

ON THE DISTRIBUTION OF THE FREE TROPOSPHERIC HUMIDITY FROM METEOSAT

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ABSTRACT

Free tropospheric humidity over the subtropics is known to play a strong role in the earth radiation budget by providing efficient way for longwave radiation to escape to space. Non linearity in the radiative transfer yields to higher sensitivity of the OLR to perturbations in these dry environments than in the moist deep tropics. METEOSAT offers a unique observational dataset to study the variability of the water vapor distribution in the region. Joint research efforts between LMD and CMSAF are currently permitting the building of a long term data base (~30 years). The talk will discuss the status of development of the database as well as preliminary analysis of multiyear variability analysis. In particular, time will be devoted to discuss the homogeneity of the dataset over the period by comparison to NOAA satellite similar data field as well as with comparison with radiosondes archive and reanalysis products. The results of recent investigations on the dynamics of water vapor in this region using back-trajectories techniques highlight the importance of using the Probability of Distribution Function of instantaneous estimates rather than typical monthly averages of the quantity for a good understanding of the processes at play. The strong adequation of the METEOSAT archive towards this kind of approach will be demonstrated.