# Rainforest resilience under climate change

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ARTICLE

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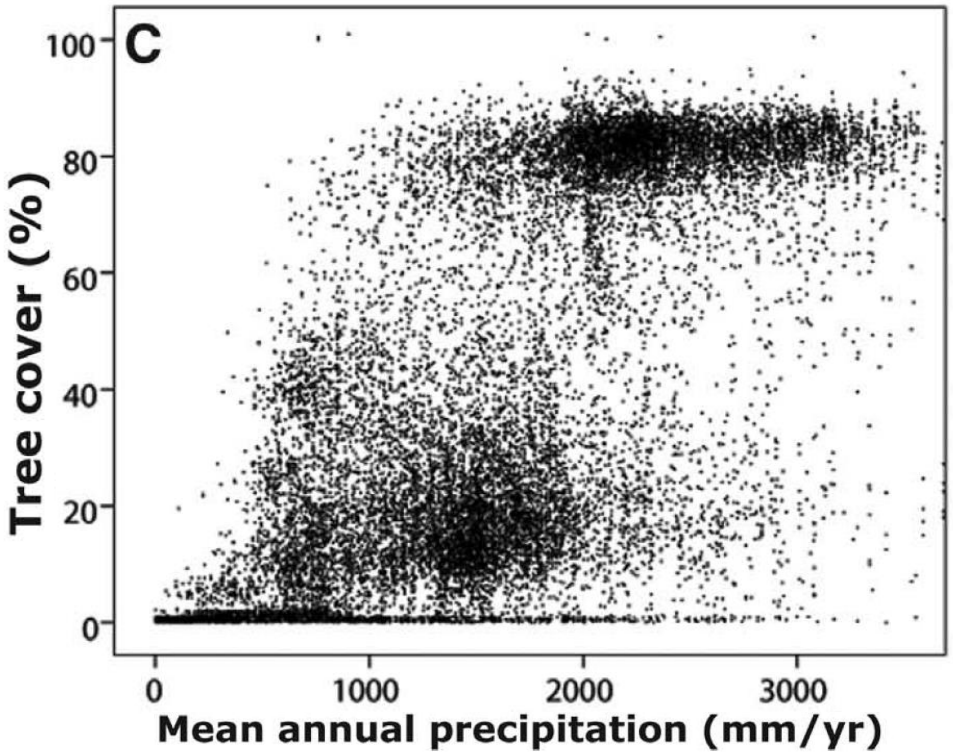
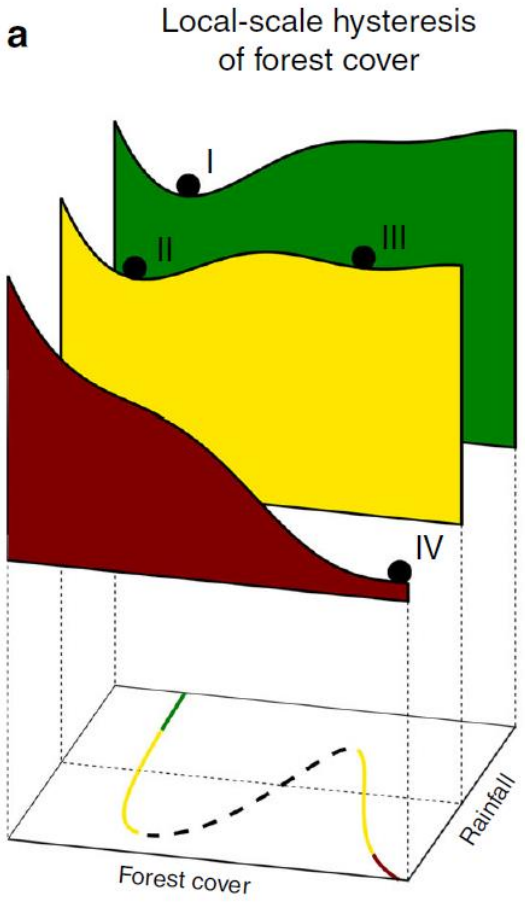
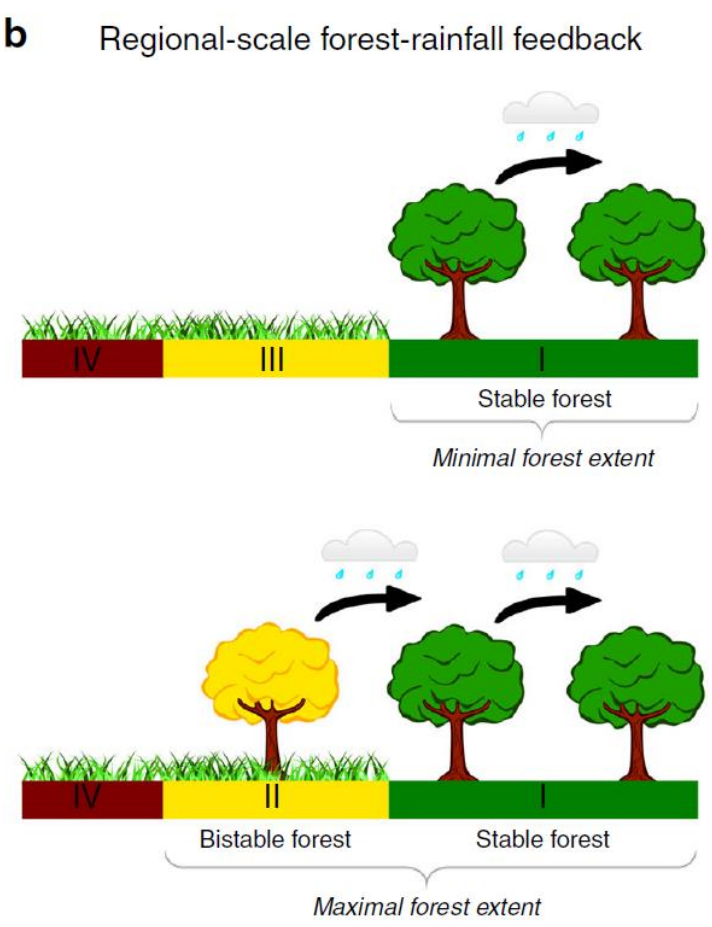
# Hysteresis of tropical forests in the 21st century

