

Seismo-magnetic observations aboard the upcoming Chinese CSES satellite

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One objective of the upcoming Chinese Seismo-Electromagnetic Satellite (CSES) mission is the observation of seismo-magnetic phenomena aboard CSES.

Several hypothesis exist in order to explain the influence of seismic phenomena on magnetic field variations in the atmosphere and in the ionosphere. The so called microfracture electrification (Molchanov and Hayakawa, 1998) proposes the generation of a broad band electric-magnetic signal which is low-pass filtered by the crustal and atmospheric/ionospheric conductivity. Depending on the environmental conductivity sigma and on the permeability mu (Prates et al., 2008) the electromagnetic field fluctuations with the frequency omega can propagate approximately d_{skin} . ($d_{\text{skin}} = \sqrt{2/(\mu * \sigma * \omega)}$)

We present the sensitivity of the CSES scalar dark state magnetometer (Schwingenschuh et al., 2016) after the final tests and compare it with seismo-magnetic ULF model results using various earthquake parameters.

References:

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