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STUDY OF THE EVOLUTION OF THE SAHELIAN CLIMATE BASED ON SATELLITE OBSERVATION AND ATOVS DATA.

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Abstract

The Sahelian zone which is the framework of this study is now known to the world because of the drought. Since 1968, this area has experienced a real climate crisis, characterized by a persistent rainfall deficit. Meteorological and/or climatological studies require diverse, important and independent data from satellite and/or in-situ observations.

The distribution of in-situ stations in the Sahelian zone is less dense, which decreases the accuracy of the global models in this zone.

It is these contexts and problems that justify our research to be oriented to the evolution of the Sahelian climate based on satellite observation and ATOVS data.

In this work, a main component analysis of monthly infrared and microwave data was used to study the monthly distributions of spectral signatures of ATOVS channels. We returned the amount of water, the temperature and the relative humidity. For this purpose, the radio sounding data and the brightness temperature data measured by the AMSU-A and MHS microwave radiometers, as well as the HIRS infrared sensors on board the NOAA and MetOp satellites were used.

Keywords: Sahelian zone, satellite, TOVS, AMSU, MHS, Infrared