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Gravity wave model validation using nightglow emission observations for lower ionosphere disturbance modelling

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Lower ionosphere is the theater of interactions between the ionized atmosphere and homogeneous atmosphere. Some phenomena such as gravity and acoustic waves which originate from the homogeneous atmosphere also impact the ionosphere and are suspected to be the source of sporadic disturbances in the E-region. Our goal is to correlate these disturbances to acoustic and gravity waves through modelling and ionosphere sounding. We first present the first steps towards this goal, a bi-dimensionnal, inviscid and compressible acoustic-gravity wave model coupled to a nightglow emission model (NEMO). Then subsequent cross-comparisons with acoustic and gravity waves seen in the OH nightglow emission layer using an infrared sensor and MRA (Multi-Resolution Analysis) are discussed. These comparisons will help to improve the model's rendering of wave impacts on their transportation medium, before extending the model's range to ionospheric heights and properties.