

SSS014-P06

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## Seismic response of a long baseline laser-extensometer

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We have been observing crustal deformation with a laser extensometer since December 2007 to detect slowly proceeding event such as long-term and short-term slow slip events. The laser extensometer is oriented in north-south direction and has a 400 m long baseline. As part of evaluation of the laser extensometer, we examined seismic responses.

Whereas strong motion could shake the beam and could cause interruption of observation, some seismic record were obtained.

Synthetic records are calculated based on F-net moment solutions and Global CMT solutions.

Synthetic records are calculated from normal mode solutions (Kamigaichi, 1998; Saito, 1988).

Seismic records of period from 45 s to 300 s are compared between the synthetics and observation. Ratios of amplitude are compared after fitting the time axis.

Ratio of observation to the synthetics was estimated at about 0.5. The value of 0.5 was also obtain as ratio of amplitudes of observed tidal response to the theoretical value. The amplitude ratio of about 0.5 is common for the period of several tens to several hundreds period for seismic wave and the period of several tens thousand seconds for the earth tide. Possible reasons for the small factor of 0.5 would be difference in elastic coefficient between the site rock of the laser extensometer and surrounding rocks, and topography of the installation site.

Keywords: long baseline laser extensometer, seismic response