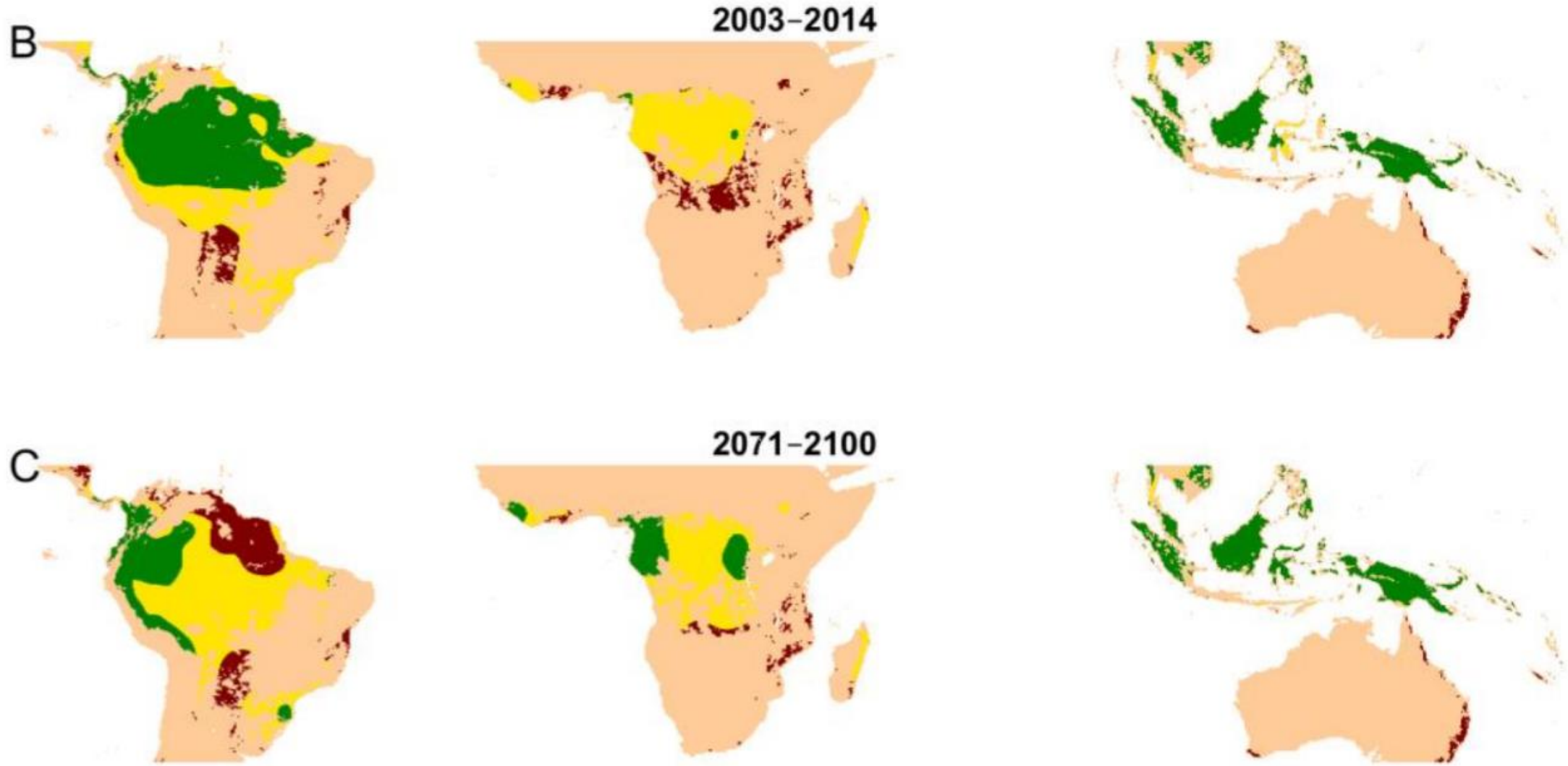
Arie Staal[1,2✉], Ingo Fetzer[1], Lan Wang-Erlandsson[1], Joyce H. C. Bosmans[3], Stefan C. Dekker[2], Egbert H. van Nes[4], Johan Rockström[1,5] & Obbe A. Tuinenburg[2]



