

Predominant regional circulation patterns during wetter than normal rainfall season in southern Africa

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The paper highlights the circulation patterns associated with wetter than normal that have demonstrated the vulnerability of the socioeconomic development of around 200 million people from 14 the Southern African Development Community (SADC) countries to the vagaries of the climate system. The recent, floods across southern Africa have to be seen against the background of advances made by the scientific community in the understanding of the global ocean-atmosphere system. The paper seeks to contribute to such advances science is making in order to make humankind benefit from the knowledge science has provided. The data used in the analyses include actual rainfall from the SADC countries and those from the United States NOAA (NCEP/NCAR Reanalysis) data banks.

The paper briefly looks at the regional climatology of the SADC countries, which shows that rains fall within the period October during one year to March of the following year. Wetter than normal conditions have tended to occur during January to March. Thus, the more detailed analysis of the circulation characteristics has a focus of composite of these months.

A few wetter than normal ears are selected for analyzing of the dynamical structures of the regional circulation patterns and the tropical ocean and global atmosphere. These coincided with mature La Nina conditions. However, the selected years include the 1976/1976-rainfall season, which occurred in an El Nino phase. There emerged significant similarity between rainfall anomaly variability and the ENSO signals. The many parameters of the atmosphere showed consistent characteristics in different wetter than normal years. The regional circulation patterns associated with wetter than normal conditions show similarities in both ENSO phases.

The study also shows how possible generators of the climate anomalies can be grouped together. Thus the diagnosis of the various fields contributes to developing a framework for providing skilful predictive tools in order to minimize the vulnerability of the region to the extremes in the variation of the climate system.

Tuesday II (Talk)