



Analysis of "Les Saintes" (Guadeloupe) seismic crisis using ocean bottom seismometers (OBS)

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On 21 November 2004, an intraplate earthquake of magnitude 6.3 occurred at sea 15 km south of "Les Saintes" islands in the Antilles volcanic arc. This earthquake, the largest event recorded in the Lesser Antilles since 1985, occurred on a network of normal faults located between Les Saintes and Dominica island. The seismic crisis continues to this day, with 5 earthquakes per day on average and several peaks up to 50 earthquakes per day indicating that the initial stress was not fully accommodated or that stress accumulates rapidly due to an unknown, ongoing geodynamic or volcanic event. This seismic crisis is the most important in France for more than a century.

Six ocean bottom seismometers (OBS) were deployed around the active zone soon after the initial event, to better locate the aftershocks and to determine the fault section responsible for the main earthquake. The deployment lasted 40 days, from 16 December 2004 to 25 January 2005. More than 4000 aftershocks were recorded by the OBS network. The analysis of these earthquakes will bring essential information on the active faults and better constrain the seismic risk in the region. We have obtained a new 3D velocity model for the region and located the aftershocks, which clearly fall into clusters along an existing fault and in a area of potentially high Coulomb stress. We interpret these data and present possible tectonic models to explain the seismic crisis.