



*Supplement of*

## **Extending the Center for Western Weather and Water Extremes (CW3E) atmospheric river scale to the polar regions**

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# Supplement

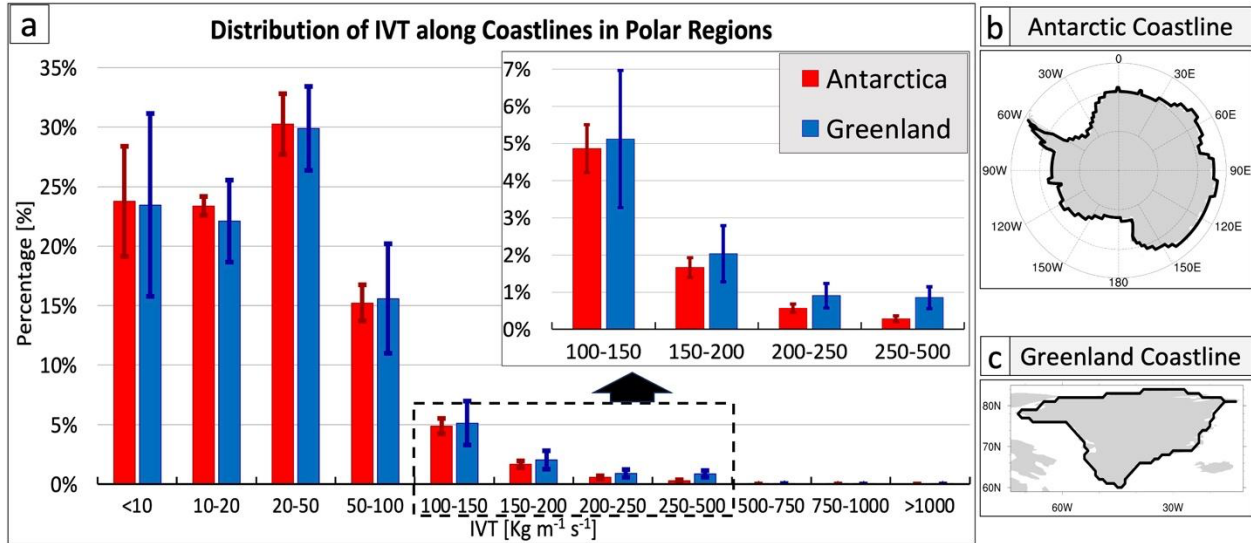


Figure S1. Same as Figure 4 but the Greenland coastline includes the southern part outside of the polar circle (latitude > 67°N).