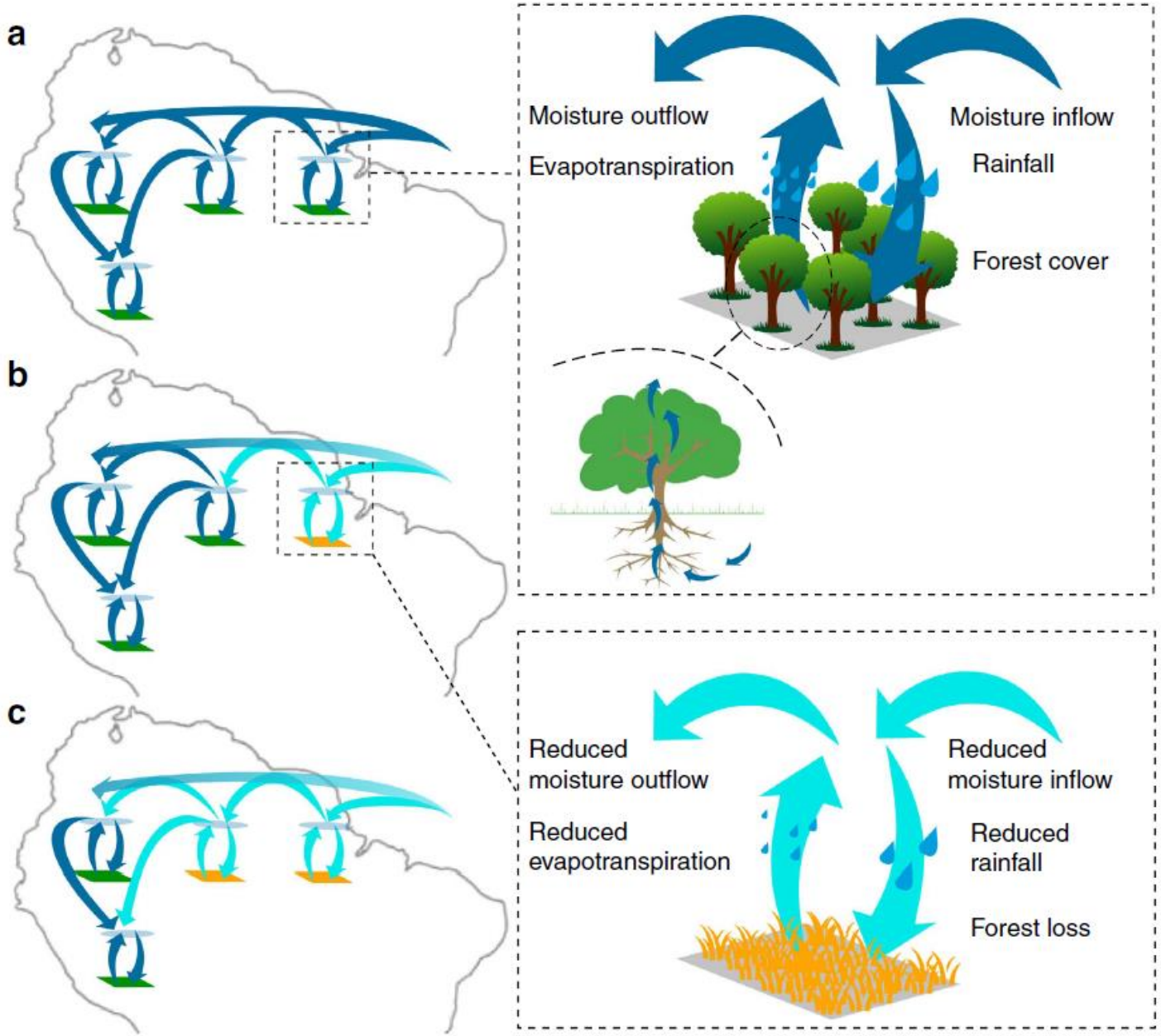

Hirota et al., 2011, Science






Staal et al., (2020), Nature Comm.

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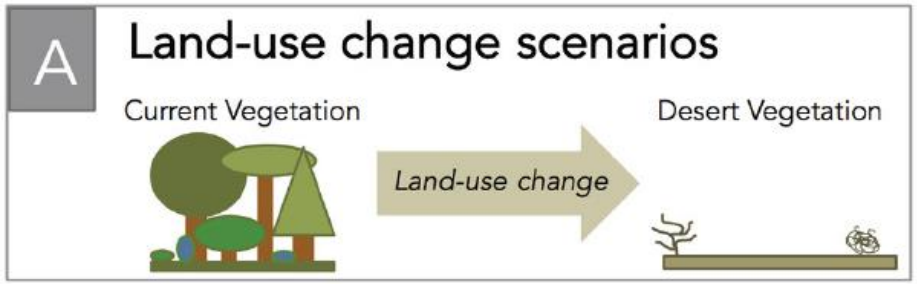
# Self-amplified Amazon forest loss due to vegetation-atmosphere