Supplement for "The phase space of last glacial inception for the Northern Hemisphere from coupled ice and climate modelling"

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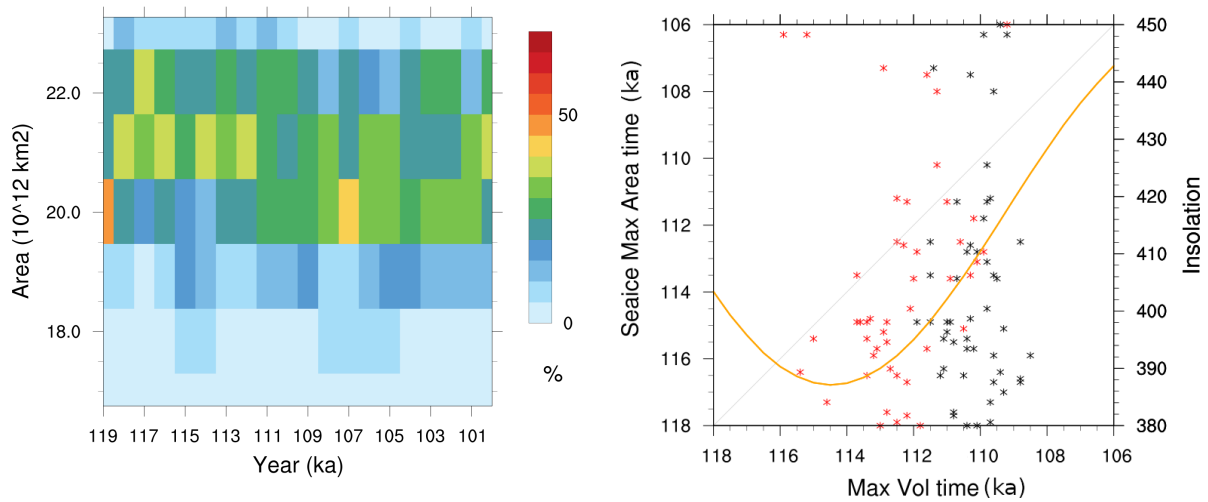
Figure 1. Ensemble distribution of the NH seasonal maximum sea ice area during the inception period. **b**. Timing of the late-winter sea ice area maximum against timing of the NA (black) and EA (red) ice sheet maximum volumes.

1 Sea ice

The Atlantic sea ice area variation pattern also follows the total NH sea ice area. While the maximum sea ice extent is less variable through time, the minimum sea ice extent reaches its largest extent around 114 ka, and its smallest extent between 107 and 105 ka. Regardless of the the glacial stage I are in (growth or shrink phase), the southward extent of the sea ice in the North Atlantic can never move below the 44°N (the same latitude as the jet-stream over the North Atlantic), which is reached shortly after entering the glacial period. The minimum extent, on the other hand, is well north of the 44°N, and therefore can freely oscillate with the cooling and warming of the stadial and interstadial phases (9th month in figure 2).

