



## **Fast solar wind streams, embedded Alfvén waves and relativistic electron acceleration**

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Solar wind fast streams emanate from solar coronal holes. The southward component of embedded nonlinear Alfvén waves lead to magnetic reconnection and plasma injection into the nightside magnetosphere. The injection of 10-40 keV anisotropic electrons leads to the generation of electromagnetic chorus. PC5 wave generation is either caused by the plasma injection process or the Kelvin-Helmholtz instability at the flanks of the magnetosphere. Ram pressure pulses from magnetic decreases are another possible (dayside) source. The chorus and PC5 waves lead to the acceleration of relativistic electrons. The above scenario does not depend on the presence or absence of magnetic storm main phases. If time permits, storm main phases generated by CIRs and initial phases generated by slow solar wind Heliospheric Plasma Sheet (HPS) will be discussed.