



Cloud and aerosol detection by a balloonborne lidars and backscattersondes in the UTLS during the HIBISCUS campaign: optical and dynamical properties

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A survey of the results obtained from lidars and backscattersonde flights during the HIBISCUS balloon campaign, held in Bauru, Brasil, jan-march 2004, is presented. The deployment of the instruments was aimed at studying the presence and properties of high level clouds and aerosols in the tropical UTLS. Optical observations of clouds and aerosol, acquired with lidars during four short duration flights and backscattersonde during three short duration balloon flights, are presented and discussed. Depolarization ratio and extinction-to-backscatter ratio for the high altitude clouds observed by the lidar will be analysed in conjunction with satellite data. A particular emphasis is posed on the microphysical and dynamical processes related to the observed parameters. An analysis of the dynamical properties of the sounded airmasses, with the aid of dynamical models and ECMWF analysis, will be given. TTL aerosol origin will be investigated with the aid of mesoscale trajectory analyses. A case study of an aerosol layer (dust?) observed in the tropopause region is discussed, in order to investigate its origin and fate.

Finally, observations from a lidar mounted on a long duration infrared mongolfier, that has flown for 11 days, will be presented and compared with satellite observations.