Mercury's ionized exosphere: Global structure and ion dynamics

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* false color

LATM🪐S

Project description

Objective:

Model the impact of extreme solar events on Mercury's exosphere.

Method:

Extend the capabilities of the Exospheric Global Model (EGM; Leblanc et al. 2017) to track the time-evolution of the exosphere.

In essence, moving from a static to a time-dependent description of the exosphere.

SOHO/LASCO

2000/02/27 07:42
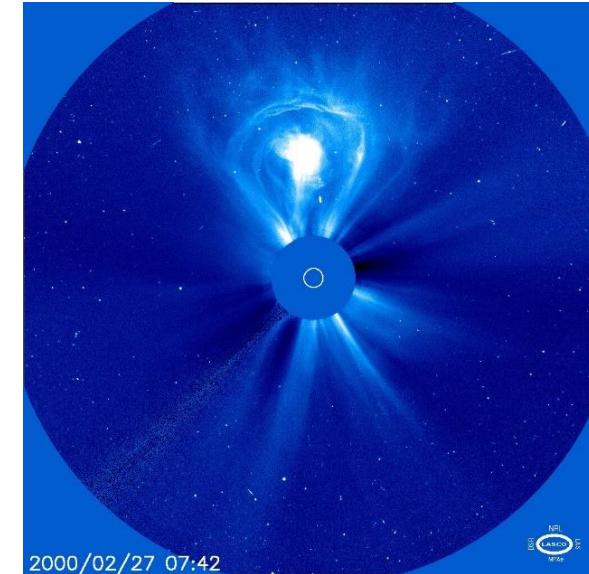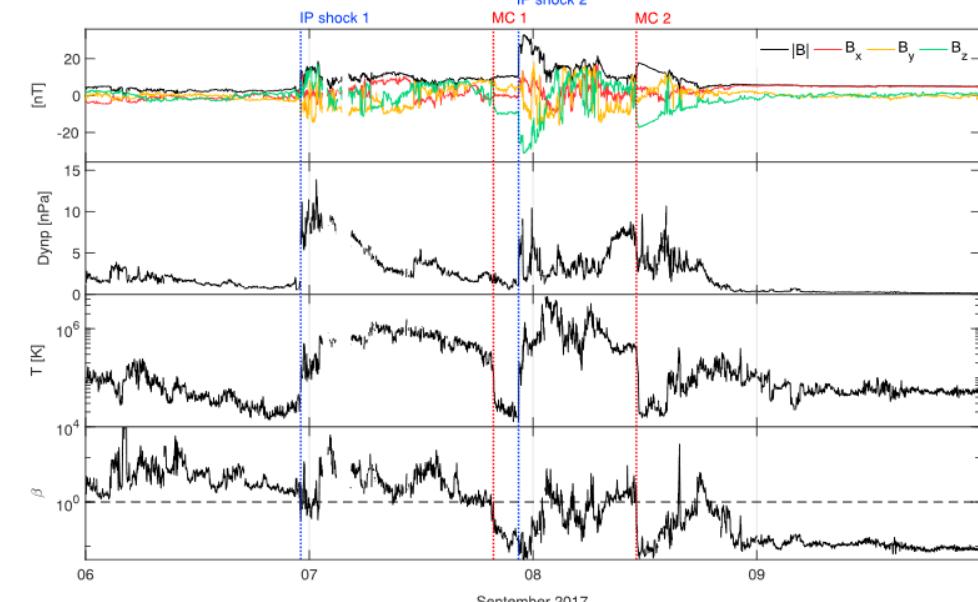
(Werner et al. 2019)

