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► To cite this version:

Christophe Bellisario, Pierre Simoneau, Sophie Derelle, Ewen Jaffré, Pierre-Yves Froissart, et al.. Availability of nightglow ground observations for atmospheric dynamics monitoring. EGU General Assembly 2024, Apr 2024, Vienna, Austria. pp. EGU24-10208, 2024, 10.5194/egusphere-egu24-10208 . insu-04515479

HAL Id: insu-04515479

<https://insu.hal.science/insu-04515479>

Submitted on 4 Jun 2024

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EGU24-10208, updated on 04 Jun 2024

<https://doi.org/10.5194/egusphere-egu24-10208>

EGU General Assembly 2024

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Availability of nightglow ground observations for atmospheric dynamics monitoring

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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 with adapted cameras. In particular, the OH nightglow emission peaking at 87 km can be observed with short wave infrared InGaAs cameras and most of studies use these observations to investigate dynamics at this height. In this study, we briefly describe the methodology to assess the availability of nightglow observations at ground level depending on the spectral bands and the local atmospheric conditions. The impact of clouds on the spectral radiance propagation is estimated by the use of radiative transfer models. Sensitivity tests are completed on clouds characteristics, such as vertical width or the type of clouds. In addition, we integrate directional fluxes on the celestial dome to assess the level of radiance available at the ground level for night vision imaging. Statistical temporal comparisons are performed using available observations campaigns at Observatory of Haute-Provence (OHP) and at Maïdo Observatory.