

Back-arc spreading of the Mariana Trough derived from GPS observations

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In order to estimate the velocity of back-arc spreading of the Mariana trough, we have conducted GPS observations in the Northern Mariana islands in 1998 and 1999, following the preliminary observation in 1992 and 1994. The rigid motions of the Philippine Sea plate at the sites were subtracted from the observed velocity to derive local motions of the sites. The results suggest clear eastward motion of sites, which may clearly suggest back-arc spreading. The velocities are from 20mm/yr to about 60mm/yr to south.