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Pre-seismic deformation and horizontal displacements associated with the Ms=6.2 February 15, 2003 Masbate earthquake, Philippines

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Global Positioning System (GPS) surveys were used to determine the pre-seismic and horizontal deformations within the epicentral region of the 15 February 2003 Masbate earthquake along the Philippine Fault in Masbate Island. Pre-seismic deformations include the results of the GPS campaigns done between February 1991 and February 2002 while the horizontal displacements associated with the earthquake include the readings done a year before and within eight months after the main shock. Pre-seismic data taken between 1991 and 2002 showed that the Philippine Fault in the region has a slip rate equal to about 2.2 $\pm$ 0.2 cm/yr. Elastic elongation along the fault was also observed prior to the quake. GPS readings taken a year before and within eight months after the main shock showed that as much as 62 cm parallel to the fault was displaced along the Philippine Fault near the epicenter of the earthquake. GPS data taken during this interval also showed an off-shore displacement during the quake. Indications of elastic rebound movements were likewise manifested.