-time data from CENAPRED and the Mexican Meteorological Service), as well as large-scale high-resolution subduction simulations performed on HORUS (the Computational Geodynamics Laboratory's supercomputer) represent a central part of the Mexican Volcanos @nline database. The Mexican Volcanoes @nline database is maintained by the Computational Geodynamics Laboratory and it is based entirely on Open Source software. The website can be visited at: http://www.geociencias.unam.mx/mexican_volcanoes.