



## **Response of Venusian bow shock to solar wind under long-lasting solar minimum**

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The period of low solar activity between solar cycles 23 and 24 that occurred from 2006 through 2010 was as long and as quiet as any on record since the beginning of space flight, and likely in over a century. From May 2006 the Venus Express (VEX) spacecraft continuously operated at Venus and crossed its bow shock twice per orbit (24 hour). Since the location and shape of the bow shock are highly sensitive to solar EUV, Here the long-lasting solar minimum provides such an opportunity to extract the influence of interplanetary magnetic field (IMF) on the bow shock from the observations. We use VEX data during 2006/06-2010/07 to determine the locations of bow shock, and then investigate the variations of these boundary positions as response to the orientation and magnitude of IMF. Our analysis of the large database shows that the magnitude of perpendicular component of IMF can affect the size of bow shock and there are some magnetic pole-equator asymmetries of bow shock location near the subsolar point and in tail region.