

OBSERVATIONS OF NEUTRAL ATOMS FROM THE SOLAR WIND AND MAGNETOSHEATH

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We present an overview of observations of neutral atoms from the solar wind in the Earth's vicinity with the Low Energy Neutral Atom (LENA) imager on the IMAGE spacecraft. Neutral solar wind (NSW) is formed when solar wind ions exchange charge with neutral gas between the Sun and the Earth. The neutral gas originates from three distinct sources: interstellar neutral atoms penetrating inside of 1 AU, dust close to the Sun, and the Earth's geocorona. We will show how each of these sources produces a signal of different character in the LENA data. Using the NSW data, we estimate the dust column density at 1 AU and compare observations of solar wind charge exchange in the magnetosheath to simulations using the the BATSRUS global MHD code.