地上望遠鏡を用いたエンケラドストーラスOI 630nm発光の観測

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groundbased observation of the OI 630nm emission from Enceladus torus

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It has been known that there exists H_2O molecules and their dissociative products from rings and icy moon around Saturn. Cassini mission discovered a plume on Saturn's icy moon, Enceladus. This small moon supplies molecules and ice grains to the Saturn's magnetosphere. Distribution of these particles is such like as a torus making it called the Enceladus-torus. Remote sensing of the Enceladus torus have been made by space mission [Shemansky et al., 1993, Esposito et al., 2005]. But there have been no observation from the ground yet. If we can monitor distribution and time variation of the Enceladus torus continuously, we can get more clear understanding about Saturn's magnetosphere and its variability. In order to accomplish remote-sensing of the Enceladus for a long period, we made ground-based observation of OI630nm emission of the Enceladus torus in Dec. 2009-Jan. 2010. As a result, we could detect torus emission of 4+-2 Rayleighs.

Additional observation was made in Jan. 2010-Feb. 2010 and May 2010-Jul. 2010. The brightness of emission is 2.3+-1.3 Rayleighs when averaging images taken in this period. This show some decrease of brightness. I will add detailed analysis in this presentation.