



Digitisation of Surface and Upper-air Observations in ERA-CLIM

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Historical meteorological data are a valuable source of information for our knowledge of the state of the atmosphere over the last 200 years. Reanalyses have been used to assimilate these data in order to produce physically consistent pictures of the atmosphere. Initially, this has been done for the observationally well covered period starting in 1948 or 1957 (NCEP/NCAR, ERA-40), using all surface, upper-air and satellite data that was then available. Recently, the Twentieth Century Reanalysis Project has extended the period covered by reanalyses back to 1870, but only assimilating surface pressure and using sea surface temperature and sea ice as boundary conditions. However, to date, no reanalysis has made use of upper-air data from the time before 1948, and there also still remain plenty of old surface data to be digitised.

In the framework of the European project ERA-CLIM, significant amounts of historical (i.e. pre-1957) upper-air and surface data (each > 600,000 station days) have been catalogued, imaged (> 200,000 images) and digitised in order to prepare new input datasets for upcoming reanalyses. These data cover large parts of the globe, focussing on so far less well covered regions such as the Tropics, the polar regions and the Oceans, and on very early 20th century upper-air data from Europe and the US. Additionally, 13 historical atmospheric transmission records have been digitised. The total number of digitised/inventoried records is 13/16 (transmission data), 59/185 (surface), 63/101 (moving upper-air, i.e. data from ships etc.) and 673/1815 (upper-air stations). Since not all inventoried records could be digitised during the first part of the project, the data rescue efforts will be continued during the second part starting in 2014. Here, we give an overview of the work done in ERA-CLIM and provide an outlook on the data rescue activities planned for ERA-CLIM2.