



Fast long-period waves in near-regional records of a shallow earthquake

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A recent shallow earthquake in the Corinth Gulf, Greece (M_w 5.3, January 18, 2010) emphasized importance of unusual long-period waves (periods > 5 sec) observed at near-regional seismic stations at the beginning of the records (starting already in the P -wave group). The 5-sec period, being significantly longer than the source duration, indicates a structural effect. Observed seismograms have been examined by methods of the frequency-time analysis. A special branch of the dispersion curve characterized by a high group velocity has been found, suggesting likely an explanation in terms of leaking modes, the PL waves. The structural effect has been also investigated by the frequency-time analysis of synthetic seismograms. The aim was to recognize the parameters with most significant effect on the occurrence of the fast long-period waves such as the shallow earthquake depth, low-velocity crustal layers, layers with a high v_p/v_s ratio. The sensitivity analysis indicated a way to use the specific branches of dispersion curves for improving the existing regional crustal models.