

GNSS/Acoustic measurement conducted on "Source region" of the 1771 Yaeyama Tsunami
-Is huge inter-plate earthquake being prepared there?-

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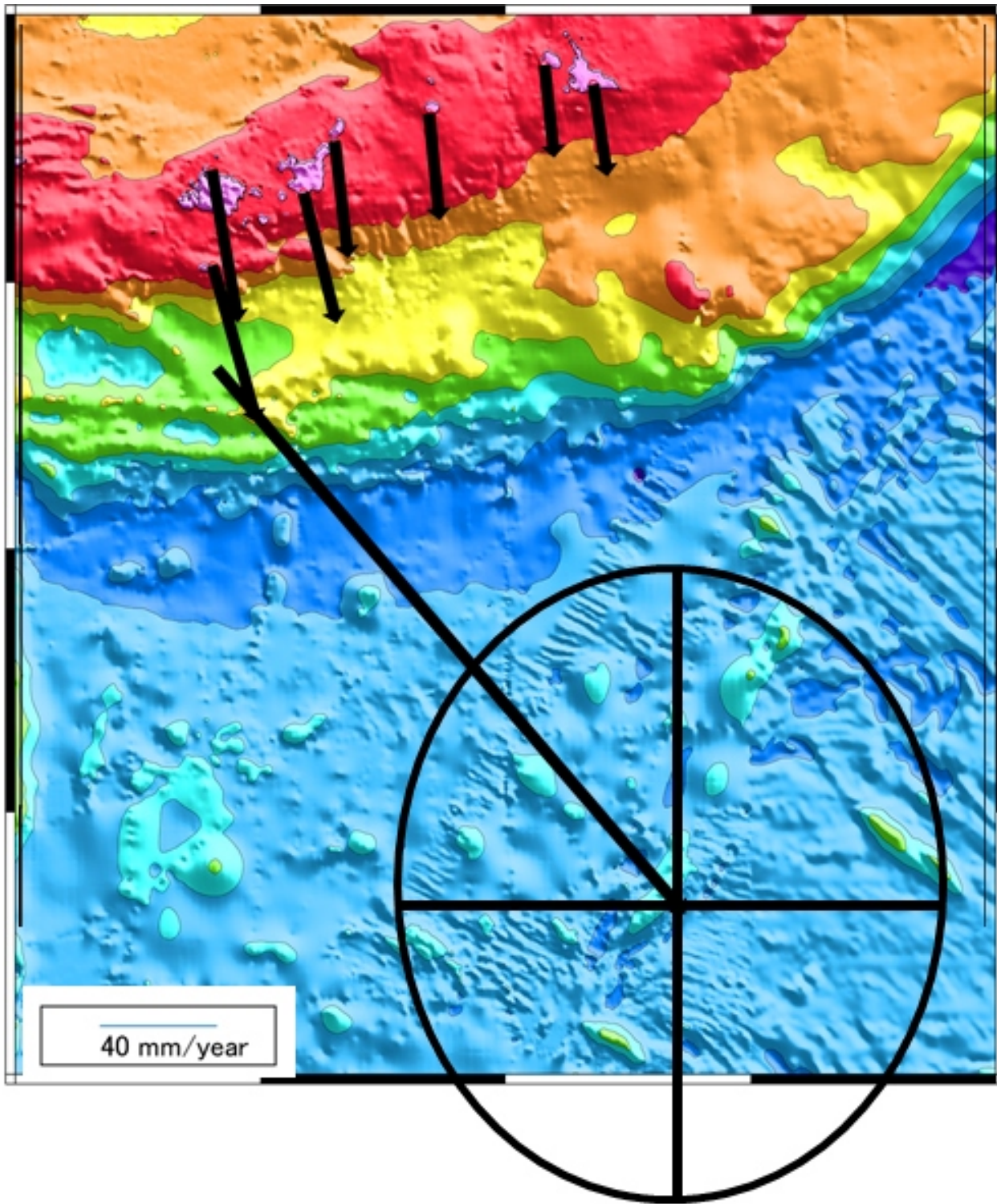
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We have conducted GPS/Acoustic measurement at 60 km south to the Hateruma Island. In there, a huge Tsunami struck Yaeyama Islands along west Ryukyu trench in 1771. A huge inter-plate earthquake beneath Ryukyu trench is proposed as the source mechanism of the Tsunami (Nakamura, 2009). If this is the case, the proposed focal area should be coupled in the inter-seismic period. Therefore, we installed a GPS/Acoustic benchmark unit on the proposed focal area in October 2014 and conducted measurement twice with 9 months interval. We obtained about 3,000 and 4,000 available acoustic shots during 24 hours and 30 hours measurements in 2014 and 2015, respectively. As a result, the benchmark showed southeastward displacement of 12 ± 8 cm/yr during the 9 month interval with respect to the GEONET station on Hateruma Island, which suggests trench-normal extension of the Hateruma forearc basin.

Although the result is preliminary because we have conducted measurement only twice, the result suggests that the area is not accumulating compressional strain which causes huge inter-plate earthquake. Additional measurements may also reveal offshore motion of the trench and the mechanism of back arc spreading.

Nakamura, M. 2009a, Fault model of the 1771 Yaeyama earthquake along the Ryukyu Trench estimated from the devastating tsunami. *Geophysical Research Letter.*, 36, L19307, doi:10.1029/2009GL039730.

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40 mm/year