



## **The global synchronization of the Earth's ambient noises**

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Based on the results of the coherence analysis of the noise component of daily 3-component GPS time series (measurements of earth surface displacements at 1018 stations) in 2010-2011, after 2 mega-earthquakes (Chile, 27.02.2010,  $M = 8.8$  and Japan, 11.03 .2011,  $M = 9.1$ ), there was a significant increase in the average level of synchronization with periods 5-30 days of terrestrial tremor in 9 regions of the Earth, and in most of these regions the average level of synchronization is still high and does not return to the previous level. The jump in the average level of coherence is easily visible on the graph purely visually, and the point in time when the jump occurred (early 2011) is highlighted precisely by a formal method based on the use of the Fisher ratio.

This result is an independent confirmation of the increase in synchronization of the Earth's ambient noise for the past 10 years, previously shown for low-frequency seismic noise properties from a global seismic network consisting of 229 broadband seismic stations scattered around the world [1, 2].

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### Reference

1. Lyubushin A.A. (2014) Analysis of Coherence in Global Seismic Noise for 1997-2012. *Izvestiya, Physics of the Solid Earth*, May 2014, Volume 50, Issue 3, pp 325-333. <http://link.springer.com/article/10.1134%2FS1069351314030069>
2. Lyubushin A.A. (2015) Wavelet-based coherence measures of global seismic noise properties - *Journal of Seismology*, April 2015, Volume 19, Issue 2, pp 329-340. doi 10.1007/s10950-014-9468-6 <http://link.springer.com/article/10.1007/s10950-014-9468-6>