



## **The polar current system at very quiet times**

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Numerous polar overflights of CHAMP were used for a detailed statistical study on the level of activity. We concentrate on the features of the polar current systems during very quiet times, ie. how these periods are reflected in the magnetic field measurements resulting from the horizontal and field-aligned currents (FACs). The occurrence of very quiet periods is strongly controlled by the solar wind input and solar zenith angle indicating the importance of the ionospheric conductivity. Magnetospheric electric fields and/or upper atmospheric winds seem to be always present to drive appreciable currents when there is an appropriate conductivity. The correlation analysis of scalar magnetic field disturbances and peak FACs often reveals unexpectedly high magnetic amplitudes even during times when only small FAC densities are present at dark seasons. We compare the daily quiet time field variations at satellite height with simultaneous ground observatory data and also consider the external processes which lead to very quiet conditions. This study aims to improve the selection criteria for magnetic field modelling purposes.