

Topside sounding of upper ionosphere by EXOS-D/PWS in 2015

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We present initial results of sounder experiments by the Akebono (EXOS-D) satellite conducted in March-April 2015.

Plasma wave sounder experiments have been conducted by Stimulated Plasma Wave experiment (SPW) subsystem of Plasma Wave and Sounder experiments (PWS) on board the Akebono satellite in the topside ionosphere and plasmasphere [Oya et al., JGG 1990]. The sounder experiments have two main purposes: One is the remote sensing of the topside ionosphere including polar region and inner plasmasphere, and another is active experiments by the stimulation of plasma waves in space. Both of them have been successfully conducted by the SPW subsystem of Akebono/PWS.

During March-April 2015, we carry out sounder experiments by the Akebono satellite in both polar region and equatorial region of ionosphere/plasmasphere. In this paper we study echoes obtained by the experiments and derived altitude profile of the plasma density of the topside ionosphere. We also investigate plasma resonances appeared in ionograms and discuss their generation mechanism based on the weak turbulence theory of the sequence of diffuse plasma resonances [e.g., Oya, 1970].

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