feedbacks

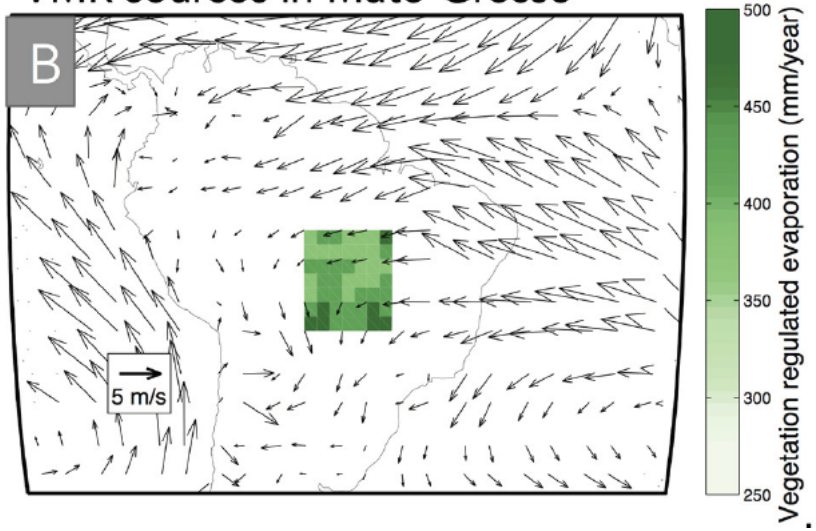
Delphine Clara Zemp[1,2,†], Carl-Friedrich Schleussner[2,3], Henrique M. J. Barbosa[4], Marina Hirota[5,6], Vincent Montade[7], Gilvan Sampaio[8], Arie Staal[9], Lan Wang-Erlandsson[10,11] & Anja Rammig[2,12]

