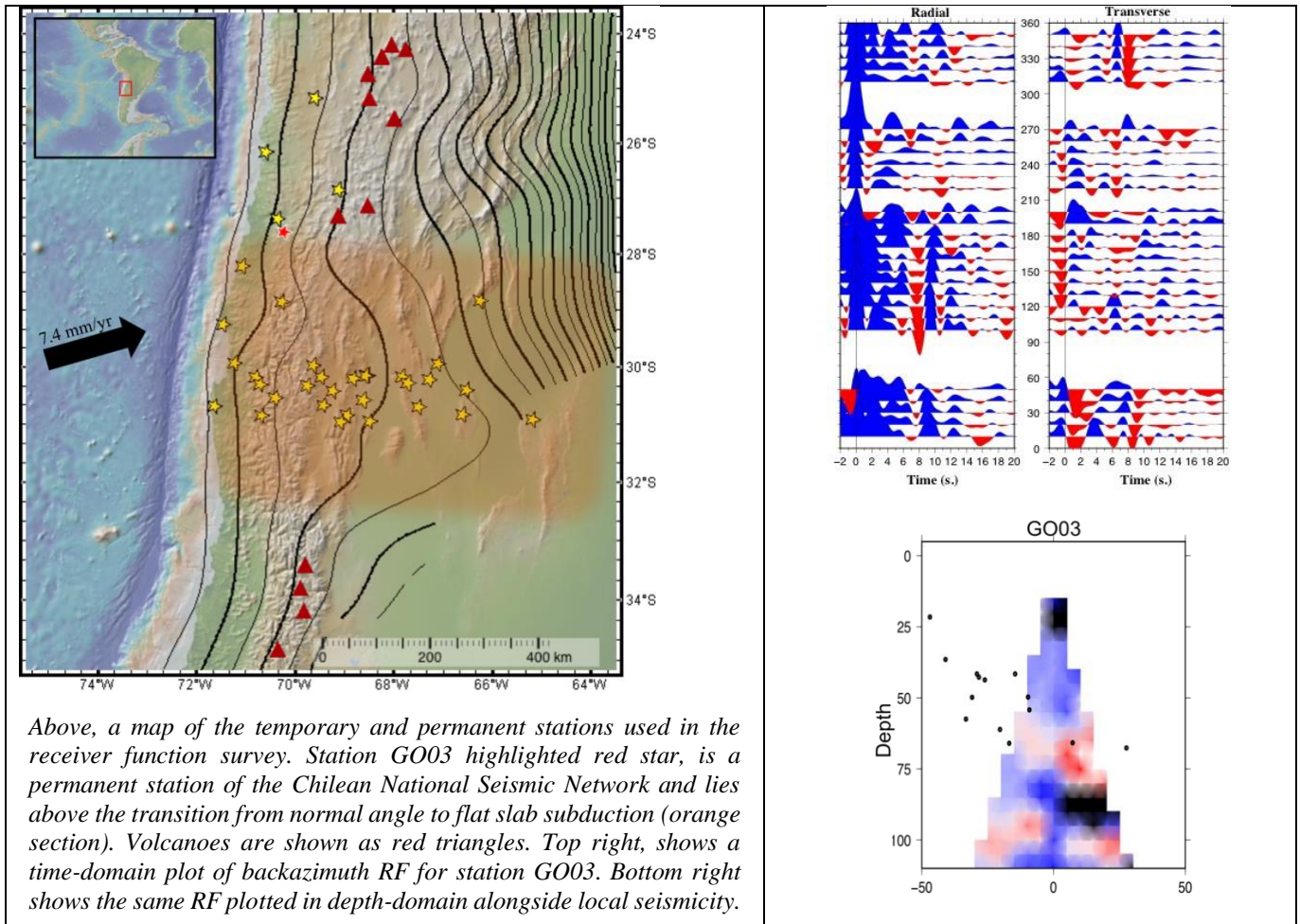


Toward Understanding a Seismic Anomaly in Central Chile  
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A gap in the volcanic arc across the Pampean section of the Chilean subduction zone (28-33°S) breaks up the otherwise predictable pattern of South American volcanism. This gap in the volcanic front, accompanied by diminished interplate seismic activity, correlates to the onset of flat slab subduction of the segmented Nazca Plate. We present results of a multidisciplinary study combining geophysical and petrologic observations, focused on the processes influencing subduction zone geometry in Central Chile and their impact on regional seismic and volcanic activity. Through a broad-scale receiver function survey obtained from both temporary and existing permanent stations in Central Chile, we imaged the position of the subducting Nazca Plate beneath South America and created corresponding depth-converted images to further interpret the underlying structure. This survey reveals evidence of a highly anisotropic layer above the subducting slab beneath stations within the transition zone and flat slab region, possibly indicating an area of extensive hydration triggered by fluid release from the subducting plate. In addition, we present a detailed compilation of available geochemical data to understand any existing variations that could be attributed to the geometry of the subducting slab over time, focused on trace element trends that are indicative of interactions with hydrated mantle. By combining the receiver function results with initial petrologic observations, it is our goal to further constrain the inherent relationship between flat slab subduction and its effects on surrounding volcanism.



*Above, a map of the temporary and permanent stations used in the receiver function survey. Station G003 highlighted red star, is a permanent station of the Chilean National Seismic Network and lies above the transition from normal angle to flat slab subduction (orange section). Volcanoes are shown as red triangles. Top right, shows a time-domain plot of backazimuth RF for station G003. Bottom right shows the same RF plotted in depth-domain alongside local seismicity.*