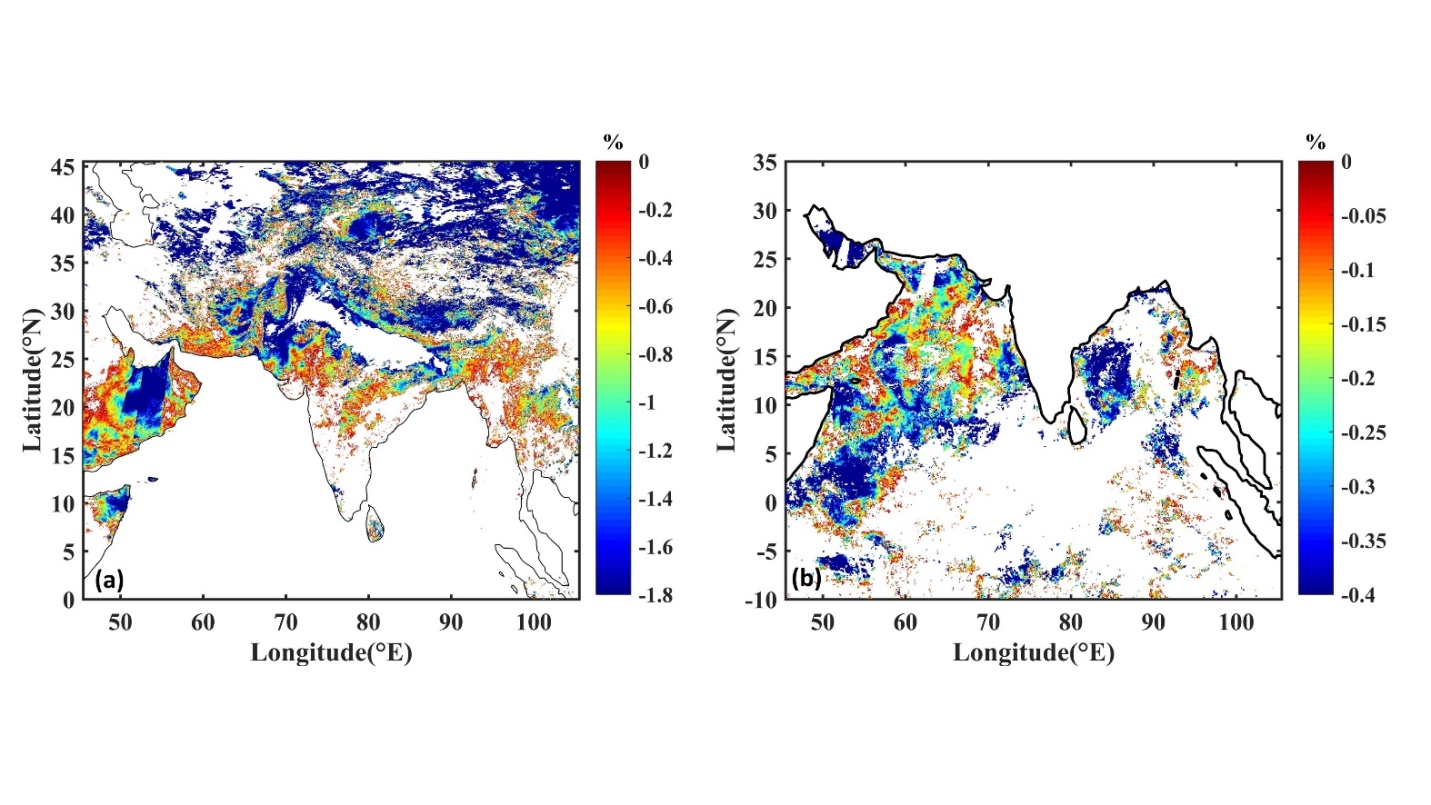
**Supplementary Materials: Retrieval and Validation of Cloud Top Temperature from the Geostationary Satellite INSAT-3D**

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**S1: Variation of surface temperature for 30 days from MODIS-Terra**

