Release of the International Surface Temperature Initiative's

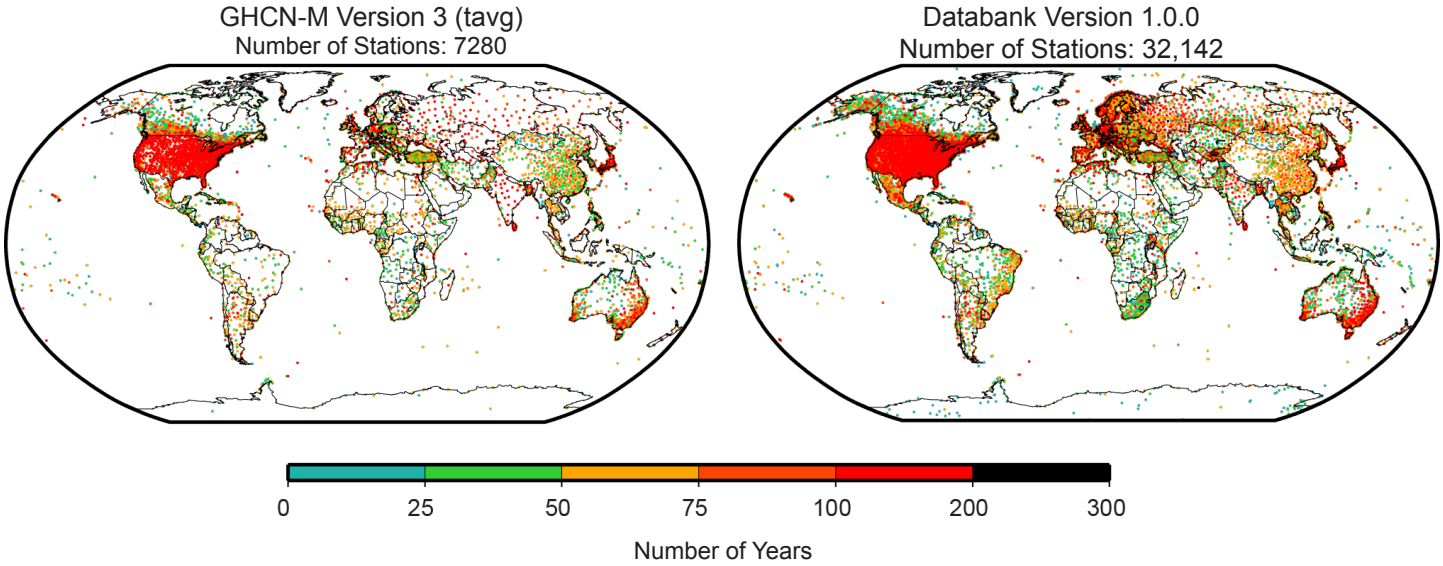
Global Land Surface Databank

International Surface Temperature Initiative

Enhancing the observed climate record to improve understanding of the Earth's climate from the global to local scale.

Society expects openness and transparency in climate science to have a greater understanding of how climate has changed and how it will continue to change. The International Surface Temperature Initiative (ISTI) was launched by an international and multidisciplinary group of scientists in 2010 to improve understanding of the Earth's climate from the global to local scale.

ISTI's Databank Working Group, under the leadership of NOAA's National Climatic Data Center, has produced an innovative data holding that brings together new and existing sources of surface air temperature. This data holding provides users a way to better track the origin of the data from their collection through their integration. By providing the data in various stages that lead to the integrated product, by including data origin tracking flags with information on each observation, and by providing the software used to process all observations, the processes involved in creating the observed fundamental climate record are open and transparent. The integrated data holding contains over 32,000 global stations and was released in June 2014. The data holding is version controlled and will be updated frequently in response to newly discovered data sources and user comments.



Holdings used in current NOAA and NASA global surface temperature datasets (left) and those in the databank version 1.0.0 release (right). Color denotes record length, and longer records overplot shorter records. The release consists of just over 32,000 stations, over a four-fold increase.

ISTI's online directory provides further details on the merging process and other aspects associated with the full development of the databank as well as all of the data and processing code. Data submissions are always welcome. If you have a lead on a new data source, please contact data.submission@surfacetemperatures.org.

Rennie, J. J., J. H. Lawrimore, B. E. Gleason, P. W. Thorne, C. P. Morice, M. J. Menne, C. N. Williams, W. Gambi de Almeida, J. R. Christy, M. Flannery, M. Ishihara, K. Kamiguchi, A. M. G. Klein-Tank, A. Mhanda, D. H. Lister, V. Razuvaev, M. Renom, M. Rusticucci, J. Tandy, S. J., Worley, V. Venema, W. Angel, M. Brunet, B. Dattore, H. Diamond, M. A. Lazzara, F. Le Blancq, J. Luterbacher, H. Mächel, J. Revadekar, R. S. Vose, and X. Yin, 2014: The international surface temperature initiative global land surface databank: Monthly temperature data release description and methods. *Geoscience Data Journal*, doi:10.1002/gdj3.8.