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Modulation of the plasmaspheric hiss

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The plasmaspheric hiss is regularly observed in the high-density regions of the inner magnetosphere. Particularly strong hiss enhancements appear in the plasmaspheric plumes. The hiss is important because it is believed to cause loss of energetic trapped particles. In this study we investigate the characteristics of hiss and its occurrence using the four-point Cluster observations in order to distinguish temporal and spatial variations of hiss. Polar-orbiting Cluster spacecraft provide a pass through the inner magnetosphere down to L=4 on both hemispheres separated by a few hours. One of the findings is that the power of plasmaspheric hiss appears to be highly correlated with the local plasma density variations particularly during quiet conditions. Another important finding is that the hiss appears to propagate away from the equatorial plume region while it propagates back to the equator at lower L shells.