



Rotational modulation of Saturn's radio emissions after equinox

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The modulation rate of Saturn kilometric radiation (SKR), originally thought to be constant, was found to vary with time by comparing the Voyager and Ulysses observations. More recently, Cassini RPWS observations of SKR revealed two different modulation rates, one associated with each hemisphere of Saturn, and it was proposed that the rotation rates are subject to seasonal change. The almost continuous observations of SKR, Saturn narrowband emission, and auroral hiss by RPWS provide a good method of tracking the rotation rates of the planet's magnetosphere. We will show that the rotation rate of the northern SKR is slower than that of the southern SKR in 2015. Auroral hiss provides another unambiguous method of tracking the rotation signals from each hemisphere because the whistler mode wave cannot cross the equator. Rotation rates of auroral hiss are shown to agree with those of SKR when both are observed at high latitudes. The dual rotation rates of 5 kHz narrowband emissions reappeared after a long break since equinox and they agree with those of auroral hiss in 2013.