



High - speed Streams over the Solar Cycle 23

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The goal for the study was to examine periods of high solar wind speed over the years 1998 - June 2007 of the solar cycle 23. We furthermore analyzed the interaction of high-speed streams (HSS) with the Earth's magnetosphere. The ACE plasma measurements were used to identify the HSS intervals by using a threshold for velocity and duration. The ACE MAG and SWEPAM measurements were used to analyze the trend and fluctuations of the magnetic and velocity field during the different parts of the HSS interval. We will show examples of high-speed streams with and without strong magnetic field fluctuations, as well as examples of HSSs with and without simultaneous magnetic clouds. We found out that the occurrence rate and length of the HSSs varies over the solar cycle 23. The occurrence of interplanetary HSSs also seems to enhance the magnetic activity around the auroral ovals. In addition, we observed Alfvén waves during the leading part of the high-speed stream. The occurrence of Alfvén waves is used to distinguish between CMEs and HSSs.