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Comparison of magnetic and plasma velocity ULF oscillations during magnetic storms

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Data from the Hankasalmi HF radar and IMAGE magnetometer array are used to study the wave field picture of intense Pc5 pulsations over Scandinavia. Line-of-sight drift velocity variations for 16 beams and 74 range gates of the Hankasalmi radar are compared with magnetic data from 10 IMAGE magnetometer stations located under the ionosphere regions scanned by the radar. Plasma velocity data have 1 or 2 minute resolution, whereas magnetic data are obtained with the 10-s sample rate. Spatial characteristics of the ULF wave field are determined from the ionospheric and ground-based measurements. The correlation distance of ground-based magnetic stations with respect to plasma oscillations in the ionosphere has been estimated. The results can be useful for the physical interpretation of observations, both radar and magnetic.
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