



Visualization Tools for Planetary Data

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We have developed a set of software tools for displaying and analyzing data from the MAVEN and MMS missions. In order to better visualize the science data and models, we have constructed 3D visualizations of MAVEN orbiting Mars and MMS orbiting Earth using the CesiumJS library. These visualizations allow viewing of not only spacecraft orientation and position over time, but also scientific data from the spacecraft, and atmospheric models as well.

We have also developed a Python toolkit which replicates the functionality of the widely-used IDL “tplot” toolkit for analyzing planetary atmospheric data. We use the bokeh and matplotlib libraries to generate interactive line plots and spectrograms, providing additional functionality beyond the capabilities of IDL graphics. These Python tools are generalized to work with missions beyond MAVEN, and our open-source software is available on Github.