

Supplementary Information

associated with

Abrupt increase in Greenland melt enhanced by Rossby-wave changes

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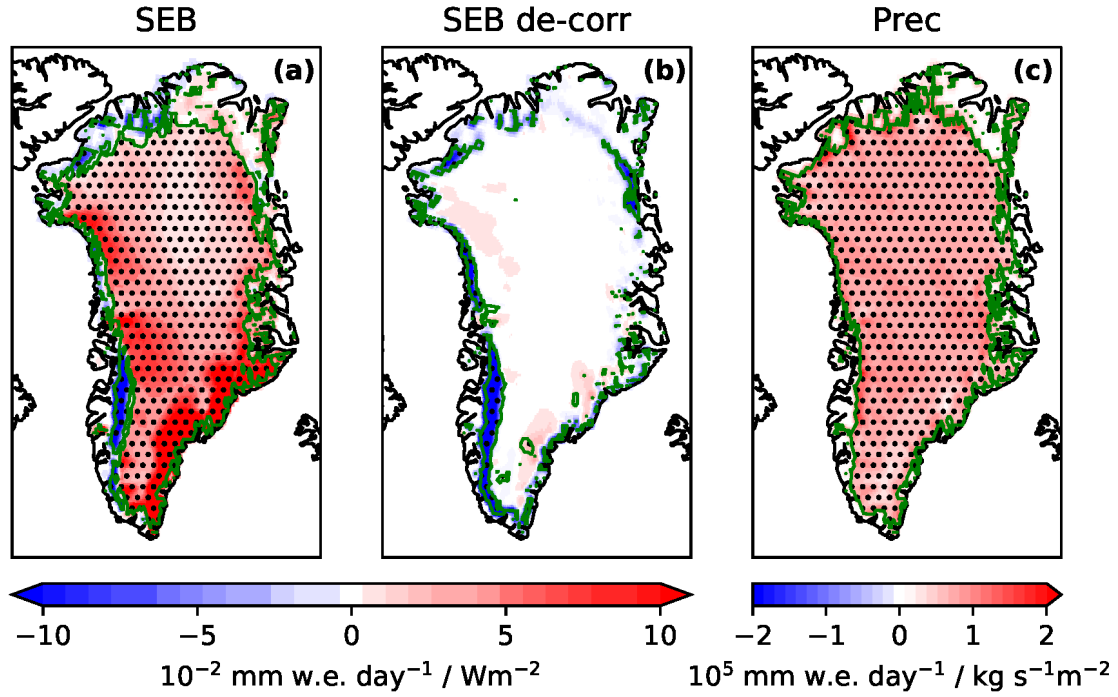


Figure S1: As Fig. 1, but including a significance test. Green lines encapsulate areas significant on the 99 % level. These areas are also dotted. The significance test is based on a Monte-Carlo approach randomly interchanging phases (see section 2.3).

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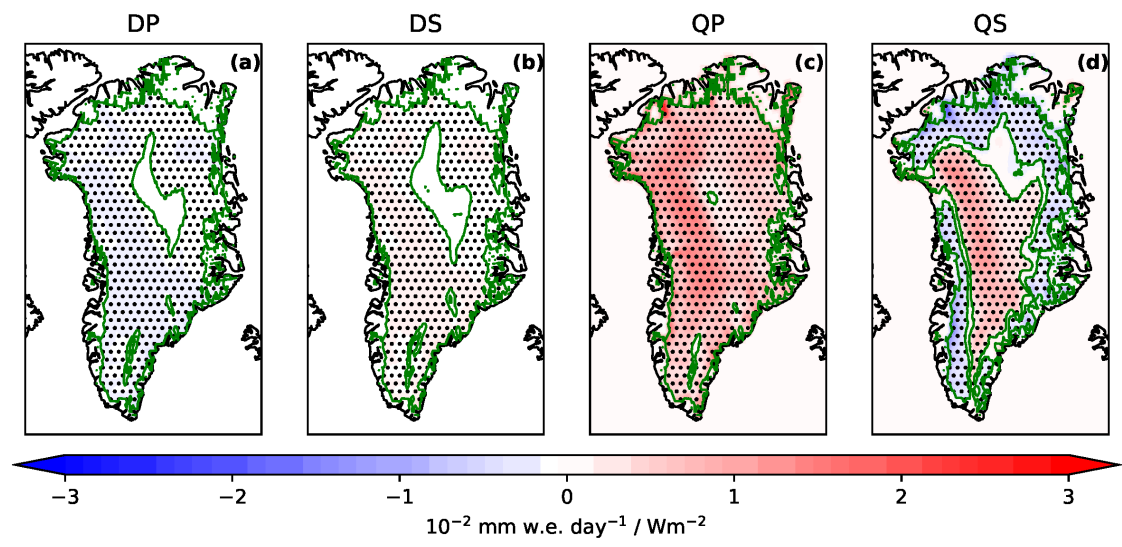


