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Structure and variability of Saturn's magnetic field in the vicinity of Titan

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The orientation and magnitude of Saturn's magnetic field in the vicinity of Titan is considered. In the dawn magnetosphere, the magnetic field presents an important radial component directed towards Saturn, suggesting that Titan is usually located below Saturn's magnetodisk. Also, a non-negligible component along the co-rotation direction suggests that Saturn's field lines close to the magnetodisk are being swept out of the respective magnetic meridians in a direction anti-parallel to the local corotation direction. The location of Titan with respect to the center of the magnetodisk is dependent on the solar wind dynamic pressure. |deltaB|/|B| ˜ 0.5 amplitude waveforms at periods close to the planet's kilometric radiation modulation period are also present in the background magnetic field near Titan. This modulation in the field, ubiquitous in Saturn's magnetosphere and compatible with the presence of a rotating asymmetry in the planet's magnetic field, is responsible for the differences between mean fields measured before and after some Titan encounters. These two effects play a mayor role in the structure and variability of Titan's induced magnetosphere.