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Swarm mission, ULF Pulsation Activity and the August 2016 Central Italy Earthquake

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There have been several studies suggesting that ultra-low frequency (ULF) pulsations may be associated with earthquakes. The main part of previous studies refers to the detection of these signals in ground-based magnetometer measurements. Besides, we note only a handful of studies that have been attempted to correlate ULF pulsations with seismic activity, using space-borne magnetometer measurements provided by Low Earth Orbit (LEO) satellites (e.g. CHAMP, DEMETER). Here, our interest is focused on the 6.2 magnitude near-surface Central Italy earthquake on 24 August 2016 at 01:36 UT. The Swarm orbits have been located above the epicenter area only a few hours before the occurrence of the earthquake. This scenario, when a satellite carrying magnetometers passes above an epicenter area, just before the occurrence of a large earthquake is rather rare. Here, we take advantage of this exceptional situation and study the ULF pulsation activity observed by Swarm satellites in connection with the Central Italy earthquake. Comparisons with ground-based magnetometer recordings are also done and discussed.