



On the frequency-magnitude distribution of subduction interplate earthquakes

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The occurrence of the last mega-thrust earthquake in Japan has clearly remarked the high risk posed to society by such events in terms of social and economic losses even at large spatial scale. The primary component for a balanced and objective mitigation of the impact of these earthquakes is the correct forecast of where such kind of events may occur in the future. To date, there is a wide range of opinions about where mega-thrust earthquakes can occur. Here, we aim at presenting some detailed statistical analysis of a database of worldwide interplate earthquakes occurring at current subduction zones. The database has been recently published in the framework of the EURYI Project 'Convergent margins and seismogenesis: defining the risk of great earthquakes by using statistical data and modelling', and it provides a unique opportunity to explore in detail the seismogenic process in subducting lithosphere. In particular, the statistical analysis of this database allows us to explore many interesting scientific issues such as the existence of different frequency-magnitude distributions across the trenches, the quantitative characterization of subduction zones that are able to produce more likely mega-thrust earthquakes, the prominent features that characterize converging boundaries with different seismic activity and so on. Besides the scientific importance, such issues may lead to improve our mega-thrust earthquake forecasting capability.