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Seismicity and upper crustal structure beneath Laguna del Maule, Chile

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Beginning in January 2015, the University of Wisconsin-Madison, Cornell University, and the Observatorio Volcanológico de Los Andes del Sur (OVDAS) deployed temporary seismic stations around Laguna del Maule to supplement permanent and temporary stations already operated there by OVDAS. The combined network consisted of 23 stations until January 2016, when 25 additional stations were installed. We use the data recorded by these stations through March 2016 to locate earthquakes and carry out preliminary body-wave tomography analysis to image the three-dimensional seismic velocity structure beneath the network. The earthquakes occur mainly in several clusters. The largest cluster lies southwest of the lake in the Troncoso area, where earthquake swarms occur. The preliminary tomographic images reveal low velocity zones beneath the network. The body-wave imaging results will be compared to results from other geophysical studies of the subsurface at Laguna del Maule, including ambient noise and teleseismic tomography, magnetotellurics, gravity, and geodesy.