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**TITLE:** The EUV Emission in Comet-Solar Corona Interactions

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**ABSTRACT BODY:** The Atmospheric Imaging Assembly (AIA) on the Solar Dynamics Observatory (SDO) viewed a comet as it passed through the solar corona on 2011 July 5. This was the first sighting of a comet by a EUV telescope. For 20 minutes, enhanced emission in several of the AIA wavelength bands marked the path of the comet. We explain this EUV emission by considering the evolution of the cometary atmosphere as it interacts with the ambient solar atmosphere. Water ice in the comet rapidly sublimates as it approaches the Sun. This water vapor is then photodissociated, primarily by Ly- $\alpha$ , by the solar radiation field to create atomic H and O. Other molecules present in the comet also evaporate and dissociate to give atomic Fe and other metals. Subsequent ionization of these atoms can be achieved by a number of means, including photoionization, electron impact, and charge exchange with coronal protons and other highly-charged species. Finally, particles from the cometary atmosphere are thermalized to the background temperature of the corona. Each step could cause emission in the AIA bandpasses. We will report here on their relative contribution to the emission seen in the AIA telescopes.

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**Additional Details**

**Previously Presented Material:**