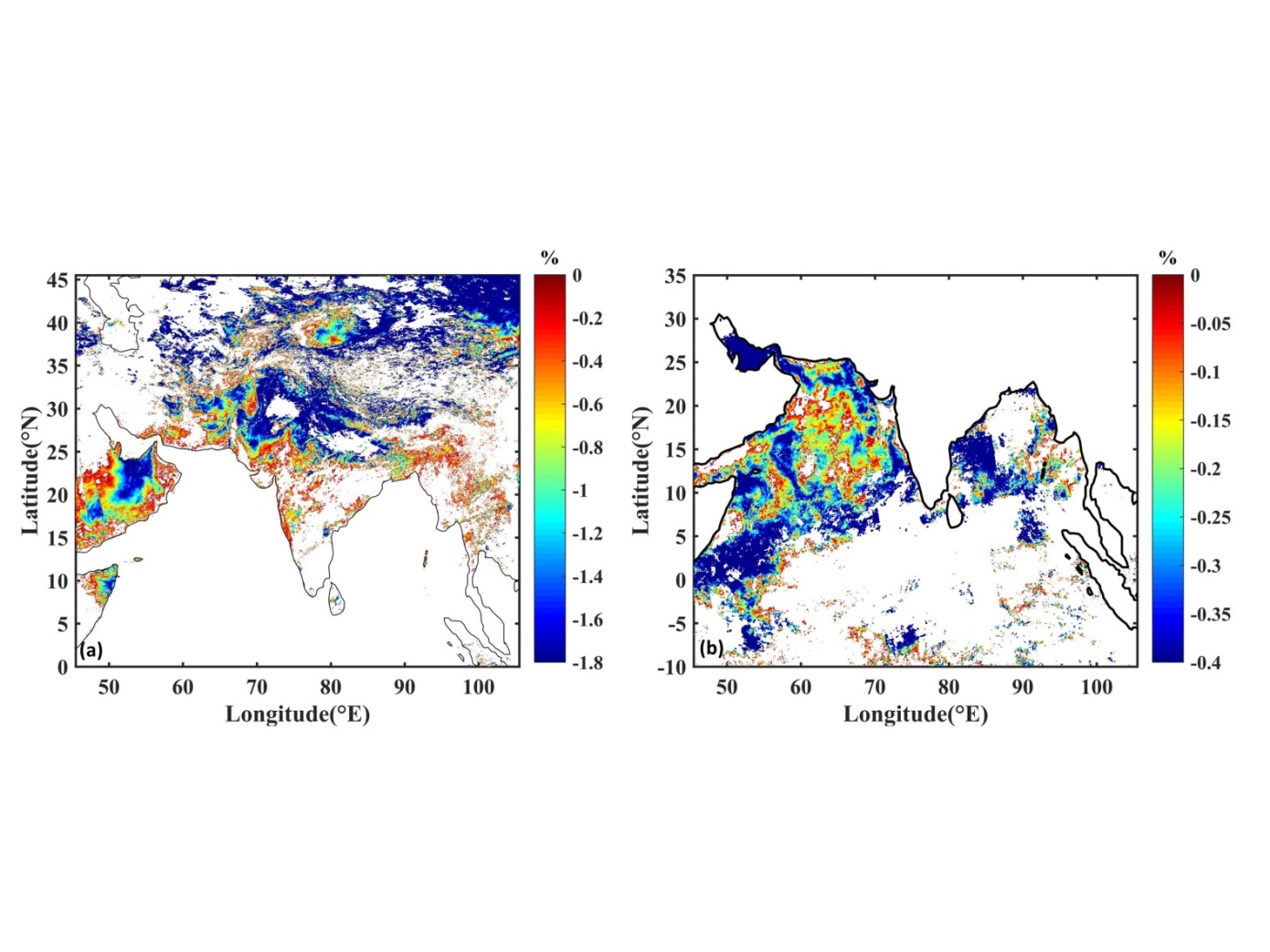
Figures S1 (a) and (b) show percentage decrease in two day mean SST and LST from MODIS onboard Terra during the days December 30-31, 2016, compared to those during December 1-2, 2016. Mean of two days are considered only to improve the data coverage. During this period of 30 days, decrease of LST is observed to be 1.6% and that of SST is observed to be 0.3%.



**Figure S1.** Percentage decrease in (a) LST and (b) SST from MODIS on-board Terra during December 30-31, 2016 compared to those during December 1-2, 2016.

