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Sensitivity of the cancellation factor spectral variations for temperature investigation in the mesospheric nightglow layer

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The infrared emission lines observed between 80 and 100 km known as nightglow allow the investigation of dynamic phenomena such as gravity waves acting on local temperature and density. Swenson and Gardner (1998) introduced the cancellation factor as the link between the nightglow intensity observed and the local temperature. In a previous study, we investigated local changes in spectral intensity using the main source of the nightglow OH. The variations showed dependencies on vibrational levels due to the differences in their reaction coefficients. We now extend the sensitivity study by performing 3D spatial tests. We briefly describe the nightglow evolution model (NEMO), which is developed on a pressure level grid where the gravity wave perturbation is applied. Inherent parameters of the perturbation such as spatial wavelengths are confronted to their impacts on the nightglow layer. In addition, spectral integration over infrared InGaAs camera is applied to allow comparisons with measurement campaigns.