



Origin of anomalous Earthquake Early Warning Parameter Values for earthquakes in the Ibero-Maghrebian Region

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We have studied the anomalous values of the predominant period τ_c and peak displacement P_d measured offline from the initial P-wave (3 sec time window) of several earthquakes occurred at the Ibero-Maghrebian region. Understanding the origin of these anomalous values is of a great importance in view of the development of an Earthquake Early Warning System (EWS), since they can lead to missed and false alarms by a wrong estimation of the magnitude. In particular, we have observed lower τ_c values at stations such as ESPR, EGRO or EADA, for earthquakes occurred at the SW of Iberian Peninsula and higher τ_c for earthquakes occurred at S and SE of Iberian Peninsula. These anomalous values may be correlated with the ray path. Due to the large variability of attenuation in the whole region, different correction of P_d with distance must be used. We have analyzed the effect of expanding the P-wave time window for the magnitude estimation and explained the magnitude underestimation for the 2003 Algerian earthquake as the possible effect of an un-sufficient P-wave window length to measure the EEW parameters