Impact of a solar flare on Mercury's exosphere


SDO/AIA

(Huebner et al. 1992)
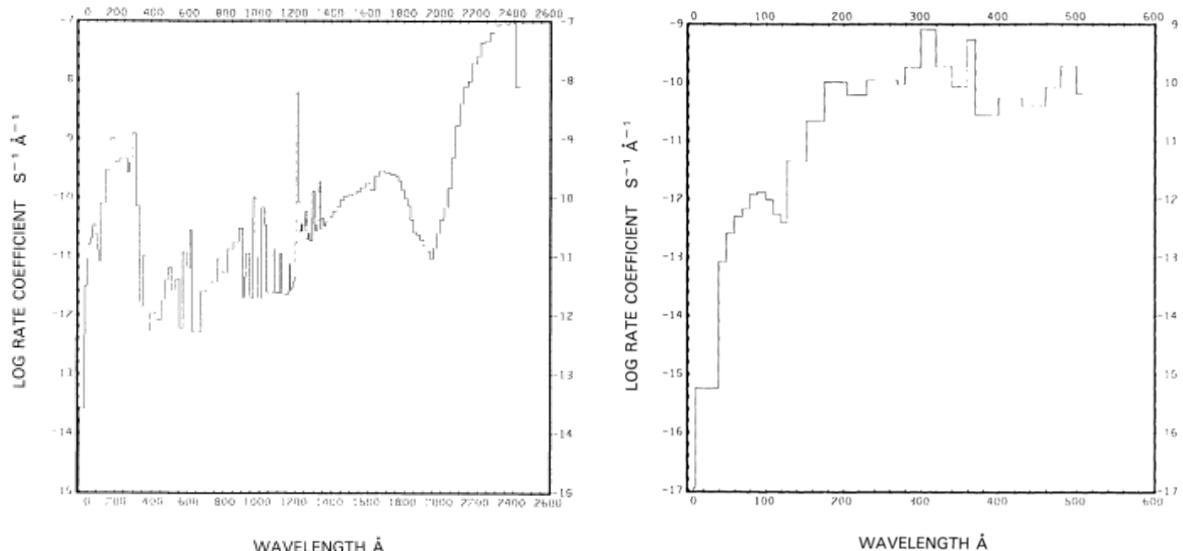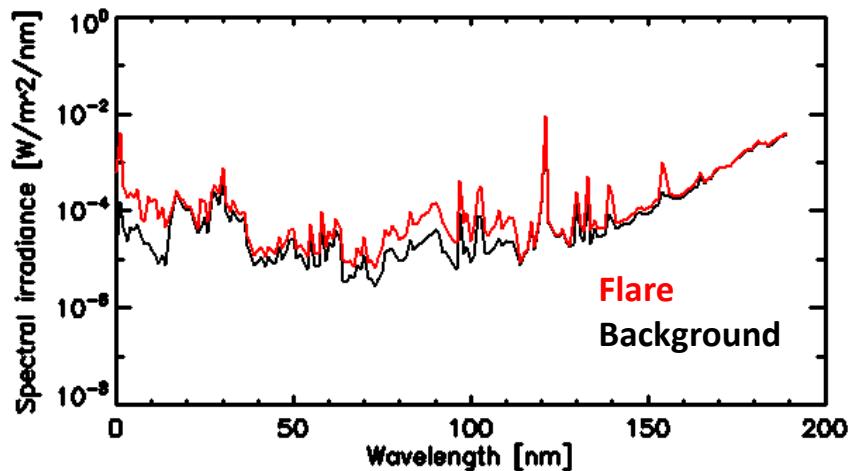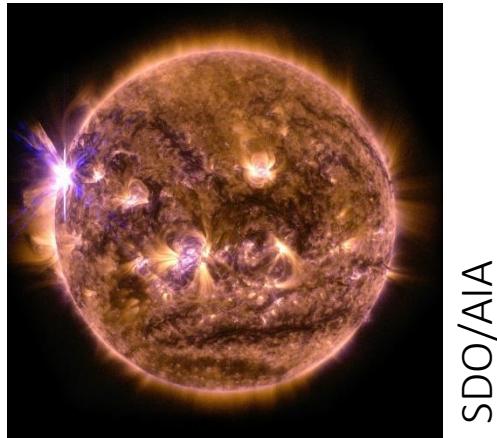
Flare
Background

% increase of ionization rate during flare

He+
O+
Mg+
Ca+
Na+
Al+
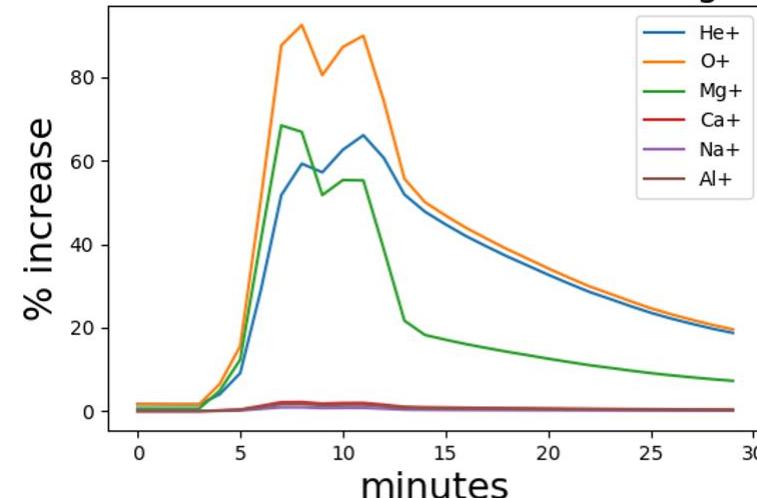
Test-particle model of Mercury's ionized exosphere

