Supplementary Material of
Interacting tipping elements increase risk of climate domino effects under global warming

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Parameter group	Parameter	Initial value
Critical temperatures (°C)	$T_{\text{limit, Greenland}}$	2.5
	$T_{\text{limit, West Antarctica}}$	2.1
	$T_{\text{limit, AMOC}}$	5.1
	$T_{\text{limit, ENSO}}$	5.5
	$T_{\text{limit, Amazon rainforest}}$	3.5
Strong links (a.u.)	Greenland $\rightarrow$ AMOC	0.32
	AMOC $\rightarrow$ Greenland	-0.17
	Greenland $\rightarrow$ West Antarctica	0.25
	ENSO $\rightarrow$ Amazon rainforest	0.27
Intermediate links (a.u.)	ENSO $\rightarrow$ West Antarctica	0.26
	AMOC $\rightarrow$ Amazon rainforest	0.0
	West Antarctica $\rightarrow$ AMOC	0.0
Weak links (a.u.)	AMOC $\rightarrow$ ENSO	0.20
	West Antarctica $\rightarrow$ Greenland	0.19
	ENSO $\rightarrow$ AMOC	-0.12
	AMOC $\rightarrow$ West Antarctica	0.12
	Amazon rainforest $\rightarrow$ ENSO	0.0

Table S 1. Exemplary initial values in Fig. 2. All initial values are random numbers drawn from a random, uniform distribution with a latin-hypercube sampling algorithm (Baudin, 2013) between their respective limits (see Tabs. 1 and 2). The random numbers for the links have already been multiplied with $1/10 \times s_{ij}$ (see Table 2). The exemplary timelines were computed using a network without considering the uncertain links (AMOC $\rightarrow$ Amazon rainforest, West Antarctica $\rightarrow$ AMOC and Amazon rainforest $\rightarrow$ ENSO), whose link strengths are set to zero (see Fig. 2).

