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Co-seismic electromagnetic phenomena observed at Duronia geomagnetic observatory associated with L'Aquila 2009 earthquake

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Among the electromagnetic phenomena associated to the earthquakes there is the seismic dynamo effect due to the geomagnetic field lines frozen into the conductive crust of the earth crossed by the seismic waves. In this work we report the detection of magnetic oscillations due to the propagation of the seismic waves generated by the Mw = 6.3 earthquake occurred on April 6, 2009 in L'Aquila area. In order to discriminate the dynamo effect from both the oscillation of the magnetic sensors and the variations of the magnetic field, simultaneous measurements of magnetic and elastic fields during the main shock was made by means of three-component seismometer, data sampled at 20 Hz, and three component magnetometer, data sampled at 256 Hz.