# Revealing Invisible Water: Moisture Recycling as an Ecosystem Service

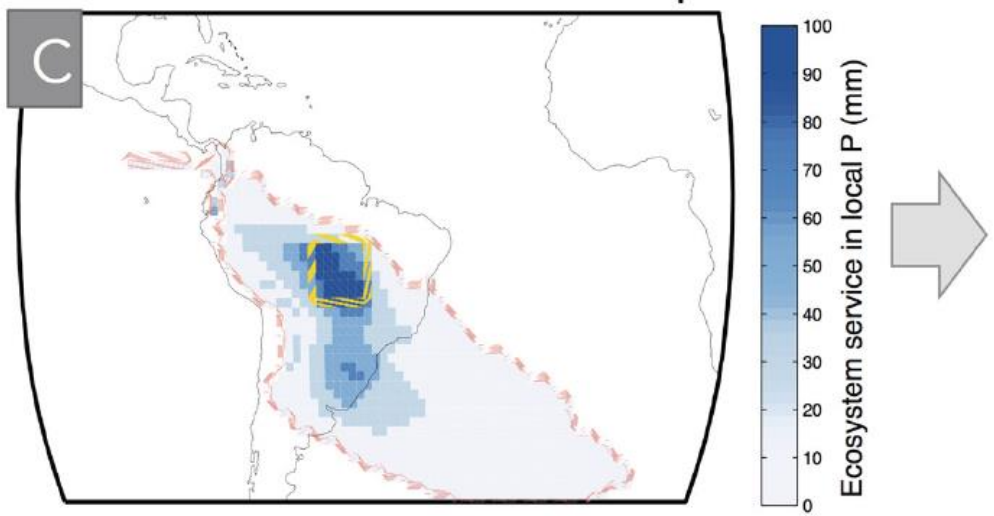
**Patrick W. Keys[1,2]*, Lan Wang-Erlandsson[1,3], Line J. Gordon[1]**

