



Cluster CIS observations of polar cap O⁺ outflow flux variability; the connection to the ionosphere

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We complement previous studies of high altitude O⁺ ion outflow and energization over the polar cap with a careful look at the number flux variability. Multi-spacecraft measurements are used to shed light on temporal vs. spatial variability of the ion outflow number flux. Because the ions are believed to originate in the ionosphere the number flux should provide information about the source region which is reasonably limiting the available amount of ions. Typical periodicity and scale size will be reported and put in context of contemporary theories on the initial ionospheric ion upflow and subsequent outflow. The role of subsequent heating / acceleration for the total outflow number flux will also be discussed.