Neutral density
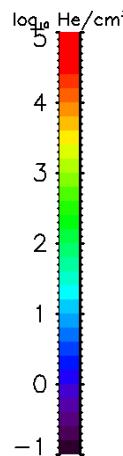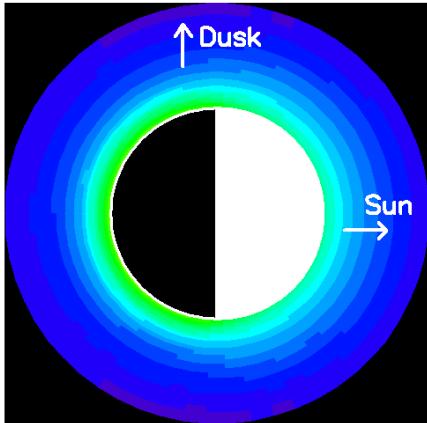
Exospheric Global Model
(EGM; Leblanc et al. 2017)
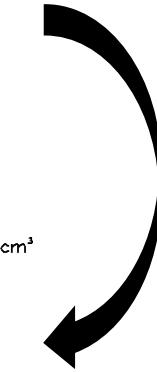
Latmos Hybrid Simulation
(LatHyS; Modolo et al. 2016)
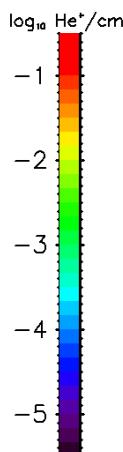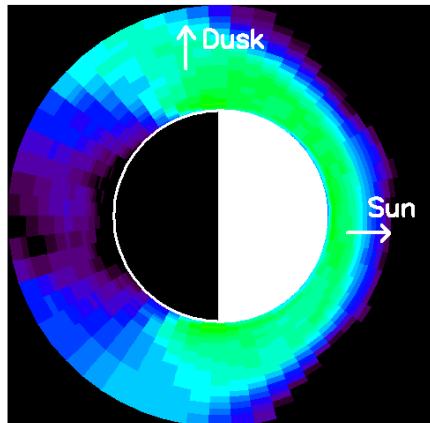
Latmos IoniZed Exosphere
(LIZE; Werner et al.)
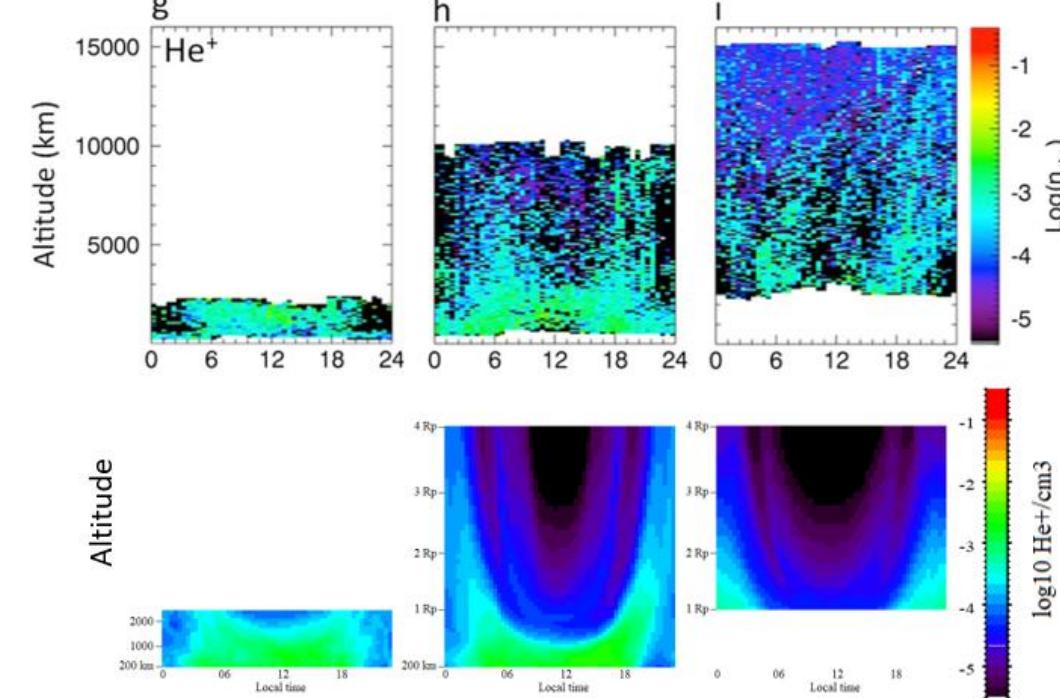
Ion density

(Raines et al. 2013)

Na+ dawn enhancement: echo of the neutral exosphere?

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