



Reflection Seismic Imaging of the Seismogenic Coupling Zone in Southern Central Chile

K. Gross (1), **S. Buske** (1), S. Shapiro (1), P. Wigger (1) and TIPTEQ Seismics Team
(1) Department of Geophysics, Free University Berlin, Germany

The Chilean continental margin is one of the most seismically active subduction systems and serves as a natural laboratory to study mega-thrust earthquakes. We present results of the active seismic reflection survey of project TIPTEQ (from The Incoming Plate to mega-Thrust Earthquake processes), which covers the subduction zone in southern central Chile in the area of the 1960 Valdivia earthquake hypocentre (~38 deg S).

The application of Kirchhoff prestack depth migration as well as other advanced imaging techniques reveal a clear image of the subducted oceanic Nazca plate from the coast down to a depth of about 50 km below the Central Valley. The overriding continental crust is strongly structured showing horizontal, dipping and arching reflectors that indicate basal accretion. The reflectivity varies across the section and appears to be weak around the area of the 1960 earthquake hypocentre. Other specific features can be observed, like for instance a possible subduction channel at the top of the oceanic plate near the coast, a major crustal fault zone (LFZ) as well as a strong west dipping reflector perpendicular to the plate interface.

Furthermore we present P- and S-wave images of the seismogenic coupling zone resulting from the processing of the three-component recordings as well as some of our integrated interpretation approaches.