Figure S2: As Fig. 2, but including a significance test. Green lines encapsulate areas significant on the 99 % level. These areas are also dotted. The significance test is based on a Monte-Carlo approach randomly interchanging phases.

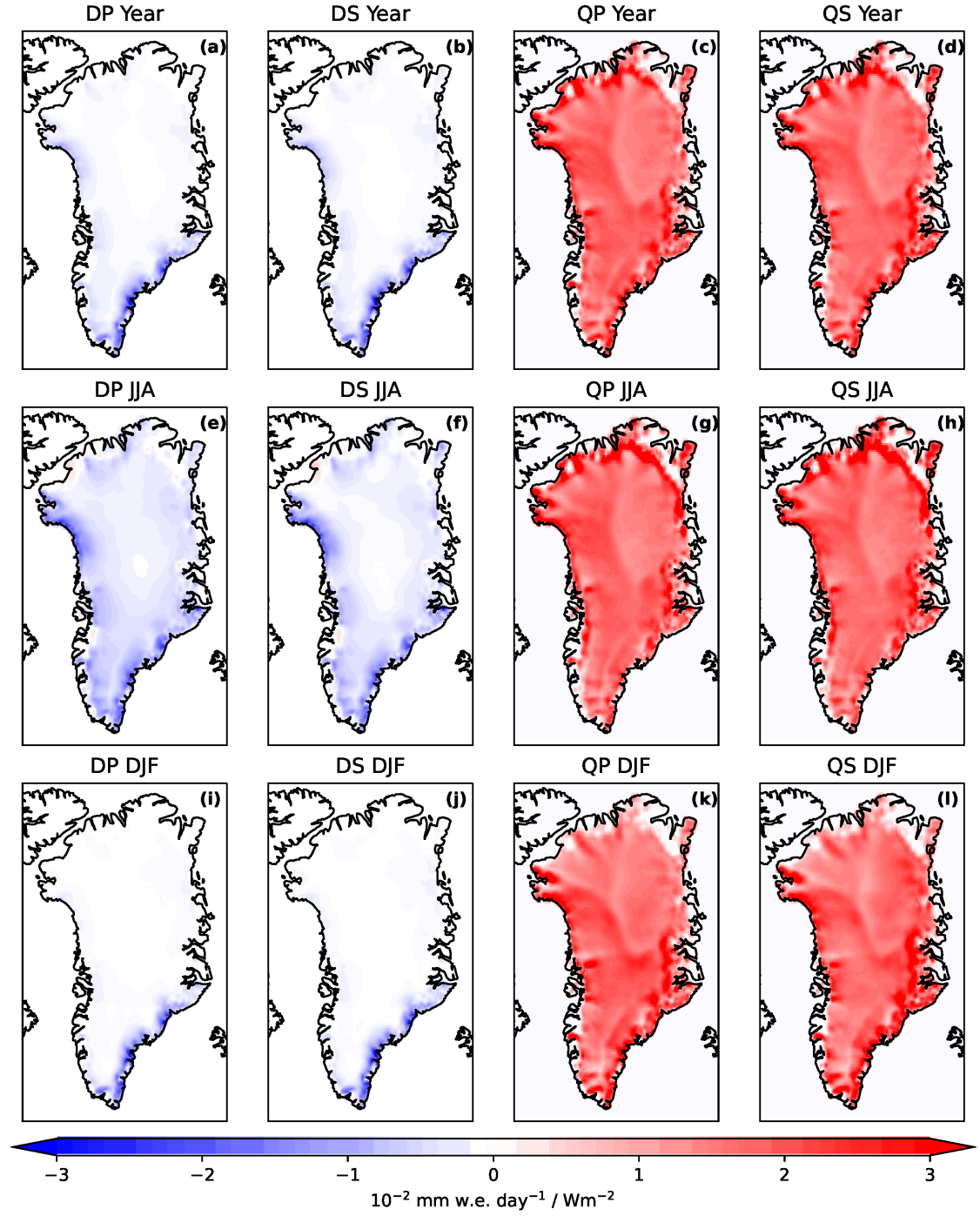


Figure S3: Panels (a)-(d) are as Fig. 2, but for