

A study of the mechanical behavior of the Philippine Fault in the Visayas through spatial

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We used Global Positioning System (GPS) data of horizontal site velocity taken between 1991 to 2002 from the three GPS networks installed in the Visayas, in the central part of the Philippines, to characterize the mechanical behavior of the 1200-km, strike-slip Philippine Fault in the region. GPS data taken between 1991 to 2002 along the Masbate network (2.3 ± 0.2 cm/yr calculated slip rate) showed that the Philippine Fault in this region is a transition zone, located between the creeping zone in Leyte in the south and the Bondoc Peninsula and Ragay Gulf in the north whose movement is released only during important seismic events. In Leyte network, the calculated 10-year GPS data showed that the bulk of the 3.6 ± 0.2 cm/yr slip rate is absorbed just along the fault. This movement is essentially through creeping since no important seismic activity was recorded during the GPS campaigns. On the other hand, the results taken from the smaller Tongonan network showed that the movement is partitioned along the 3 branches sub-parallel to the Philippine Fault: 20% is absorbed by the SW branch; 30% along the NE branch and the 50% is absorbed by the external eastern branch. An interesting result from this study showed that what appears to be a creeping movement in Leyte, if viewed in a more detailed scale, is in reality, just a succession of periods in which the Philippine Fault in this region is either blocked or slipping with varying displacement rates.