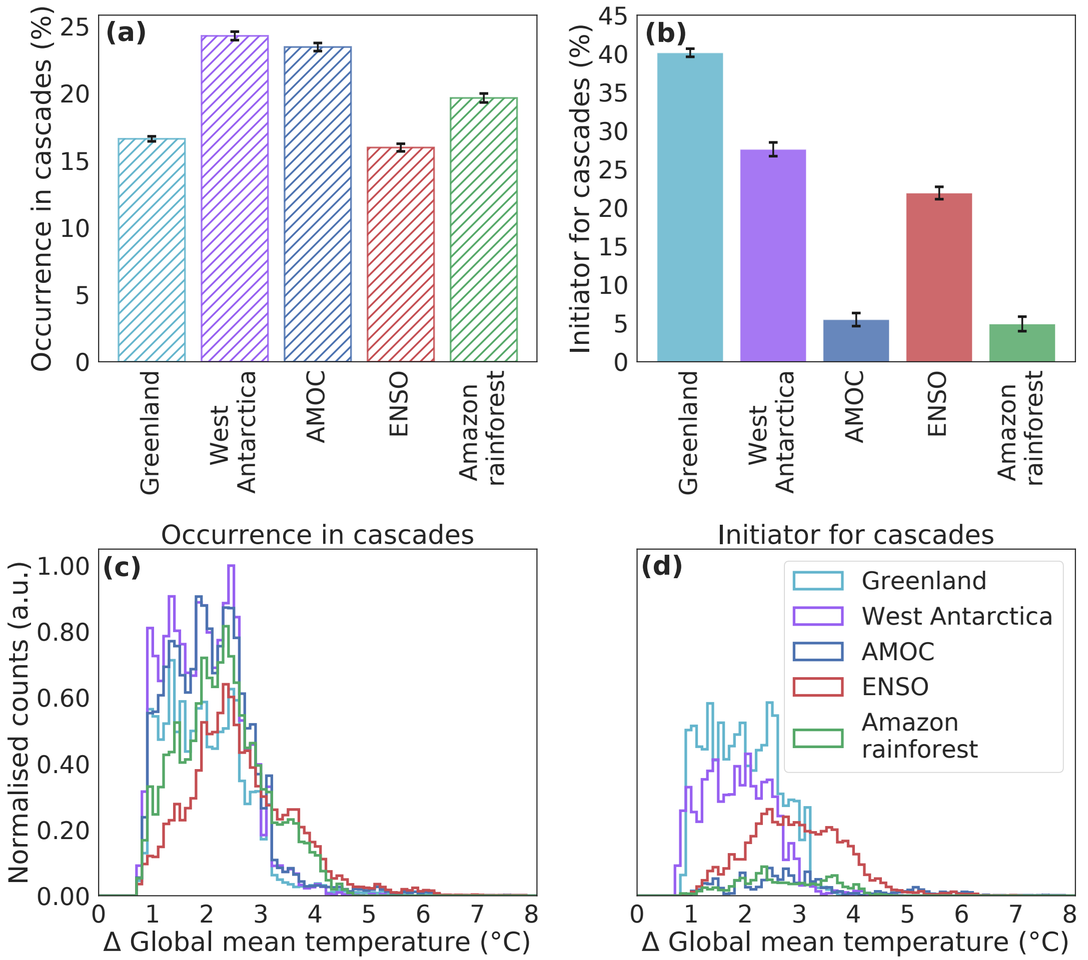

Figure S 1. *Role* of tipping elements in cascades. **(a)** Relative frequency in percent of occurrence of a certain tipping element in a tipping cascade (hatched bars). The standard deviation is computed by evaluating the deviation between reasonable network settings (see Section 2.5, *Model initialisation and uncertainty*). **(b)** Relative frequency in percent that a certain tipping element causes a tipping cascade (coloured bars). We define that the cause of a cascade is the element, whose critical temperature is closest to the temperature of the cascade. Again the error bars show the standard deviation between different network settings as in **(a)**. **(c)** Count versus global mean temperature increase at which a tipping cascade occurs divided into the respective five tipping elements. **(d)** Same as in **(c)**, but for the tipping element which causes the cascade. N.B.: **(c)** and **(d)** are set to the same scale normalised to the highest value in the histogram.

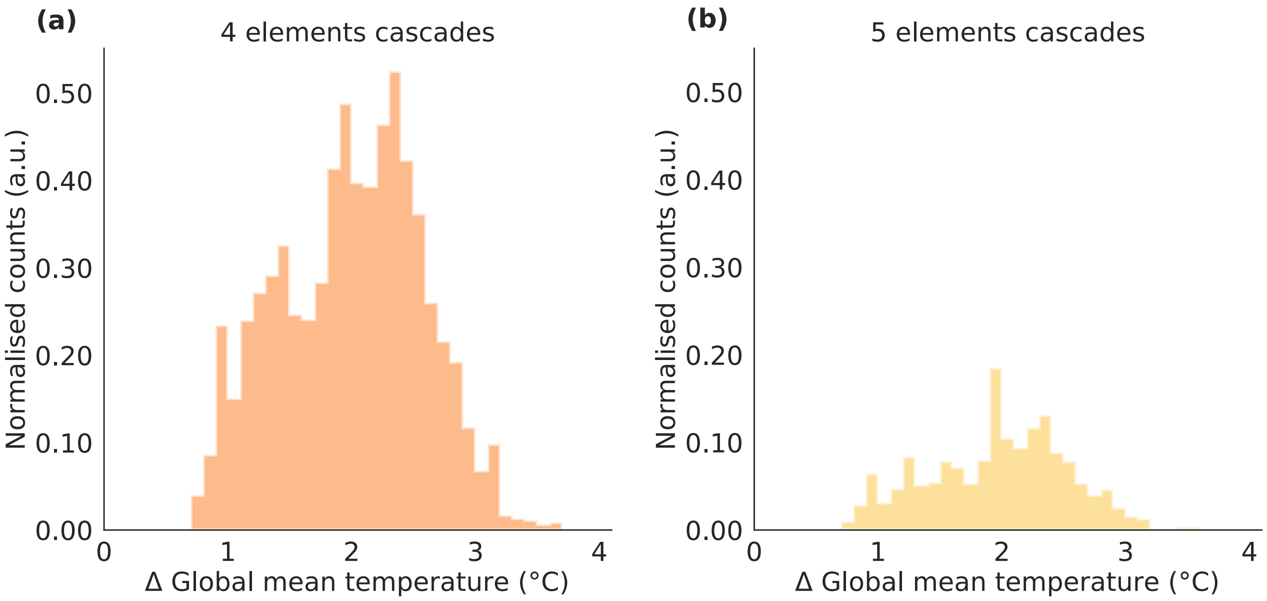

Figure S 2. Tipping cascades of size four and five versus temperature increase. **(a)** Tipping cascades of size four, **(b)** Tipping cascades of size five. The scale is the same as in Figs. 4(c, d), but here we show a zoom-in in temperature increase and normalised counts to improve visibility.

References

Baudin, M.: pyDOE: The experimental design package for python, sofware available under the BSD license (3-Clause) at https://pythonhosted.org/pyDOE/index.html, 2013.