



## **slow slip event preceding the Valparaíso Mw6.9 2017 earthquake in Central Chile, captured by GPS observations**

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Using GNSS observation of several stations we register and slow slip event triggered by a moderate earthquake, 2 days after the mainshock of Valparaíso Mw 6.9 2017. The sequence in the Central Chile megathrust active zone where the last mega-earthquake occurred in 1730. That intense seismicity started 2 days before the Mw 6.9 mainshock, a slow trenchward movement was observed in the coastal GPS antennas and was accompanied by foreshocks and repeater-type seismicity. We observe that this earthquake just brakes one of the two locked patches around the area, and there are steal some locked patches around. To characterize the rupture process of the mainshock, we perform a dynamic inversion using the strong-motion records and an elliptical patch approach. We suggest that a slow slip event preceded and triggered the Mw 6.9 earthquake, which ruptured an elliptical asperity. This earthquake could be the beginning of a long-term nucleation phase to a major rupture, within the highly coupled Central Chile zone where a megathrust earthquake like 1730 is expected.