Effects of the solar wind dynamic pressure on the accelerated cometary ions in the magnetosphere of comet 67P

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Rosetta observed medium-energy ions around comet 67P/Churyumov-Gerasimenko while orbiting deep inside the coma. These ions are thought to be accelerated towards the anti-sunward direction by some acceleration mechanism in the outer regions of the cometary magnetosphere. They usually reach energies up to 100-1000 eV and undergo deceleration in the dense neutral coma surrounding the nucleus. These ions usually appear in the ion dynamic spectrum as a new population rising from the low energy background, their energy peaking around 1000 eV and then decreasing until the population disappears again. We investigated the properties of these ions, as well as the relationship between the solar wind pressure and the energy of the medium-energy ions to discover the cause of the observed time variation. We show that there is a correlation between the solar wind dynamic pressure around the comet and the energy of the accelerated ions.