HadISDH.extremes Update Document

Kate Willett (MOHC), 4th April 2025

General Notes:
The HadISDH.extremes.1.2.0.2024f contains all 12 months of 2024. It is a minor new version (Y element + 1) because the median is now used for T_wX and T_wN to calculate the gridbox average instead of the mean.

Additional variables TwX10p, TwN90p, TX10p and TN90p have been added and the TN18 variable has now been fixed and is available once again. This error was due to a MinThreshold value not being set correctly.

All other processing steps for HadISDH.extremes remain identical. The new version of HadISD (3.4.1.2024f) has pulled through some historical changes to stations which are passed on to HadISDH.land resulting in 9948 compared to 9667 initial stations. The end station count is further reduced after completeness checks and homogeneity assessment. The homogeneity scores differ slightly due to sensitivity to the addition and loss of stations, historical changes to stations previously included and the additional 12 months of data.

More information can be found at https://hadisdh.blogspot.com/2025/04/2024-update-from-hadisdhextremes1202024f.html.

Version Number X.Y.Z.0000p/f:
1.2.0.2024f

Major Changes X:
- None

Bug fixes and minor changes Y:
- TwX and TwN now use median rather than mean to compute the gridbox average because it is more robust to outliers.

Minor bug fixes / historical data updates Z:
- 9948 compared to 9667 initial selection stations last year.
- Use of HadISD.3.4.1.2024f as the basis which includes retrospective improvements (to correct data, add or remove data sections) to the historical data in NCEI's ISD archive are ongoing. These are not documented.

Start Date DD.MM.YYYY: 1973-01-01
End Date DD.MM.YYYY: 2024-12-31
HadISDH Data Format (Baseline documentation): 10.5281/zenodo.7357310
Reference:

- Willett, K, 2023: HadISDH.extremes Part 1: a gridded wet bulb temperature extremes index product for climate monitoring. Advances in Atmospheric Sciences, 40, 1952-1967, doi: 10.1007/s00376-023-2347-8. http://www.iapjournals.ac.cn/aas/en/article/doi/10.1007/s00376-023-2347-8
- Willett, K. 2023: HadISDH.extremes Part 2: exploring humid heat extremes using wet bulb temperature indices. Advances in Atmospheric Sciences, 40, 1968-1985, doi: 10.1007/s00376-023-2348-7. http://www.iapjournals.ac.cn/aas/en/article/doi/10.1007/s00376-023-2348-7

Other notes: The update blog post is here: https://hadisdh.blogspot.com/2025/04/2024-update-

from-hadisdhextremes1202024f.html.