transport components that have been decorrelated with the three other components (see Appendix A). Panels (e)-(h) are as (a)-(d) but for the summer season, and (i)-(l) for the winter season.

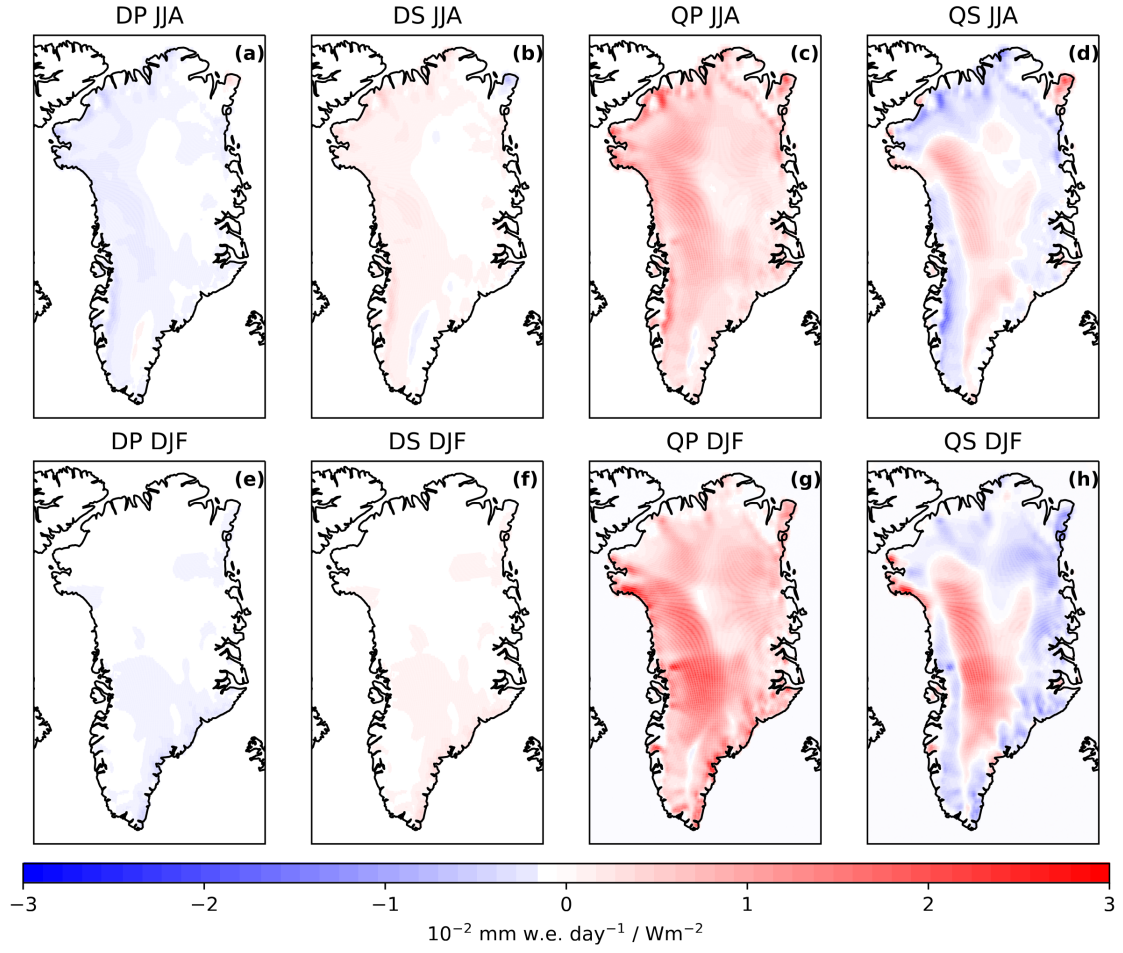


Figure S4: Panels (a)-(d) are as Fig. 2 but for the summer season, and (e)-(h) for the winter season.

