## **Supporting Information for**

## Impact of Satellite-Based Ice Surface Temperature Initialization on Arctic Winter Forecasts Using the Korean Integrated Model

Eui-Jong Kang<sup>1</sup>, Byung-Ju Sohn<sup>1,2</sup>, Wonho Kim<sup>3</sup>, Young-Chan Noh<sup>4</sup>, Sihye Lee<sup>3</sup>, In-Hyuk Kwon<sup>3</sup>, Hwan-Jin Song<sup>5</sup>

<sup>1</sup>School of Earth and Environmental Sciences, Seoul National University (SNU), Seoul, South Korea
<sup>2</sup>School of Atmospheric Physics, Nanjing University of Information Science and Technology (NUIST), Nanjing, China
<sup>3</sup>Korea Institute of Atmospheric Prediction Systems (KIAPS), Seoul, South Korea
<sup>4</sup>Korea Polar Research Institute (KOPRI), Incheon, South Korea
<sup>5</sup> Department of Atmospheric Sciences, Kyungpook National University (KNU), Daegu, South Korea

Correspondence to: Eui-Jong Kang (kangej@snu.ac.kr)

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Figures S1 to S3



Figure S1: Zonal cross-sections of ERA5 humidity profiles in the Northern Hemisphere troposphere (100–1000 hPa) showing (a) mean and (b) standard deviation from December 15, 2021 to January 24, 2022.



Figure S2: Spatial distributions of systematic (bias) and random errors in temperature at 1000 hPa for EXP and CTL at analysis time (+0 h), averaged from December 26, 2021 to January 24, 2022.



Figure S3: Same as Figure S2, but for the 120-hour forecast lead time (+120 h).