

BOUNDARY LAYER ELF/VLF PLASMA WAVES

Bruce T. Tsurutani
Xiao-Yan Zhou
Jet Propulsion Laboratory
California Institute of Technology
4800 Oak Grove Drive
Pasadena, CA 91109

Gurbax S. Lakhina
Indian Institute of Geomagnetism
Colaba, Mumbai/Bombay 400-005, India

Magnetopause ELF/VLF boundary layer plasma wave observations will be reviewed, with an emphasis on the most recent POLAR wave (and imaging) results. These new results lead to a distinct paradigm shift. POLAR results indicate that the boundary layer contains auroral zone magnetic field lines and the plasma wave dynamics is intimately related to ~ 100 eV to ~ 10 keV field-aligned electron and ion beams. The electron and ion beams are, in turn, driven by the large scale solar wind-magnetospheric interaction. With this picture in mind, most of the boundary layer wave phenomena at Earth and Jupiter can be understood.