



## **Diurnal variation of cloud ice water path observed from SAPHIR onboard Megha-Tropiques**

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Ice Water Path (IWP) plays a crucial role in determining the earth's radiation budget. The accurate measurement of ice water path is important in evaluating climate models. The diurnal variations of ice water path are not known well due to inadequate temporal resolution in polar orbiting satellites. SAPHIR (Sondeur Atmosphérique du Profil d'Humidité Intertropicale par Radiométrie) onboard Megha-Tropiques (MT) with an inclination of 20 degree and swath of around 1700 km, provides observations 4 to 5 times a day for a given location. In this study SAPHIR observations were used to find the diurnal variation of IWP. A neural network based IWP retrieval algorithm was used to get the IWP from brightness temperatures of SAPHIR. The diurnal amplitude, peak and mean of IWP for different regions were calculated. Diurnal amplitude was found to be larger over land than over ocean. The diurnal peak was observed in the evening over land, whereas it was in the morning over the ocean. We have also used GPM-GMI derived IWP and SAPHIR derived deep convective pixels to compare the diurnal variations. One year data of SAPHIR and GMI was used to highlight the advantage to SAPHIR sampling in the diurnal variation study, the result shows that average SAPHIR pixels per hour at any location is 5 to 7 times more than that of GMI.