

CLASSnmat: a new dataset of Night Marine Air Temperature back to 1880

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A new dataset of Night Marine Air Temperature (NMAT) is presented that builds on the HadN-MAT2 dataset, which was released in 2013 (Kent et al. 2013). In a similar manner to HadN-MAT2, the new dataset (CLASSnmat¹, see Figure 1) provides monthly global values at 5° resolution back to 1880 and the grid-cell values are not interpolated to locations devoid of observations. However, in addition to being extended to the end of 2019 four main developments are made in CLASSnmat:

1. The NMAT values are extracted from the most recent version of the International Comprehensive Ocean-Atmosphere Data Set (ICOADS Release 3 (Freeman et al. 2017)) and a revised method of eliminating duplicated observations is used;
2. Values of NMAT are adjusted to 2m and 20m heights in addition to the 10m height used in HadN-MAT2);
3. A refinement is made to the corrections necessary during World War 2, which uses more of the NMAT observations and hence results in a more extensive spatial coverage than was possible in HadN-MAT2;
4. An updated gridding method is used that allows for an improved propagation of uncertainty from the individual NMAT values through to the gridded estimates.

References

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Junod, R. A. & Christy, J. R. (2019), 'A new compilation of globally gridded night-time marine air temperatures: The UAHN-MATv1 dataset', *International Journal of Climatology* .

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Average Anomalies in CLASSnmat Compared to Three Other Marine Data Series
Base Period 1961–1990

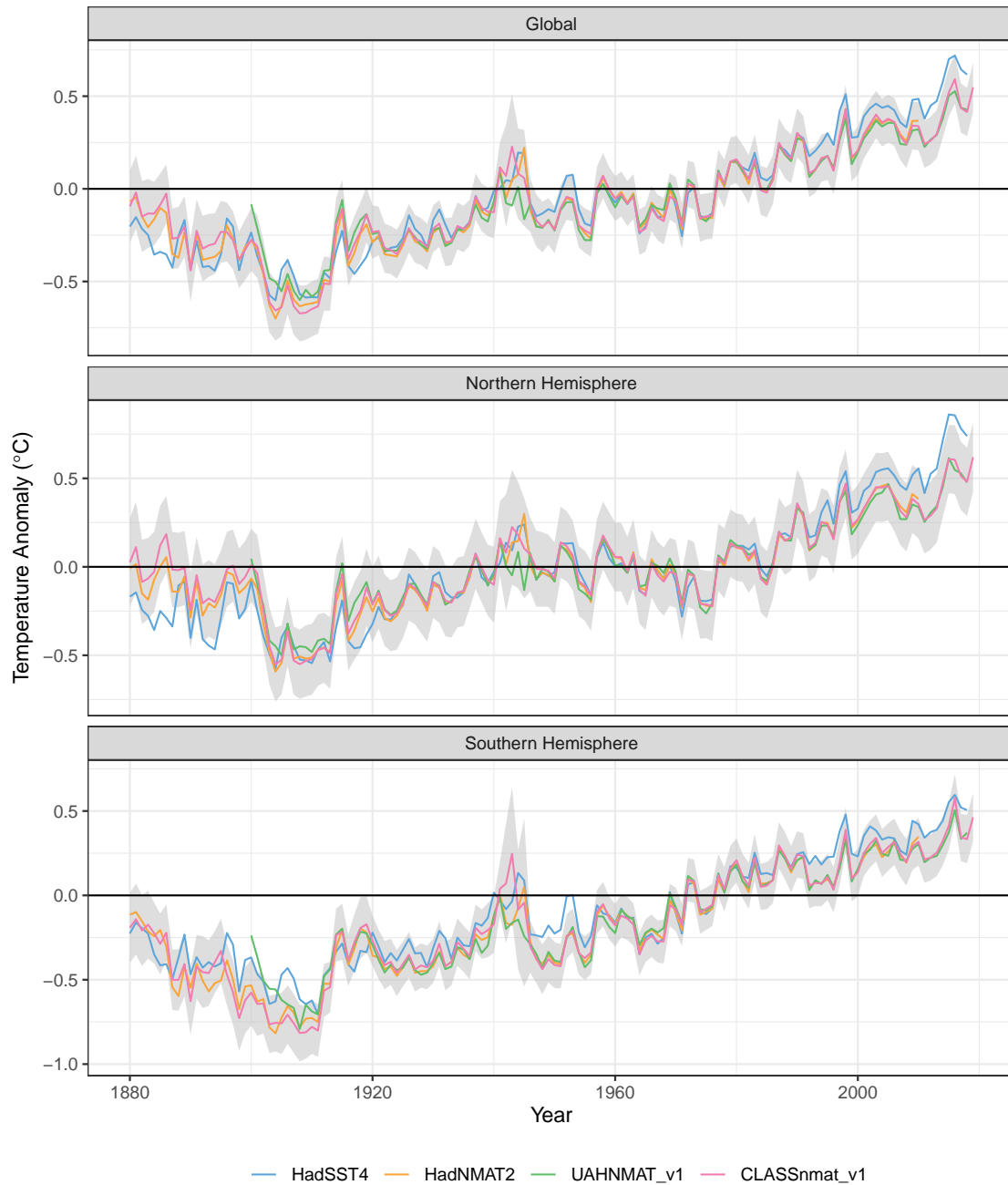


Figure 1: Annual average global anomaly time series (with respect to the 1961-90 base period) calculated from CLASSnmat, HadNMAT2 (Kent et al. 2013), HadSST (Kennedy et al. 2019) and UAHNMATv1 (Junod & Christy 2019) across three regions. The grey shading indicates the 2-sigma uncertainty range of the CLASSnmat series.

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