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The PUNCH mission will launch in the next few years, and will be delivering data products unlike any we've had access to before. Because of this, we need to develop and validate new methods of looking at the data. In this work we use the FORWARD platform in SolarSoft to build a forward model called STRIA, which simulates imagery for the PUNCH field of view. This talk will consist of preliminary results from this research project. We are first interested in examining the background steady outflow of the solar wind, using simulated movies of the polarized brightness (pB) from the corona. We will be investigating how solar rotation contributes to variability in pB, how the presence of density striations affects the level of background noise in PUNCH data, and how these effects vary with solar cycle. Next we add overdense "blobs" which stream out along the field lines, and examine the statistics of how they affect the measurements. Due to line-of-sight effects in an optically thin medium, it isn't typically possible to determine the full outflow vector of a given structure in the corona, just the tangential component of the velocity. However, with measurements of pB we will attempt to do just that. We also intend to test some flow-tracking methods against the known "ground truth" in the model.

Presentation file

gilly-2021.pdf

YouTube link

https://youtu.be/Sr3bZxDOVW8?t=120

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