Interplanetary Shocks/Pressure Pulses and Dayside Auroras

X.-Y. Zhou and B.T. Tsurutani, Jet Propulsion Laboratory, 4800 Oak Grove Drive, Pasadena, CA 91109
R. Prange, University Paris, Batiment 121, Orsay, 91405 France

Dayside auroral

Dayside auroral brightenings occur when interplanetary shocks/pressure pulses impinge upon the Earth's magnetosphere. We will also examine the magnetospheric response to small pressure pulses. These pressure-pulse auroras first brighten near local noon and then propagate toward dawn and dusk along the auroral oval. The propagation speed is ~10 km/s in the Earth's ionosphere, which corresponds to the solar wind speed in the down-tail direction. The fundamental pressure pulse-magnetospheric interaction takes place at the magnetopause and its boundary layer. Several physical models for creating dayside auroras will be discussed. We predict that pressure-pulse auroras will occur at other planetary magnetospheres. We will also discuss the possibility of detecting magnetized planets orbiting "flare stars".

11:10h
SM11C-09
:2704 Auroral phenomenon (2407)
:2784 Solar wind/magnetosphere interactions
:2407 Auroral ionospheric (2704)
:2451 particle acceleration
:SM
:AGU Fall Meeting 2000