2 Atlantic meridional heat transport

3 Cross-continental correlations
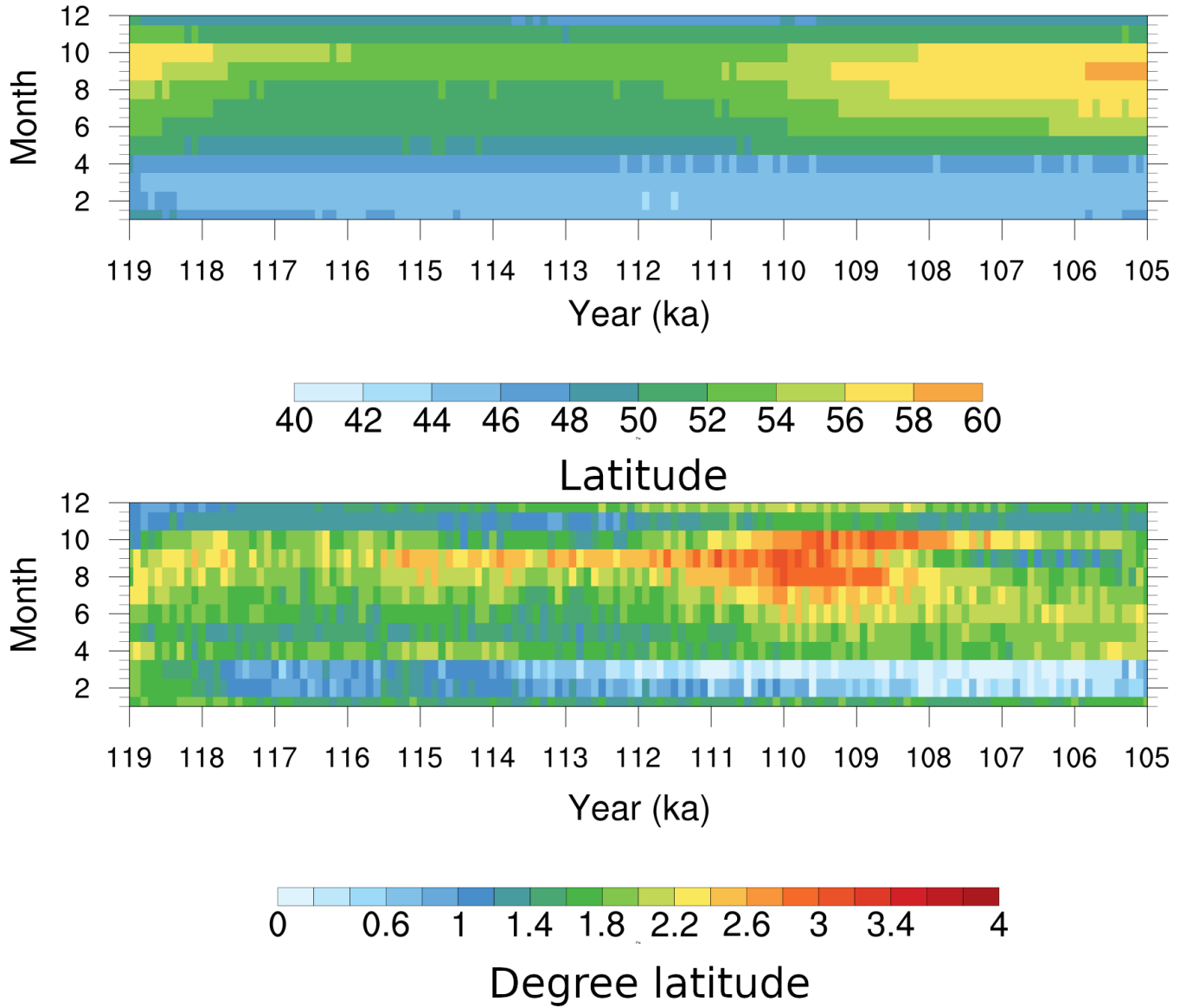
Figure 2. Monthly lowest latitude of the sea ice in the North Atlantic from 119 ka to 105 ka. Vertical axis shows each month, and the horizontal axis is the simulation year. Colors represent the lowest latitude. **top** ensemble mean, and **bottom** ensemble standard deviation.
