

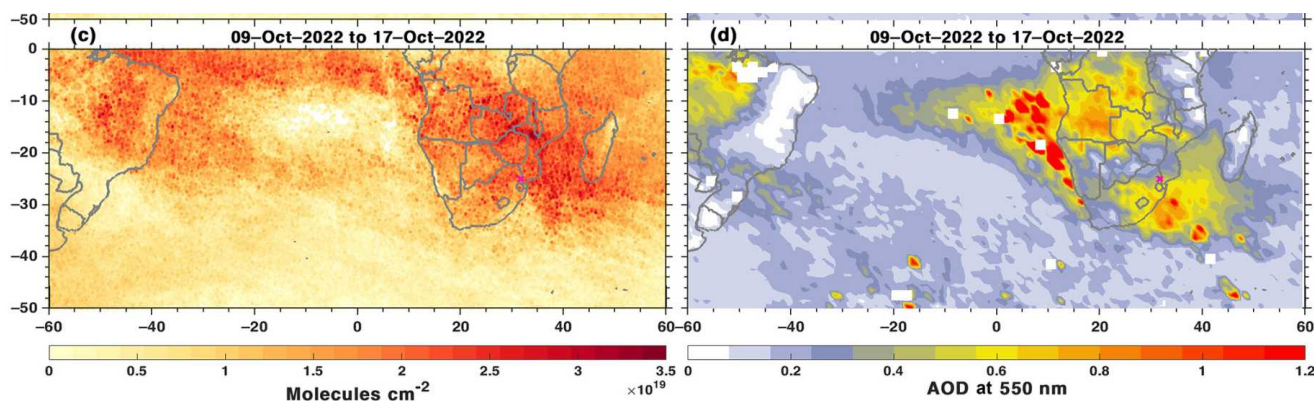
Seminário CREATE e Programa Doutoral em Ciências da Terra e do Espaço

Marion Ranaivombola

(New CREATE and EUBURN-RISK researcher)

Study of aerosol variability in the Indian Ocean during the biomass burning season in southern Africa

Quarta-feira, 29 de outubro às 15H, sala 138 do CLAV



Summary

This work focuses on the evolution and transport of pollutants from biomass burning in the region of Southern Africa and the South-West of Indian Ocean using ground-based and satellite observations and numerical tools. To address this, the BiBAC (Biomass Burning Aerosol Campaign) campaign was implemented as part of the IRP-ARSAIO (International Research Project - Atmospheric Research in Southern Africa and Indian Ocean) project, which conducted an intensive observation phase between August and October 2022. During the IOP, two transport mechanisms were identified: a case of river of smoke during event 1 and air mass recirculation with the formation of col points during event 2. These transport patterns had already been observed during the SAFARI-2000 campaign. However, the smoke river observed differs from previous cases due to specific synoptic conditions and the absence of a "cut-off low". This work is the first study to document the transport mechanisms of aerosols and CO to the southwestern Indian Ocean basin. FLEXPART, coupled with fire and anthropogenic emission inventories, was used to identify the origin of air masses during the IOP and to quantify the contribution of African and South American sources to the CO balance. The results confirmed the regional and intercontinental transport of air masses and highlighted the predominance of African sources, while the contributions of South American fires were more variable and could be greater than or equal to those from southern Africa.