

**Nonlinear response of global monsoon precipitation to Atlantic overturning strength variations during Marine Isotope Stage 3**

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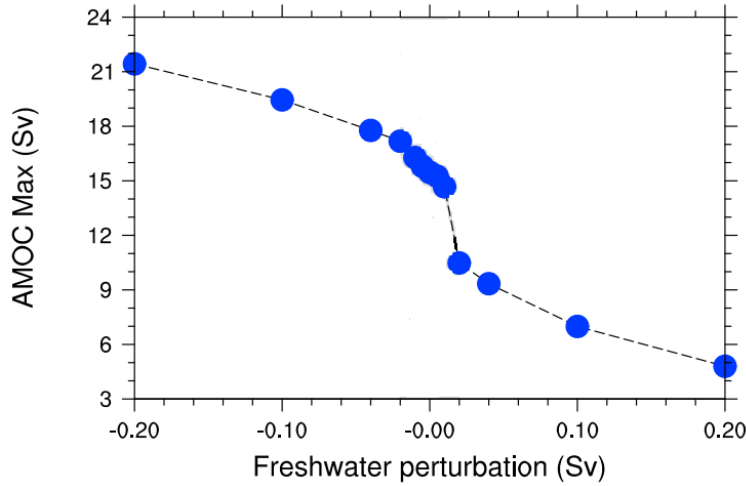
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**Contents of this file**

Figures S1 to Sx

Tables S1 to Sx



**Figure S1.** AMOC strength as a function of freshwater perturbation. Positive/negative freshwater perturbation indicates freshwater input/extraction. The AMOC strength was defined as the maximum value of the overturning stream function below 300 m depth in the North Atlantic. Figure adapted from Zhang et al., 2014.

| Amount of FW input (Sv) | 0 (MIS3)     | $\pm 0.2$    | $\pm 0.1$    | $\pm 0.04$   | $\pm 0.02$   | $\pm 0.01$   | $\pm 0.005$  |
|-------------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| Simulation year         | 1670<br>+500 | 1670<br>+500 | 1670<br>+500 | 1670<br>+500 | 1670<br>+500 | 1670<br>+530 | 1670<br>+500 |

**Table S1.** Freshwater injection/extraction amount and simulation year in all experiments. The first row indicates amount of freshwater perturbation, e.g. -0.2 means we extract 0.2Sv freshwater in the Nordic Seas. The second row indicates integration of MIS3 control run. The third row indicates lasting year of freshwater perturbation, e.g. we integrate MIS3 control run for 1670 years and then in the next 500 years, we continuously impose freshwater perturbation in the Nordic Seas. The total length of the run is 1670 + 500 = 2170 model years.