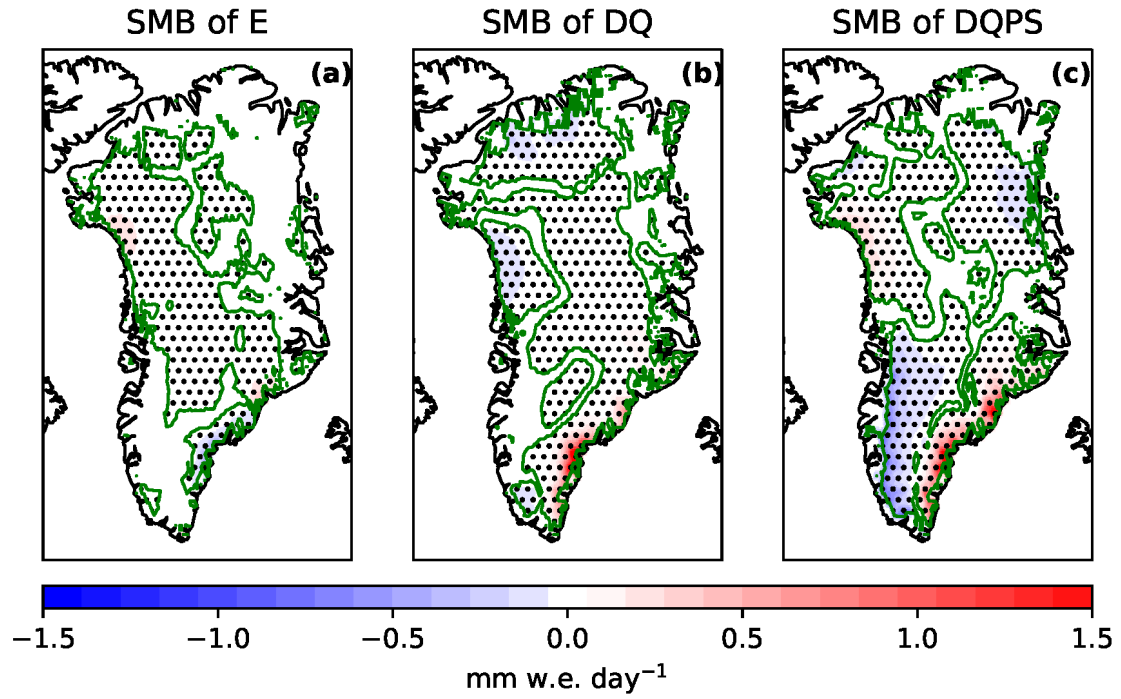


Figure S5: As Fig. 3d-f, but including a significance test. Green lines encapsulate areas significant on the 99 % level. These areas are also dotted. The significance test is based on a Monte-Carlo approach randomly interchanging phases.

