



A comparison between VEGA 1, 2 and Giotto flybys of comet 1P/Halley: Implications for Rosetta

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Three flybys of comet 1P/Halley, by VEGA 1, 2 and Giotto, are investigated with respect to the occurrence of mirror mode waves in the cometsheath and field line draping in the magnetic pile-up region around the nucleus. The time interval covered by these flybys is approximately 8 days, which is also the approximate length of an orbit or flyby of Rosetta around comet 67P/Churyumov-Gerasimenko. Thus any significant changes observed around Halley are changes that might occur for Rosetta during one pass of 67P/CG. It is found that the occurrence of mirror mode waves in the cometsheath is strongly influenced by the dynamical pressure of the solar wind and the outgassing rate of the comet. Field line draping happens in the magnetic pile-up region. Changes in nested draping regions (i.e. regions with different Bx-directions) can occur within a few days, possibly influenced by changes in the outgassing rate of the comet and thereby the conductivity of the cometary ionosphere.