10 years of UV aurora on Jupiter

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Abstract

This 2026 edition of the MOP conference coincides with the 10th anniversary of the Juno orbit insertion. We will take advantage of this opportunity to perform a retrospective analysis of the data gathered by the Ultraviolet imaging Spectrograph (UVS) onboard Juno in the past decade. Indeed, evidence of long-term trends is now emerging, while the occurrence of very bright auroral events is increasing since May 2022. This behavior appears correlated with solar activity, as the Solar Cycle 25 reached its peak in mid-2024. Some brightenings and contractions of the main emissions, known as main auroral brightenings, are directly related to compressions of the magnetopause, while others, the dawn storms that accompany magnetotail reconfigurations, can also be occasionally triggered by solar wind shocks. We will also discuss the occurrence of dawn storms and describe all Juno dawn storm traversals that took place over the last 10 years through multi-instrument studies. Finally, we will present publicly released datasets of the UV brightness along the Juno footprint track, as well as time series of derived parameters such as the mean electron energy or the Hall and Pedersen conductances.