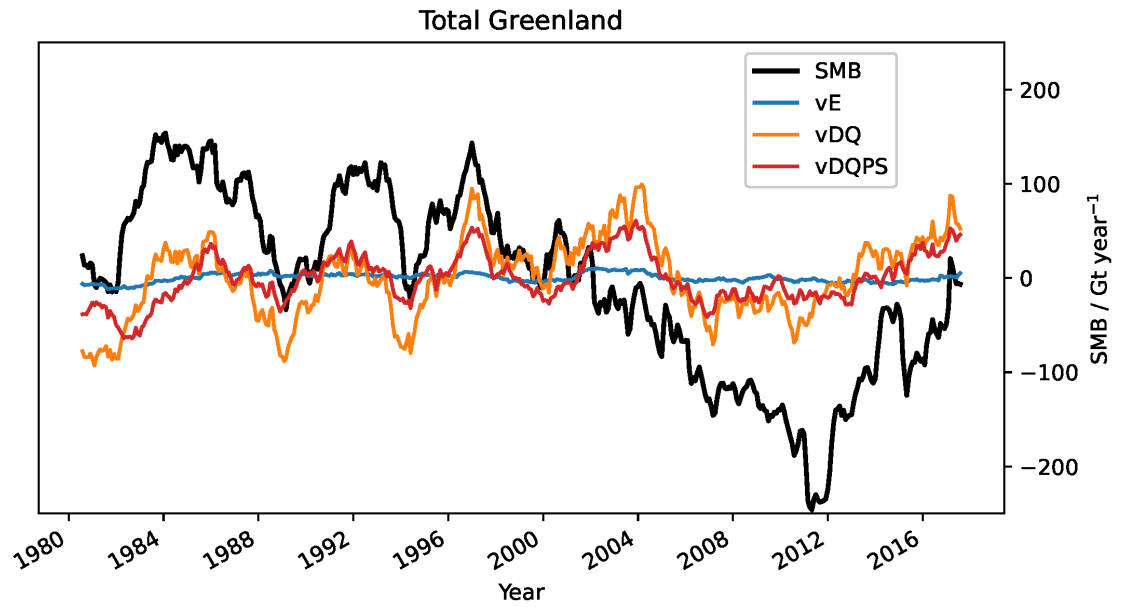


Figure S6: As Fig. 3b, but for spatial averages over the entire Greenland.

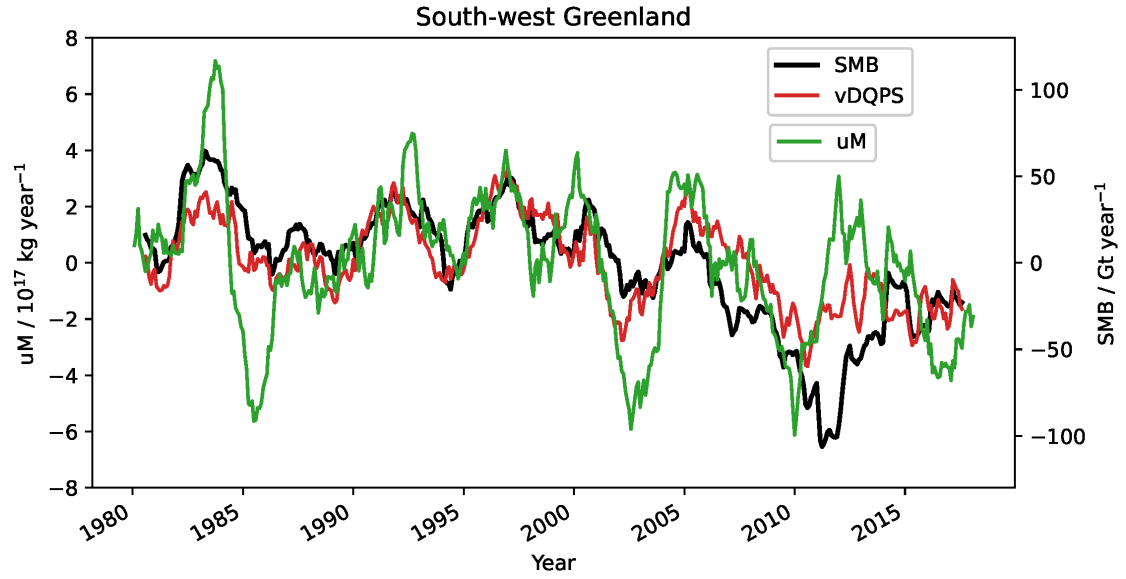


Figure S7: As Fig. 3b, but for the SMB (black), the mass flux (green), and the sum of the parts of the SMB associated with the four individual transport components (red). The two SMB lines are the same as in Fig. 3b. The mass flux is integrated along 55° W between 60° and 72° N, and SMB related time series are integrated over the area between 60° and 50° W and 60° and 72° N. Units of the mass flux are kg/year whereas those of the SMB-related time series are Gt/year (10^{12} kg/year).

