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Magnetospheric-Ionospheric-Lithospheric coupling model. Observations during the August 5, 2018 Bayan Earthquake

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The short-term prediction of earthquakes is an essential issue connected with human life protection and related social and economics matter. Recent papers have provided some evidence of the link between the lithosphere, lower atmosphere, and ionosphere, even though with marginal statistical evidence. The basic coupling hypothesized being via atmospheric gravity wave (AGW)/acoustic wave (AW) channel. In this work we analyse the scenario of the low latitude earthquake (Mw=6.9) occurred in Indonesia on August 5, 2018, through a multi-instrumental approach, using ground and satellites high quality data. As a result, we derive a new analytical lithospheric-atmospheric-ionospheric-magnetospheric coupling model with the aim to provide quantitative indicators to interpret the observations around 6 hours before and at the moment of the earthquake occurrence.