

Quality evaluation of historical mean temperature data in Sri Lanka

A quality evaluation of the mean temperature data at the main stations of the Meteorological Department of Sri Lanka was carried out based on station histories, internal consistency of the data and based on comparison with approximations for the mean temperature for each stations based on its neighbours. There have been many relocations of stations over the last 140 years and the changes of instrumentation. The data reconstruction brings out shifts in mean in Mannar (1900-1935), Kandy (1921-1954), Ratnapura (1911-1920), Colombo (1930-1968) and Nuwara Eliya (1950-1975) and shifts in variance at Galle between 1902 and 1913.

Such quality control has been previously carried out by the Global Historical Climatology Network (GHCN) for 11 Sri Lankan stations and data that failed to pass the quality control

were discarded. We have used 15 stations, which were of a longer duration and had far fewer missing data. The GHCN quality checks lead to all data prior to 1950 from Trincomalee and Batticaloa and Colombo data and data from Hambantota prior to 1921 being discarded. The quality control carried out by the GHCN database retains data for Mannar, Jaffna, Kandy, Nuwara Eliya and Galle in the nineteenth century. The present quality control leads to a much smaller set of data being discarded. In addition, a reconstruction of the missing data has been presented based on the relationships in the temperature data among the different stations. In addition, it reveals major inconsistencies in the nineteenth century records of several stations.