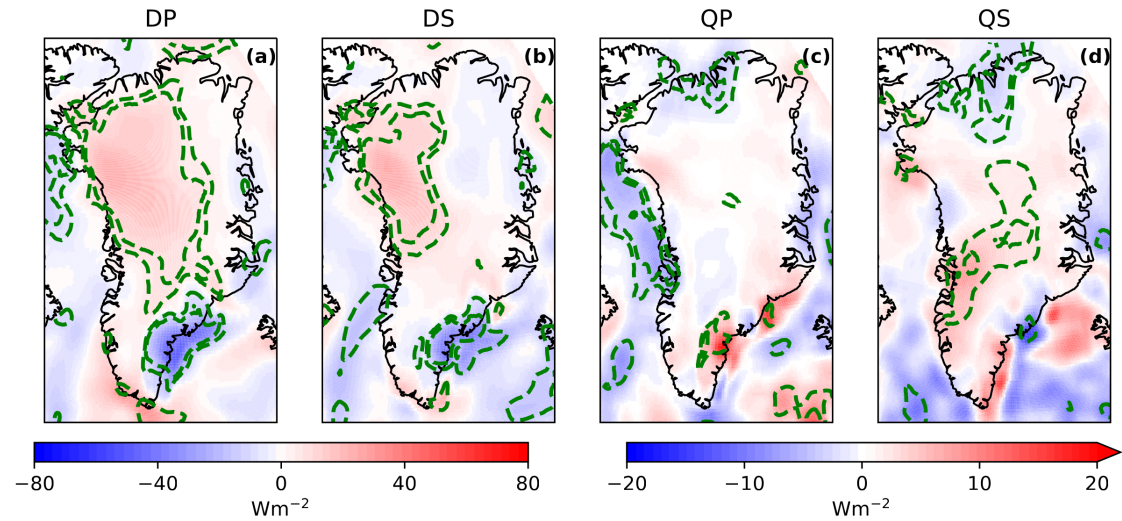


Figure S8: As Fig. 5 but for the energy-transport components decorrelated with the three other components.

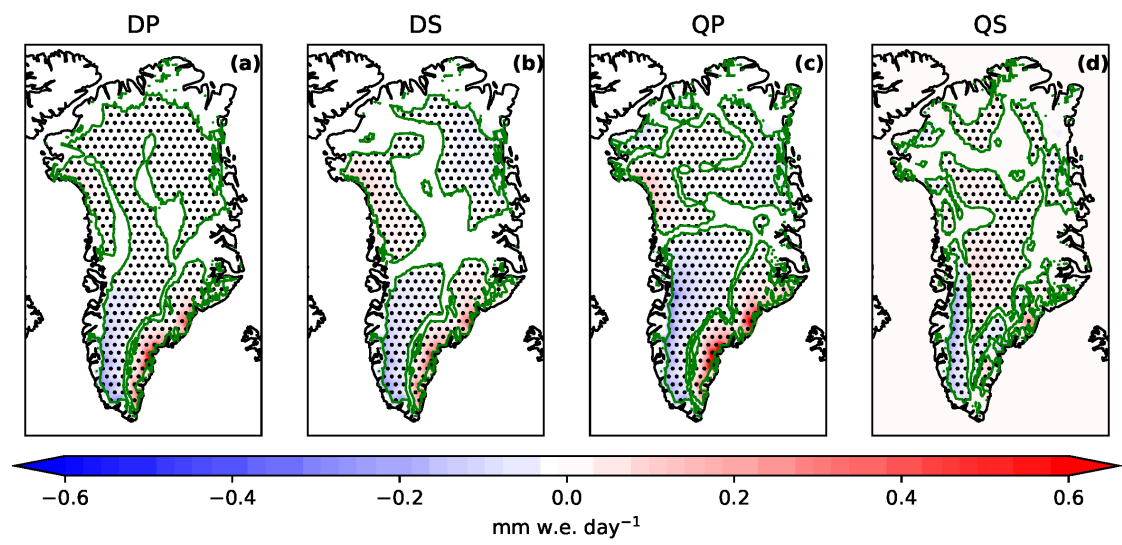


Figure S9: As Fig. 6, but including a significance test. Green lines encapsulate areas significant on the 99 % level. These areas are also dotted. The significance test is based on a Monte-Carlo approach randomly interchanging phases.

