

INTERANNUAL VARIABILITY OF THE FREE TROPOSPHERIC HUMIDITY OVER TROPICAL ATLANTIC AND AFRICA

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The METEOSAT Water Vapor channel provides valuable informations on the water vapor content of the high and middle troposphere. Therefore a long term database (1983-1997) of Free Tropospheric Humidity (FTH) has been built. This database offers new perspectives for african climatic studies. Indeed, the FTH is an indicator of the behaviour of the large scale tropical circulation cells (Hadley-Walker cells) and also gives informations on mesoscale dynamics. The high spatial and temporal resolution resolution of the database allows to make such regional studies. Because low clouds have a small impact on Water Vapor brightness temperatures, the FTH product is based on clear and low clouds scenes. The selected radiances are then inverted in terms of the weighting-function weighted mean relative humidity of a wide atmospheric column, and designed as the FTH. The final FTH product is available over Africa and Tropical Atlantic every 3 hours on a regular grid of 0.625° .

The interannual variability of 13 years of FTH will be detailed through different statistical analyses. The water vapor distribution is related to the all sky Outgoing Longwave Radiation of ERBE to analyse the link between the convective activity and the FTH. This work concerns key regions for african climate. Finally, The analyse of the interannual variability of the water vapor distribution in tropical and subtropical region allows to downscale in time to intraseasonal variability.