



Supplement of

Assessing Earth's skin temperature trends: consistent signals from IASI, MODIS, ESA CCI and ERA5

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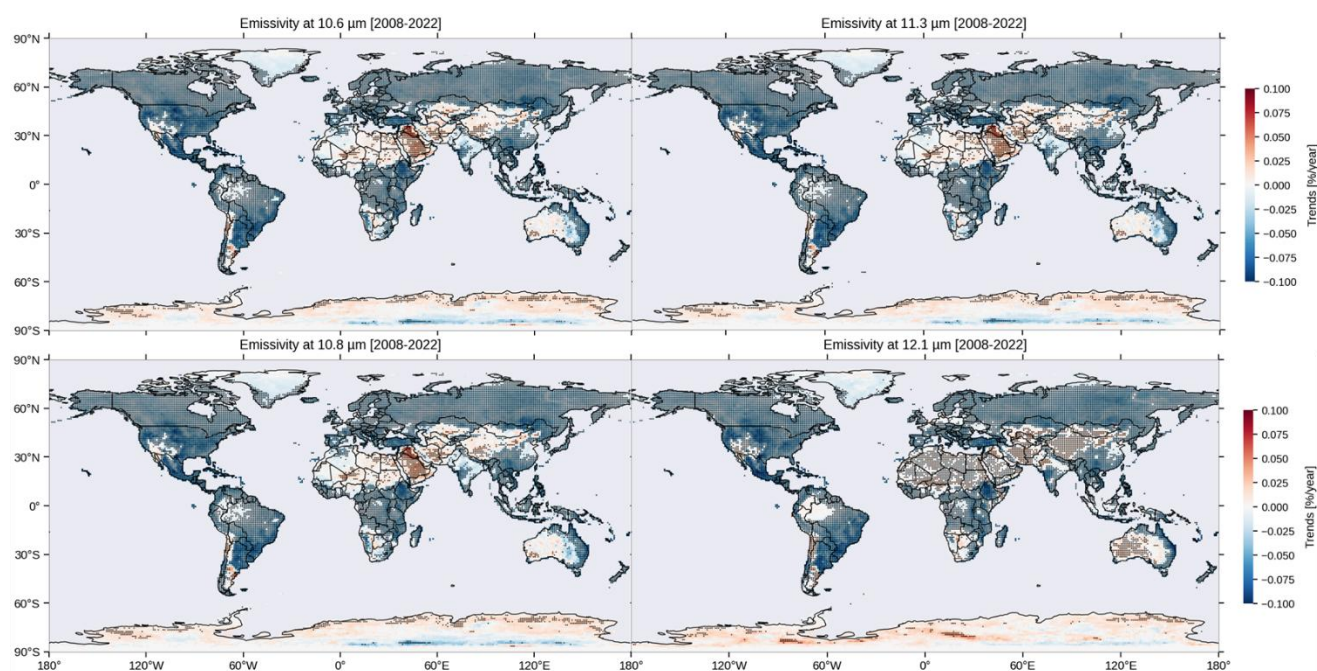


Figure S1. Trends in emissivities [%/year] over the study period [2008 to 2022] from the CAMEL database over four channels in the thermal infrared used in the artificial neural network training to retrieve the LST. Stipples correspond to regions where trends are significant according to the standard Mann-Kendall test (p -value < 0.05). Positive trends over arid and hyper-arid regions are likely associated with known limitations of the CAMEL dataset over deserts, where ASTER GED sampling is sparse and surface emissivity estimates are sensitive to episodic wetting and dust events.

