Clear magnetic pulsations with period around 4 minutes have been observed on the ground just after the earthquakes such as 2004 Great Sumatra Earthquake or during strong volcanic eruptions such as 1991 Mt. Pinatubo eruption. These pulsations are supposed to be generated through the ionospheric dynamo caused by the vertical acoustic resonance between the ground and the ionosphere. Although the amplitude is small, similar phenomenon is generally observed when the lower atmosphere is disturbed by, for example, typhoons, inland earthquakes, etc. Recent observations at 2010 Chile Earthquake or precise magnetic observations by low-altitude satellites such as Oersted or Champ suggest that they cause not only the ionospheric currents but also the field-aligned currents. We summarize these observational facts and discuss the generation mechanism of the currents.