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## Deep structure of the Central-Chile continental wedge and its implications for large megathrust earthquakes

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subduction zone ruptured by the high slip patch of the 1960 Mw9.5 Valdivia earthquake. The density structure of the upper plate was generated by using a 2-D forward modeling schema (GGrad) offshore, and 3D inversion onshore (GRAV3D) with a database composed by a recompilation of previous marine and onshore gravity measurements, complemented by 113 new gravimetric station acquired by our group. The modelling was constrained by independent seismological data, active seismic information and electromagnetic soundings registered during the project. The joint analyze of the obtained density model with magnetic data and seismic models, provide new insight about the structure of the upper plate forearc, where an East-West segmentation of physical parameters (perpendicular to the margin) is associated with first order changes in the surface geology, deep structural style and seismotectonics characteristics of the margin. The systematical comparison of the results observed in this segment with surrounding regions of the Chilean margin, suggests a causal link between complex sequence of large earthquakes ruptures and changes of rheology/lithology along the interplate boundary, determined in turn, by the long term tectonic and geodynamic evolution of the subduction zone.