NEW DIGITAL MAPS AND DATABASE OF MAJOR ACTIVE FAULTS AND FOLDS, WESTERN HEMISPHERE: ILP II - 2 STATUS REPORT

[1]MACHETTE, M.N., [2]COSTA, C., [3]COWAN, H., and [4]MAYER, L. [1]U.S. Geological Survey, Denver, CO, USA; [2]University of San Luis, San Luis, Argentina; [3]Institute for Geological and Nuclear Sci., Lower Hutt, New Zealand; and [4]Miami University, Oxford, OH, USA.

As part of the International Lithosphere Program's "World Map of Major Active Faults" project (Task Group II-2), we have led an effort to compile digital maps that show the location, sense of motion, timing, and slip rates for major earthquake-related features, such as faults and fault-related folds, in the Western Hemisphere. These digital maps are accompanied by and linked to a FileMaker Pro† database that describes these features in a paleoseismic context.

With the exception of the parts of the U.S., Venezuela and New Zealand, detailed information on active faults is relatively sparse in the Western Hemisphere. In North America, our maps are designed to show as many as 5 subdivisions of the Quaternary (<1.6 Ma) faults and 4 slip rates, whereas in Central and South America we only show three subdivisions of Quaternary (<1.6 Ma) faults and three slip rates. Although most surface-rupturing earthquakes occur on mapped Quaternary faults, only a small number of these faults have ongoing seismicity (i.e., major plate-boundary faults and subduction zones). The aseismic nature of potentially active faults is most conspicuous in passive intraplate regions where slip rates are typically <<1 mm/yr and recurrence intervals are probably ≥10,000 years, but the historic record is only 300-400 years long. This dynamic database of Quaternary tectonic structures will facilitate greater use of geologic data for seismic-hazard analyses by virtue of its easy access and updating. Examples of the computer database and the digital maps will be shown in this poster.

(† Use of brand or trade names does not imply endorsement by the U.S. Geological Survey or U.S. Department of Interior.)