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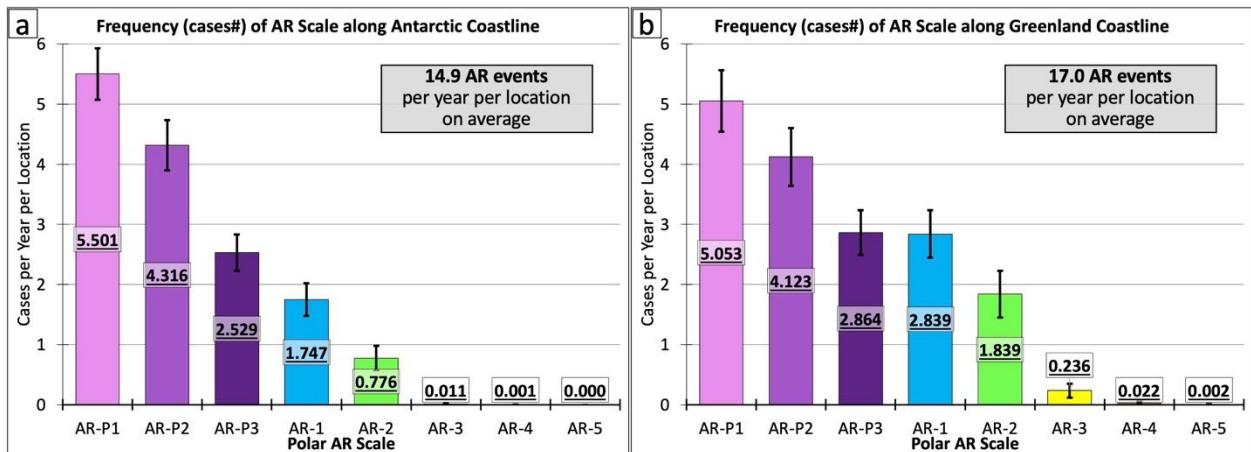
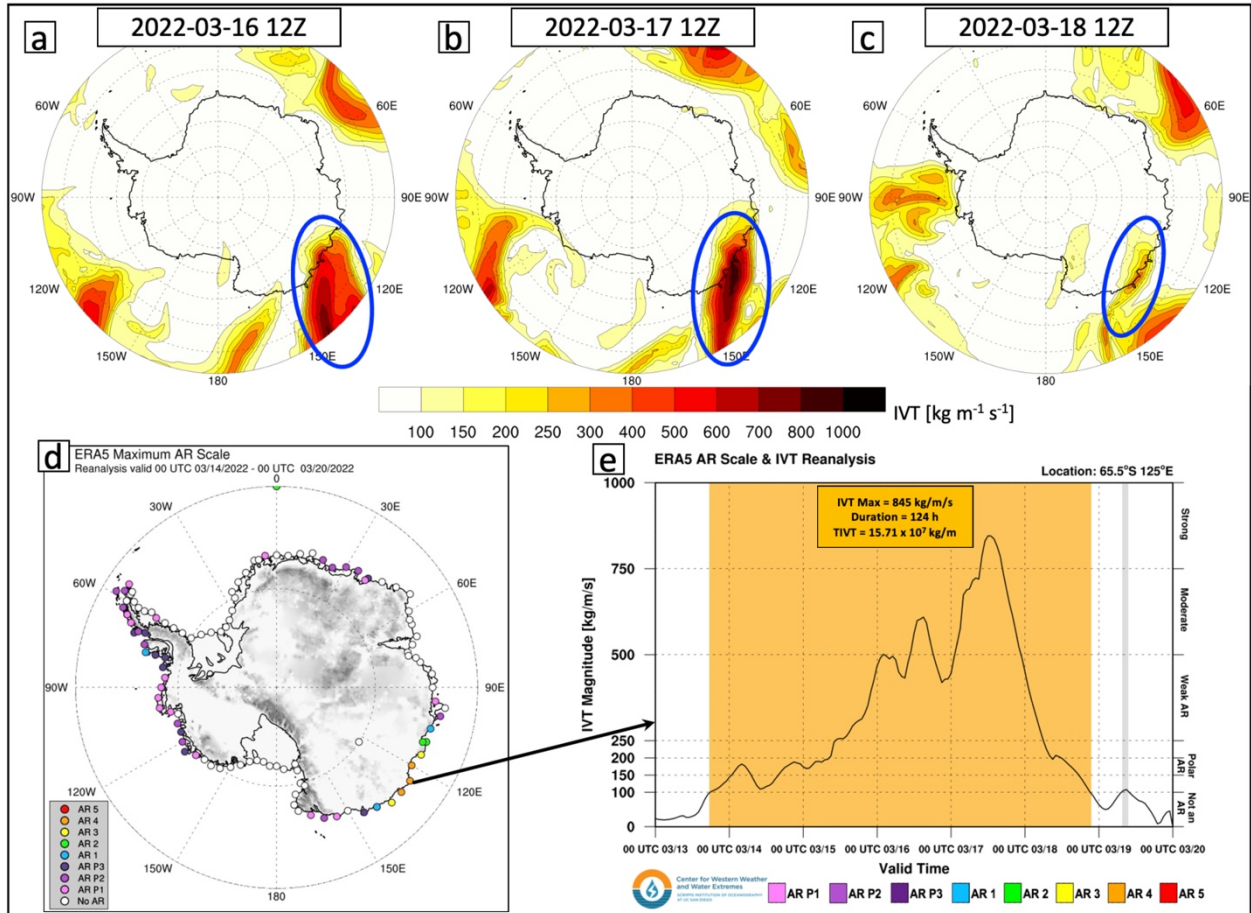


Figure S2. Same as Figure 9 but the Greenland coastline includes the southern part outside of the polar circle (latitude > 67°N).

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15 Figure S3. Panels (a)-(c) show three snapshots of IVT associated with an extremely strong landfalling AR event (highlighted in the blue ovals) over East Antarctica in the middle of March 2022. The colors in (a)-(c) are the IVT ( $\text{kg m}^{-1} \text{s}^{-1}$ ) from the ERA5 reanalysis data at 1200 UTC on the 16<sup>th</sup>, 17<sup>th</sup>, and 18<sup>th</sup> of March 2022, respectively. Panel (d) shows the maximum AR scale along the coastline of Antarctica during March 14<sup>th</sup>–20<sup>th</sup> 2022. Panel (e) shows the time series of IVT at the AR landfalling location (65.5°S, 125°E) and the corresponding AR scale.