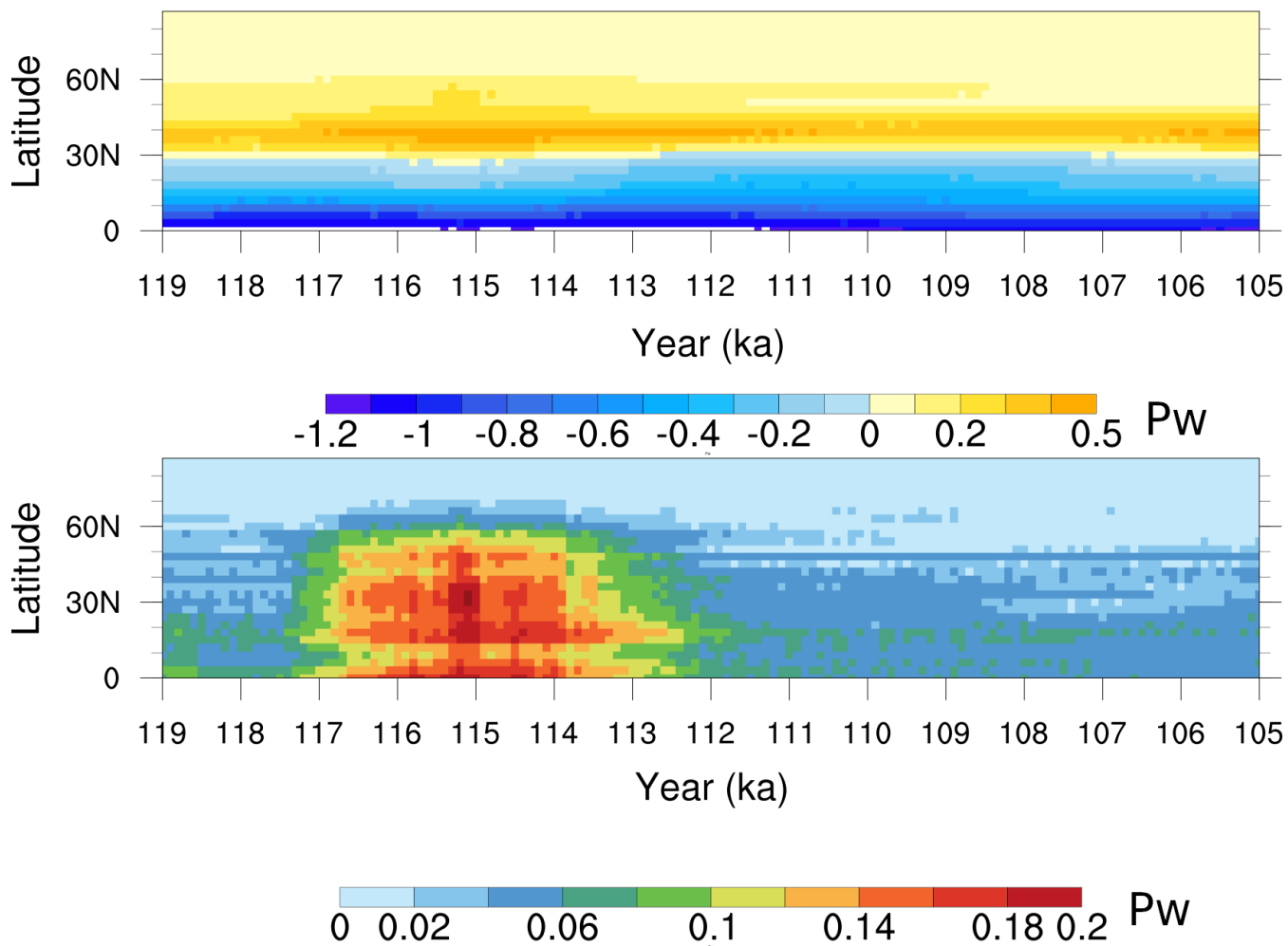
Figure 3. Atlantic meridional northward heat transport **top**. ensemble mean and, **bottom**. standard deviation through the LGI.
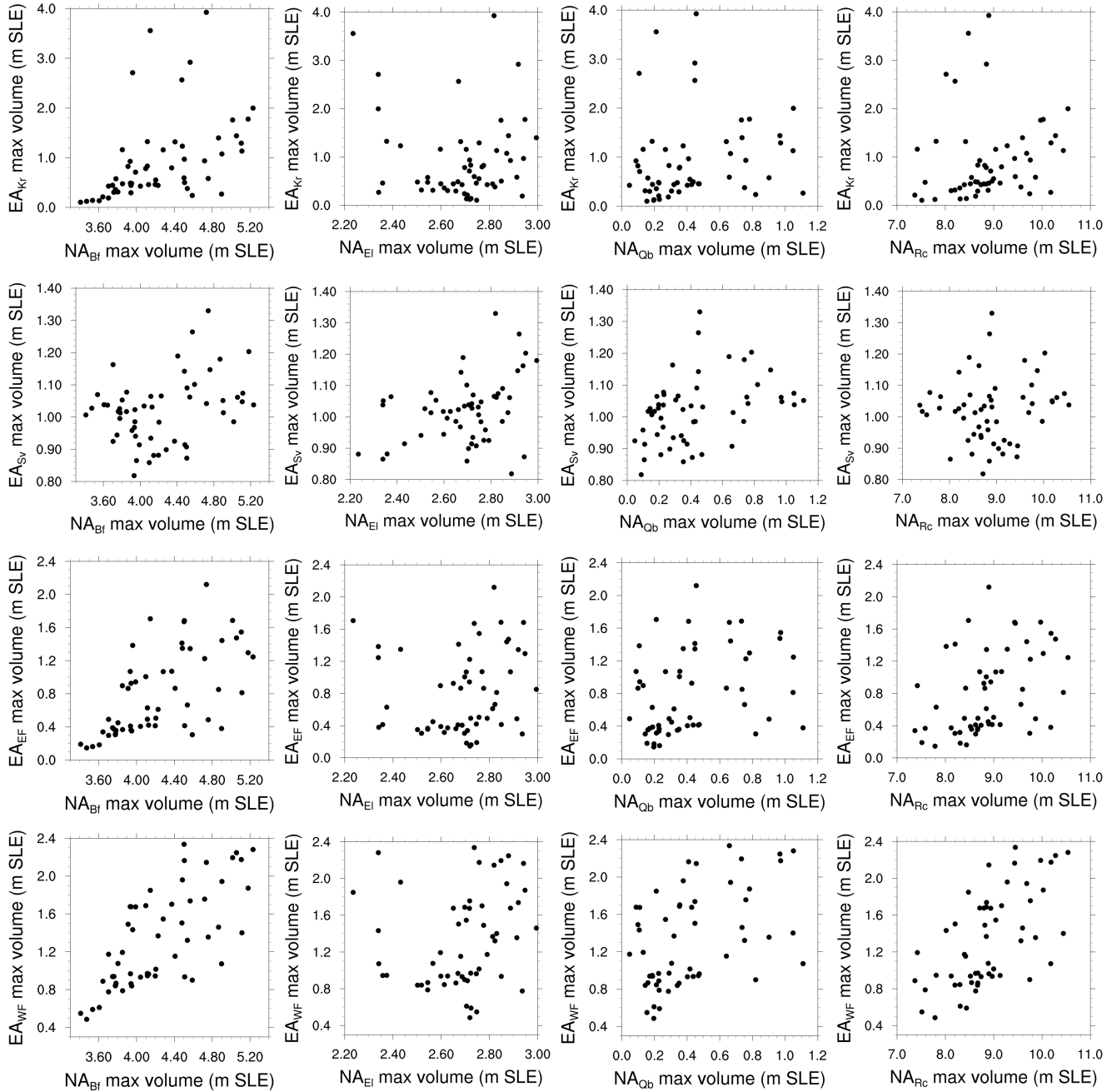
Figure 4. Correlation plots of maximum ice volume between NA and EA diagnostic sectors.