



## **Measurement strategies for the characterization of the spatial and temporal variability of Mercury's sodium tail during the MESSENGER mission**

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The MESSENGER spacecraft was launched on August 3, 2004 and will arrive in orbit around Mercury in 2011. Prior to orbit insertion, the spacecraft will make 3 flybys of Mercury. These flybys offer excellent opportunity to observe Mercury's extended sodium corona at different planet true anomalies. Ground based observations of the sodium tail as well as model predictions are used to examine measurement strategies for the Mercury Atmosphere and Surface Composition Spectrometer (MASCS) on board the MESSENGER spacecraft. Sodium radiance values in the extended tail region are used along with observational geometries and instrument characteristics to predict signal and SNR values. The degree to which MASCS will be able to identify the spatial and temporal variation of the sodium tail will be discussed.

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