Geophysical Research Abstracts
Vol. 20, EGU2018-14939, 2018
EGU General Assembly 2018


# Observational conditions for the detection of X-ray fluorescence from sodium by the MIXS instrument on BepiColumbo

Rose Cooper (1), Manuel Grande (1), Adrian Martindale (2), and Emma Bunce (2)
(1) Aberystwyth University, Aberystwyth, United Kingdom (roc17@aber.ac.uk), (2) University of Leicester, United Kingdom

We model the expected fluorescence from the exosphere and surface of Mercury, as observed by the Mercury Imaging X-ray Spectrometer (MIXS) on the upcoming BepiColumbo mission, using code modified from that used for the SMART-1 D-CIXS instrument to the Moon. Modifications include detector parameters, solar proximity, surface elemental composition, and emission from the optically thin exosphere. From this, preferential observation parameters have been determined for MIXS during its orbit. Modelling of these observations is conducted, with particular emphasis on the sodium component. Observations of fluorescence from several surface regions are compared for both MIXS-C and MIXS-T, as well as considering the capabilities of previous detectors such as those on the MESSENGER mission. Comparisons of exospheric sodium observations are also made with other detectors on BepiColumbo, namely PHEBUS and MSASI, to provide a more complete picture of this region.