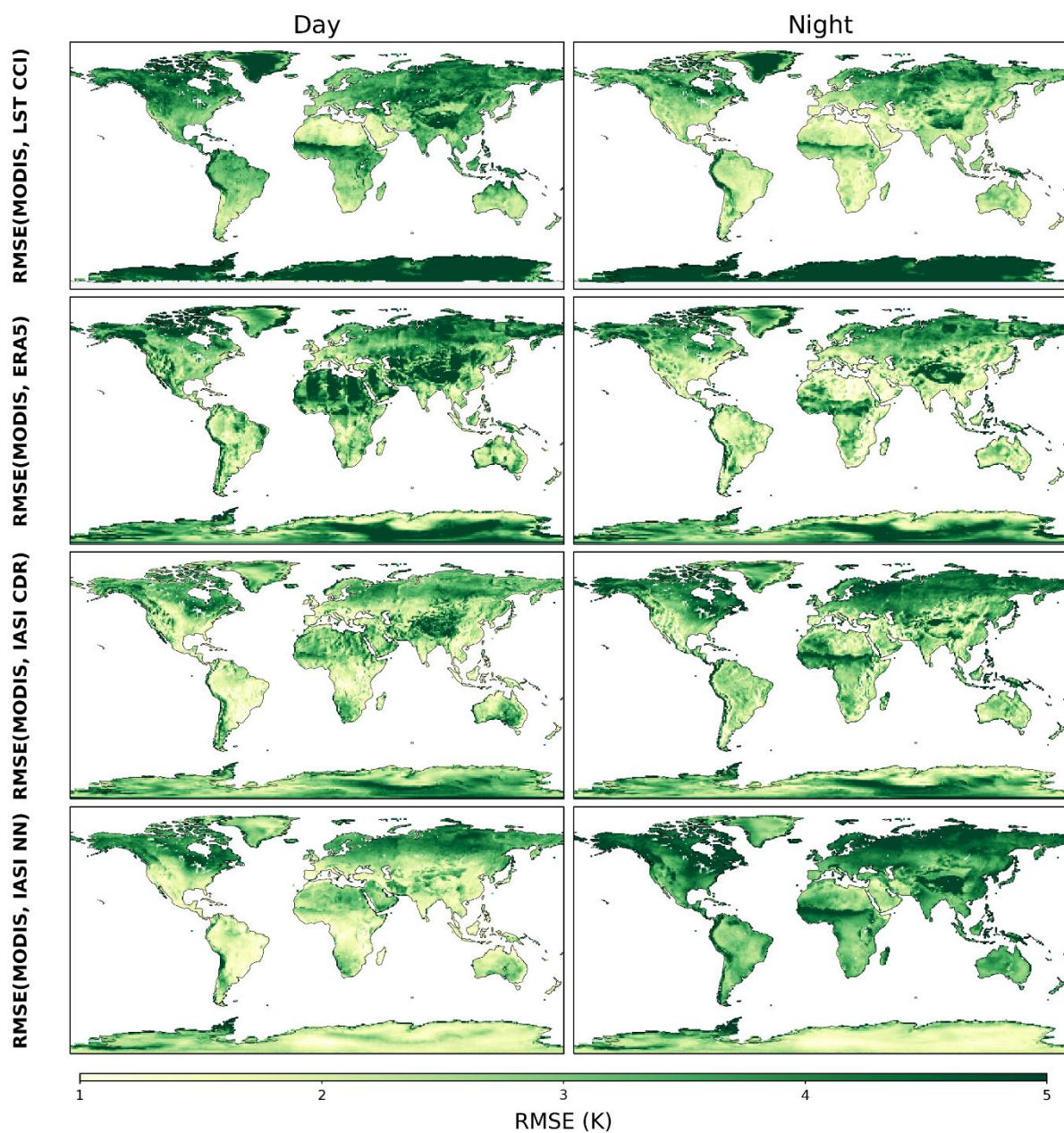


Figure S2. LST spatial RMSE during the day (left) and the night (right), of MODIS with respect to LST CCI, ERA5, IASI-CDR and IASI-NN.

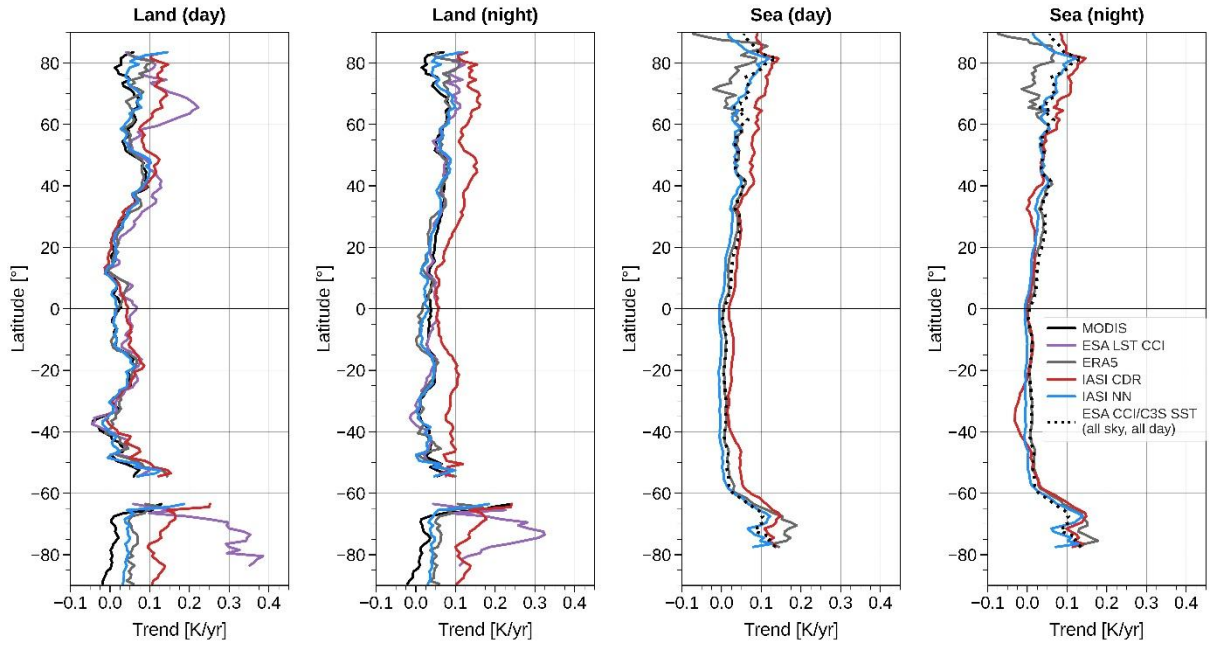


Figure S3. Zonal trends (K yr⁻¹) in LST (left two panels) and SST (right two panels) for daytime (left column of each pair) and nighttime (right column). Trends are computed from monthly anomalies, averaged over longitudes, and weighted by cos(latitude). LST trends are shown for MODIS (black), ESA LST CCI (purple), ERA5 (grey), IASI-CDR (red), and IASI-NN (blue). SST trends are shown for ERA5, IASI-CDR, IASI-NN, and ESA CCI/C3S (in dotted black, all sky and all day average).