
[EE] Evening Poster | P (Space and Planetary Sciences) | P-PS Planetary Sciences

[P-PS01]Outer Solar System Exploration Today, and Tomorrow

convener:Jun Kimura(Osaka University), Yasumasa Kasaba(Dep. Geophysics Graduate School of Science Tohoku University), Steven Vance(Jet Propulsion Laboratory, Caltech, 共同), Kunio M. Sayanagi (Hampton University)

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The giant planets provide many keys to understanding planetary processes. They play an important role in shaping our solar system, and the physical and chemical processes they harbor also provide a unique opportunity to study the phenomena relevant for studying

Earth and other planets, including exoplanetary systems. In this session, we discuss a wide range of topics encompassing the giant planets and their moons, including their origins, interiors, atmospheres, compositions, surface features, and electromagnetic fields. To advocate for current and future outer planets exploration (Cassini, Juno, New Horizons, JUICE, and beyond), we also call for discussions on future missions to explore giant planet systems, including how to develop better international cooperation. Discussion in this latter category will include progress in developing a solar sail mission concept for observing the Jupiter system and its trojan asteroids.

[PPS01-P10]Identification of Jupiter's hectometric radiation associated with reconnection in the magnetotail

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It is known that Jupiter's radio emission in the hectometric wave range (HOM) shows two type occurrence components. One is a component relating to solar wind variations (sw-HOM) appearing around CML(Central Meridian system III Longitude of an observer)=180deg when solar wind pressure enhances. Another one is generally more intense than sw-HOM and has no or weak relation with solar wind variations (nsw-HOM) appearing around CML=110deg and 280deg as the two major components when De (Jovicentric declination of an observer)=-1deg (Nakagawa, 2003). The nsw-HOM is thought to be generated by some internal processes initiated by the rapid planetary rotation and massive plasma, however precise source processes and locations have not been clarified yet.

We have reanalyzed occurrence characteristics of HOM using the WIND data to investigate precise relation between occurrence of nsw-HOM and Jupiter's magnetospheric variations observed by the Galileo Jupiter orbiter. As a result, we found that HOM has the 3rd nsw-HOM component appearing from 340deg to +20deg in CML which generally appears quasi periodically with the time scale of a few to several days and also shows long-term occurrence variations with seemingly capricious time scales. A comparison study between the occurrence timing of the 3rd nsw-HOM and magnetospheric events for the Galileo era indicates that most of the 3rd nsw-HOM appeared when magnetic reconfiguration events occurred in the magnetotail region. We show the precise occurrence features of the 3rd nsw-HOM and discuss their possible source locations based on a comparison study with Jupiter's UV auroral images.