Exospheric and Magnetospheric Responses to Large Solar Wind Disturbances

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The Sun will pick up its activity in the next few years after the MOI of the MESSENER spacecraft. This means that Mercury will be increasingly subject to the interaction effect of the corotating interaction regions of the solar wind, solar flares and coronal mass ejection (CME) events. How will Mercury's exosphere and magnetosphere respond can be assessed beforehand by applying the Monte-Carlo exospheric model and hybrid simulation code which we have developed? We are particularly interested in the CME interaction because it has been suggested that some time variability of the sodium emission on Mercury observed from the ground might be related to such activity. We will show the Hermean magnetospheric structure and exospheric dynamics for one CME event as an example.