

SYMPOSIUM ON TECHNOLOGICAL REQUIREMENTS FOR FUTURE SPACE ASTRONOMY AND
SOLAR-SYSTEM SCIENCE MISSIONS (A7)
Technology Needs for Future Scientific Payloads (4)

Author: Mr. keunchan Park
Chungnam National University, Korea, Republic of, pwcks@cnu.ac.kr

Prof. Yu Yi
Chungnam National University, Korea, Republic of, euyiyu@cnu.ac.kr

ANALYSIS OF PROTON DEPLETION IN SOLAR SHOCK WAVE

Abstract

Study in progress currently is that we analyze depletion when sun occurs the shock wave. Depletion define the phenomenon that proton density is less than 1.5 particles/cm³ when solar activity like flare, solar wind, especially shock wave affect the space between sun and earth. So we use ACE satellite data and Geomagnetic Equatorial Dst index data to find causes of depletion. we analyze the solar wind and shock wave before depletion using instrument SWEPAM observing solar wind and MAG observing magnetic field in ACE. And we try to identify whether the magnitude of shock wave or velocity of solar wind affect the depletion of duration time. People usually think if velocity of shock is fast, duration time of depletion was short. And they think if magnitude of shock wave is large, depletion do not observed due to amount of plasma. As a result of study, duration time of weak shock wave sometimes show longer than that of strong shock wave. Also, depletion was discovered when shock wave is not happened. In other words, depletion don't have a intimate relation with magnitude of shock wave. Our goal is to figure out more intensively the solar wind's condition during generating the depletion besides shock wave.