CRU Data Availability

The Climatic Research Unit (CRU) at the University of East Anglia (UEA) has, since 1982, made available gridded datasets of surface temperature data over land areas and averages for the Northern and Southern Hemispheres and the Globe. Until the development of the internet these were made available via various media. These datasets (the latest being CRUTEM3 http://www.cru.uea.ac.uk/cru/data/temperature/) have been developed from data acquired from weather stations around the world. Almost all these weather stations are run by National Meteorological Services (NMSs) and they exchange these data over the CLIMAT network, which is part of the World Meteorological Organization's (WMO) Global Telecommunications System (GTS). Much of the original data in the early 1980s came from publications entitled 'World Weather Records'. We also make use of data available from the National Climatic Data Center in Asheville, North Carolina (their Global Historical Climatology Network, GHCN). We are also constantly striving to find additional, and homogenized data from a wide range of sources (see details of earlier work in the publications below). Both the gridded datasets and the station data archive have evolved over the years and we developed dataset version numbers in the early 1990s. The methodology we have used in developing the gridded datasets has been described in numerous publications in the climate literature (see list at the end of this document and also http://www.cru.uea.ac.uk/cru/data/temperature/ and the linked FAQs).

Since the early 1980s, some NMSs, other organizations and individual scientists have given or sold us (see Hulme, 1994, for a summary of European data collection efforts) additional data for inclusion in the gridded datasets, often on the understanding that the data are only used for academic purposes with the full permission of the NMSs, organizations and scientists and the original station data are not passed onto third parties. Below we list the agreements that we still hold. We know that there were others, but cannot locate them, possibly as we've moved offices several times during the 1980s. Some date back at least 20 years. Additional agreements are unwritten and relate to partnerships we've made with scientists around the world and visitors to the CRU over this period. In some of the examples given, it can be clearly seen that our requests for data from NMSs have always stated that we would not make the data available to third parties. We included such statements as standard from the 1980s, as that is what many NMSs requested.

The inability of some agencies to release climate data held is not uncommon in climate science. The Dutch Met Service (KNMI) run the European Climate Assessment and Dataset (ECA&D, http://eca.knmi.nl/) project. They are able to use much data in their numerous analyses, but they cannot make all the original daily station temperature and precipitation series available because of restrictions imposed by some of the data providers. A series of workshops (see Peterson and Manton, 2008 for details) has been held in diverse regions of the world to produce analyses of trends in extremes. NMSs are generally happy to release derived products from their data, even if they restrict access to their digital climate archives. A third example is the Global Precipitation Climatology Centre (http://gpcc.dwd.de), run by the German Weather Service (DWD) who make various versions of gridded precipitation datasets freely available, but due to restrictions imposed by data providers are not able to give access to any of the station monthly precipitation totals. The problem is a generic issue and

arises from the need of many NMSs to be or aim to be cost neutral (i.e. sell the data to recoup the costs of making observations and preparing the data).

We receive numerous requests for these station data (not just monthly temperature averages, but precipitation totals and pressure averages as well). Requests come from a variety of sources, often for an individual station or all the stations in a region or a country. Sometimes these come because the data cannot be obtained locally or the requester does not have the resources to pay for what some NMSs charge for the data. These data are not ours to provide without the full permission of the relevant NMSs, organizations and scientists. We point enquirers to the GHCN web site. We hope in the future that we may be able to provide these data, jointly with the UK Met Office Hadley Centre, subject to obtaining consent for making them available from the rights holders. In developing gridded temperature datasets it is important to use as much station data as possible to fully characterise global- and regional-scale changes. Hence, restricting the grids to only including station data that can be freely exchanged would be detrimental to the gridded products in some parts of the world.

We are not in a position to supply data for a particular country not covered by the example agreements referred to earlier, as we have never had sufficient resources to keep track of the exact source of each individual monthly value. Since the 1980s, we have merged the data we have received into existing series or begun new ones, so it is impossible to say if all stations within a particular country or if all of an individual record should be freely available. Data storage availability in the 1980s meant that we were not able to keep the multiple sources for some sites, only the station series after adjustment for homogeneity issues. We, therefore, do not hold the original raw data but only the value-added (i.e. quality controlled and homogenized) data. The priorities we use when merging data from the same station from different sources are discussed in some of the literature cited below. Parts of series may have come from restricted sources, whilst the rest came from other sources. Furthermore, as stated in http://www.cru.uea.ac.uk/cru/data/landstations/ we have never kept track of changes to country names, as it is only the location and the station's data that are important. So, extracting data for a single country isn't always a simple task.

We rely on the CLIMAT network for updating CRU data series in near-real time. After quality control at the Hadley Centre these data are made available (since 2000) at http://hadobs.metoffice.com/crutem3/data/station_updates/. Much climate data are now additionally available through the internet from NMSs, but these are often difficult to use as data series often refer to national numbering systems, which must be related back to WMO Station Identifiers. Furthermore a number of NMSs make homogenized data (after adjustments for example for site moves, instrument improvements and changes in the way averages are calculated) available in delayed mode over the internet. Some that provide both raw and homogenized versions, generally do not link the two sets of data together.

Some years ago, WMO enacted Resolution 40 (http://www.map.meteoswiss.ch/map-doc/WMO/WMOresol40.htm) which covers the exchange of meteorological data and many data products and services produced by NMSs. This resolution applies only to NMSs and whilst Annex 1 implies that much data should be freely available for research and operational uses (commercial is discussed separately in the resolution), many still impose conditions and charge for access (see the earlier discussion related to KNMI and GPCC).

The HadCRUT3 product is a blend of land surface (CRUTEM3) and sea surface temperatures (HadSST2), CRU developing the land series and the Hadley Centre the SST series. Real-time

updates of both components are performed at the Hadley Centre (data available at http://hadobs.metoffice.com/ and also on the CRU site). The collaboration has been ongoing for more than 20 years. A similar set of publications on the Hadley Centre site document the development of the SST datasets.

Files

- Data agreements

References

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