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Crustal characterization of the Rivera plate subduction zone from MCS data

## Abstract

The Rivera plate subduction zone is characterized by high seismicity. The Rivera plate subducts under the North American plate which results in the generation of devastating earthquakes and destructive Tsunamis. This work aims at better characterizing the structural framework of the region offshore Colima, Mexico, in order to identify the tsunamigenic potential of the area. Numerous old data that consists of gravimetry and aftershock measurements of earthquakes are the defining techniques when it comes to the delineation of focal points of earthquakes, however, showing vague ambiguous results and speculative solutions to the presence of tsunamigenic structures. I use seismic data from the TSUJAL marine geophysical survey. I work on overlapping profile of MCS (multichannel seismic) and OBS (ocean bottom seismometer) data. I use the travel time information from MCS data, and the previous tomographic information derived from the OBS data to obtain an optimized velocity model for the time migration of MCS data. I interpret the structural framework from the resulting time migrated section paying extra attention to the presence of structures with apparent seismogenic and tsunamigenic potential. This will help in the implications and solutions to where and how the tsunamigenic earthquakes are potentially generated.