



## **Study of the April. 20, 2007 CME-Comet interaction event with an MHD model**

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Between April. 19th and 30th, comet 2P/Encke crossed the ecliptic plane at about 0.4 AU from the sun, where it was impacted by a CME. The interaction between the CME and the cometary plasma, especially the consequent tail-disconnection event, was directly imaged using the SECCHI telescopes aboard the STEREO-A spacecraft. The images captured with high spatial and temporal resolution allow us to follow the interaction process in detail and to study the trigger mechanism for the disconnection. A 3-D global MHD model is applied to reproduce this time-variable process in the plasma environment around comet Encke. To model the effect of the incident CME, a series of idealized solar wind conditions are tested. The modeled responses of the comet tail provide not only a reasonable study of this event, but also serve as a reference for other possible interaction events that might appear in the future. In addition, the ambient solar wind conditions constrained with MHD estimate are not only consistent with the STEREO imaging, but are also consistent with the magnetic field observations in the solar corona.