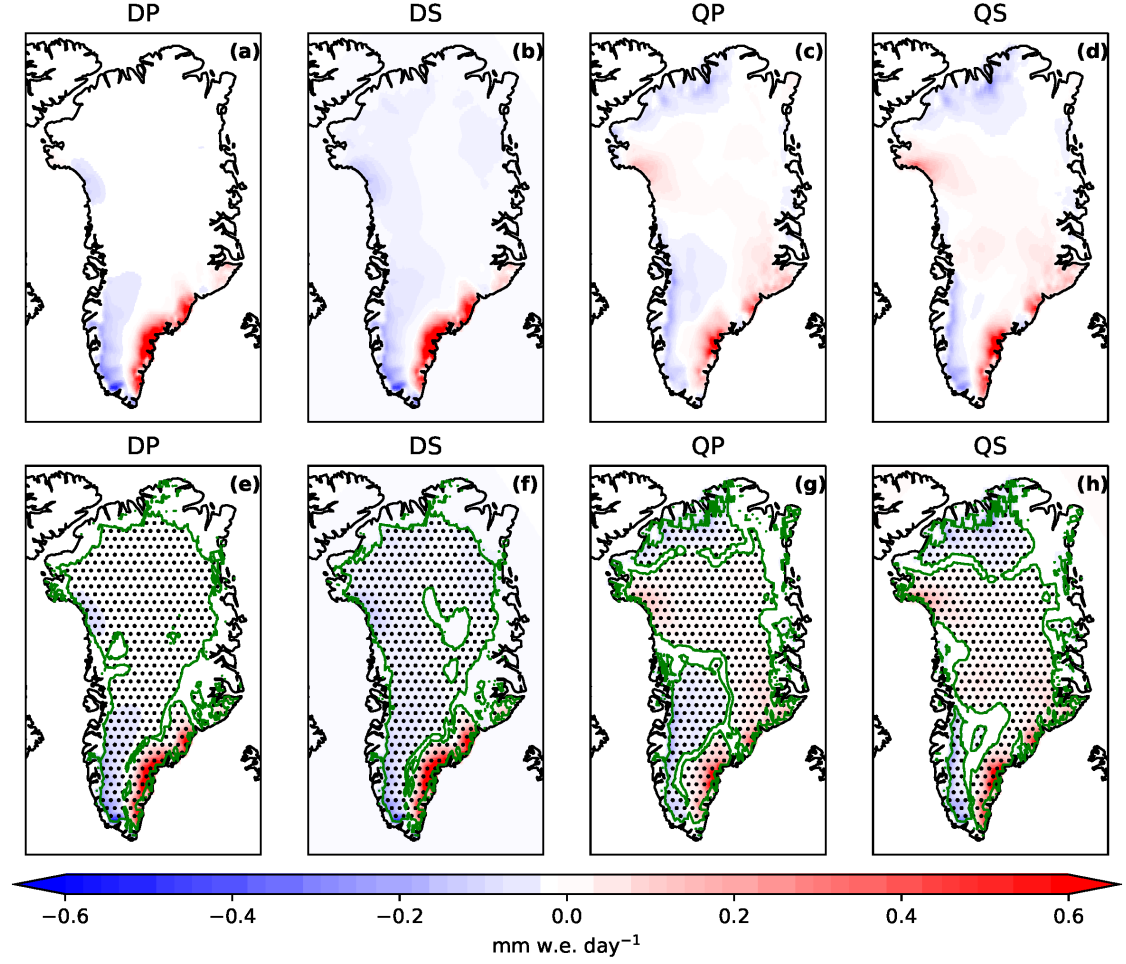


Figure S10: Panels (a)-(d) are as Fig. 5, but for transport components that have first been decorrelated with the three other components (see Appendix A). Then for each component, the trends associated with the decorrelated and correlated parts have been summed up. Panels (e)-(h) are as (a)-(d) but including a significance test. Green lines encapsulate areas significant on the 99 % level. These areas are also dotted. The significance test is based on a Monte-Carlo approach randomly interchanging phases.