Maintenance Plan

GHCN-Monthly Version 4 Mean Temperature

Version 1.0 / September 28, 2016

1. Introduction

This document describes annual maintenance activities that occur in association with the GHCN-M version 4 bias correction process. Please refer to the GHCN-M version 4 Production plan for additional information on GHCN-M version 4 operational processing that occurs each month. Please refer to the GHCN-M version 4 Reprocessing plan for a description of reprocessing that will take place whenever moderate or minor updates are made to the GHCN-M version 4 dataset.

2. Annual bias correction updates

The GHCN-M version 4 dataset is updated each month through the acquisition and quality control of data as described in the Production plan. Although data updates and quality control are applied each month, the GHCN-M version 4 bias correction process will be applied once annually. This differs from the version 3 process in which bias corrections were applied each month during routine operational processing.

The application of bias corrections results in minor fluctuations in the period of record data for most stations in GHCN-M because corrections are applied to the historical data to make them homogenous with the most current data. This affects stations for which new discontinuities in the recent record are detected. It also affects neighboring stations when their record is subsequently corrected for inhomogeneities using the newly corrected data from its neighbors.

These fluctuations that occur at the station level also have a minor impact on global averages. To prevent month-to-month fluctuations in historical data, bias corrections to the GHCN-M version 4 data will take place once each year. Although corrections to station discontinuities may take place up to eleven months later than would occur if corrections were applied on an ongoing monthly basis, the impacts are expected to be minimal.

The annual bias correction process will take place during the last week of January. This schedule will allow for the bias correction process to be completed prior to the first monitoring report of the year (in mid-February), which will ensure consistency for the full reporting year; data acquisition and updates to GHCN-M for the new year begin in early February.

Special attention to the quality of the dataset will be required. Comparisons similar to the analysis that occurs with a minor version increment will be completed to ensure no errors are made in the bias correction process. The version will not be incremented but a note regarding the annual update will be made in the online status file.