**S2: Variation of surface temperature for 30 days from MODIS-Aqua**

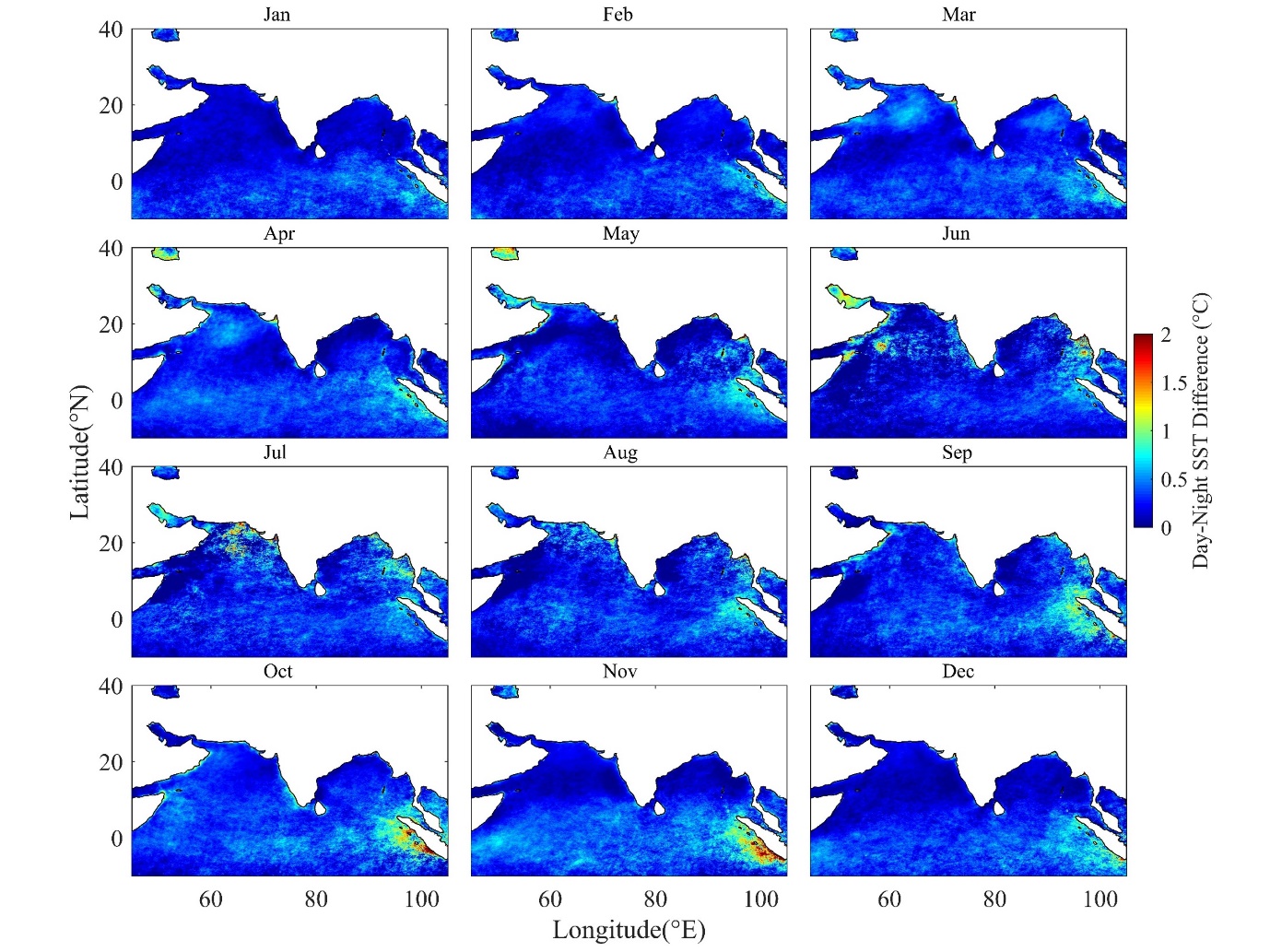
Figures S2 (a) and (b) show percentage decrease in two day mean SST and LST from MODIS onboard Aqua during the days December 30-31, 2016, compared to those during December 1-2, 2016. Mean of two days are considered only to improve the data coverage. During this period of 30 days, decrease of LST is observed to be 1.5% and that of SST is observed to be 0.3%.



**Figure S2.** Percentage decrease in (a) LST and (b) SST from MODIS on-board Aqua during December 30-31, 2016 compared to those during December 1-2, 2016.

**S3: Difference of monthly mean SST between daytime and nighttime**

Figure S2 shows difference of monthly mean SST between daytime and nighttime for each month from MODIS onboard Terra during 2000 to 2015. The differences are observed to be well within 2K.



**Figure S3.** Difference of monthly mean SST between daytime and nighttime for each month from MODIS onboard Terra during 2000-2015.