## **Online Supplementary Material: Distribution Metric**

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## Abstract.

This document contains the online suplementary material. Specifically the distribution metric for each model.

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Figure 1. Distribution of WingKp Model predictions when K=4 (left column), K=6 (middle column), and K=8 (right column). Each row presents results for a different mid-latitude station.



Figure 2. Distribution of WingKp Model predictions when K=4 (left column), K=6 (middle column), and K=8 (right column). Each row presents results for a different high-latitude station.



Figure 3. Distribution of 9\_SWMF Model predictions when K=4 (left column), K=6 (middle column), and K=8 (right column). Each row presents results for a different mid-latitude station.



Figure 4. Distribution of 9\_SWMF Model predictions when K=4 (left column), K=6 (middle column), and K=8 (right column). Each row presents results for a different high-latitude station.



Figure 5. Distribution of 9a\_SWMF Model predictions when K=4 (left column), K=6 (middle column), and K=8 (right column). Each row presents results for a different mid-latitude station.



Figure 6. Distribution of 9a\_SWMF Model predictions when K=4 (left column), K=6 (middle column), and K=8 (right column). Each row presents results for a different high-latitude station.

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Figure 7. Distribution of 2\_LFM-MIX Model predictions when K=4 (left column), K=6 (middle column), and K=8 (right column). Each row presents results for a different mid-latitude station.



Figure 8. Distribution of 2\_LFM-MIX Model predictions when K=4 (left column), K=6 (middle column), and K=8 (right column). Each row presents results for a different high-latitude station.



Figure 9. Distribution of 4\_OPENGGCM Model predictions when K=4 (left column), K=6 (middle column), and K=8 (right column). Each row presents results for a different mid-latitude station.

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Figure 10. Distribution of 4\_OPENGGCM Model predictions when K=4 (left column),

K=6 (middle column), and K=8 (right column). Each row presents results for a different high-latitude station.

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Figure 11. Distribution of 2\_WEIGEL Model predictions when K=4 (left column), K=6 (middle column), and K=8 (right column). Each row presents results for a different mid-latitude station.

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Figure 12. Distribution of 2\_WEIGEL Model predictions when K=4 (left column), K=6 (middle column), and K=8 (right column). Each row presents results for a different

high-latitude station.

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Figure 13. Distribution of 6\_WEIMER Model predictions when K=4 (left column), K=6 (middle column), and K=8 (right column). Each row presents results for a different mid-latitude station.



**Figure 14.** Distribution of 6-WEIMER Model predictions when K=4 (left column),

K=6 (middle column), and K=8 (right column). Each row presents results for a different high-latitude station.

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