



## **Historical Upper-air Data from Expeditions to the Tropics and Comparison with the Twentieth Century Reanalysis**

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In the first decades of the 20th century, aerological observations were for the first time performed in tropical regions. Several of these records have been digitised in the framework of ERA-CLIM. In this presentation we focus on four expeditions prior to 1940: the data obtained on the cruise of the S.M.S. Planet in 1906/07, Arthur Bersons's aerological expedition to East Africa in 1908, the observations onboard the Meteor in the 1920s cruising in the Atlantic, and the cruise of the MS Schwabenland in 1938/39. Historically relevant findings were gained in these expeditions and are briefly summarised (e.g., the fact that the tropical tropopause is higher and cooler than that in the midlatitudes, or the discovery of westerlies in the equatorial stratosphere). Then we compare the observed profiles of wind, temperature, geopotential height, and humidity with corresponding profiles extracted from the "Twentieth Century Reanalysis". Based on previous validation experiments, a minor quality of 20CR is expected in the Tropics. This is also confirmed in this analysis, although in several cases the agreement is surprisingly good.