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Evolution of the streamer belt and magnetic-field topology in the middle corona: the Metis coronagraph point of view

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The analysis of the variability of the streamer belt and coronal magnetic field topology is one of the key questions listed among the scientific objectives of the Metis coronagraph, on board the Solar Orbiter spacecraft. To address this science question, we selected a set of polarised visible-light data (VL-pB) that Metis acquired in the first two years of the Nominal Mission Phase (i.e., from the 1 st December 2021 to the end of 2023). We observe a variability in the intensity of the VL-pB data due to increasing solar activity. The streamer belt moves towards mid to high latitudes and the coronal magnetic field starts to deviate more and more from the typical axial symmetry it assumes during the minimum. We present both a long time-lapse variability of the VL-pB date and some preliminary comparisons with the coronal field topology inferred from magnetic extrapolations obtained with the magneto-hydrodynamic model developed by Predictive Science Inc. (PSI-MAS), to shed light on the correlation, at a qualitative level, between the field line topology in the plane of the sky and the local VL-pB intensity. The aim of this work is twofold: on the one hand, we would like to study the evolution of the solar corona from the Metis point of view during the ascending phase of the 25 th solar cycle, on the other hand we want to assess the differences between the coronal magnetic field topology as time-averaged over a solar rotation in the PSI-MAS model, and the observed, highly dynamic field topology during the rising solar cycle.

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