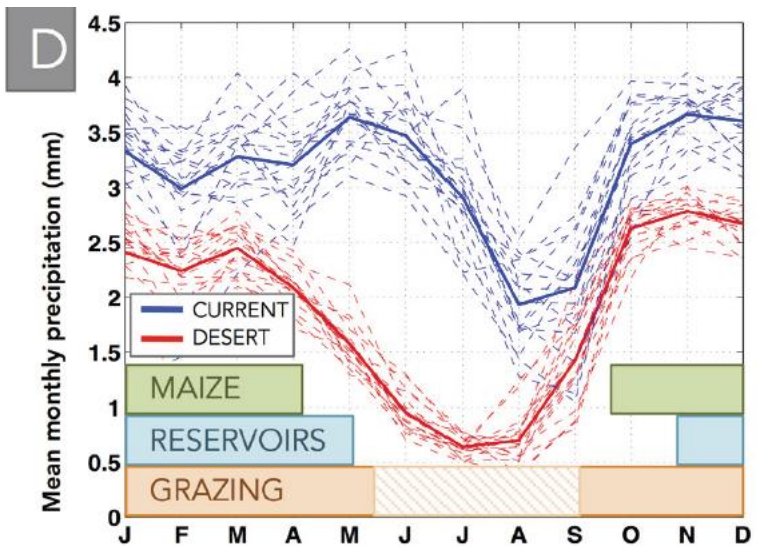



VMR sources in Mato Grosso



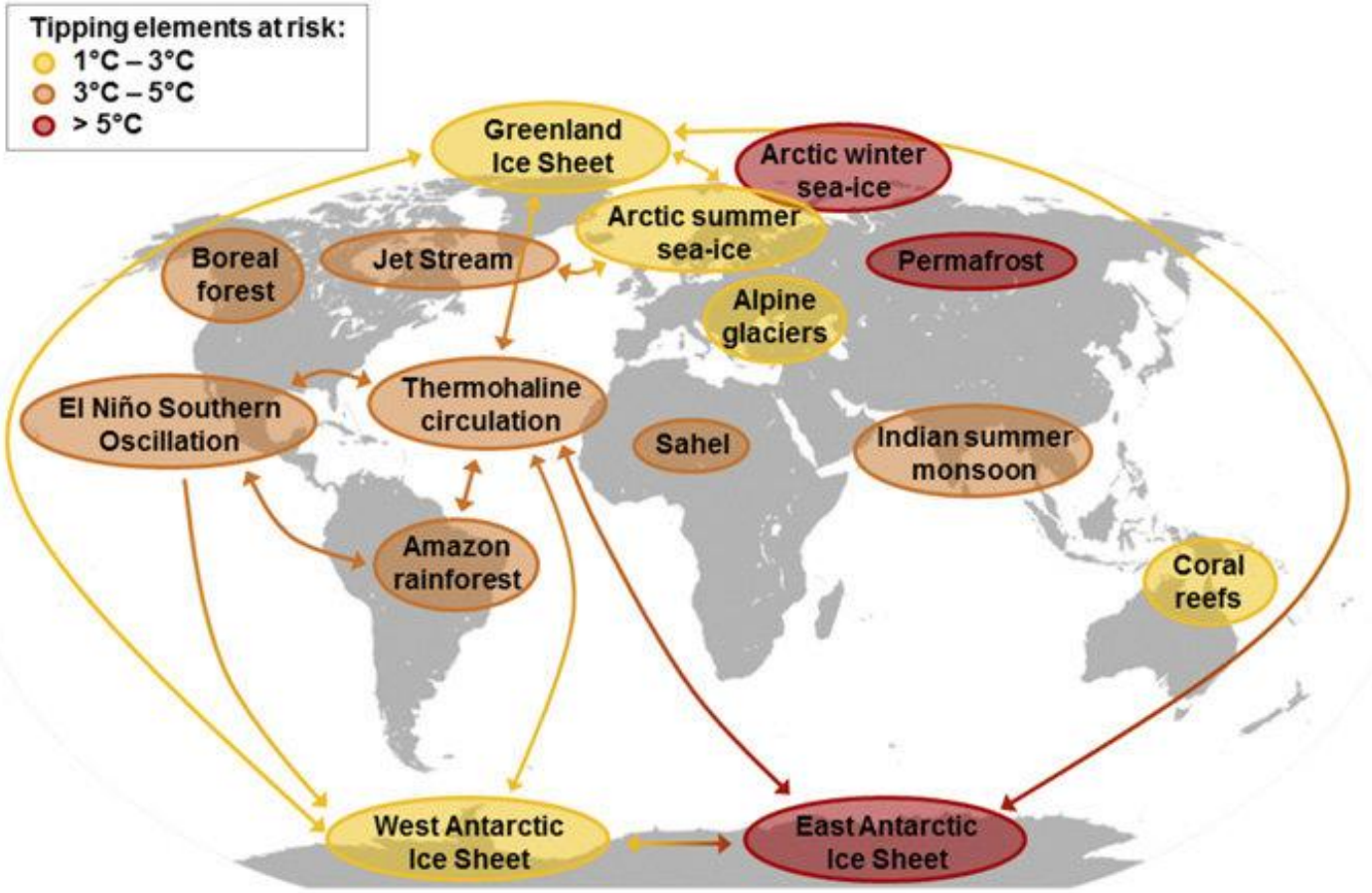

VMR sinks in Mato Grosso's evaporationshed




Keys et al, 2016, Plos One

# Tipping elements critical for Earth system stability




Steffen, et al., 2018, PNAS

# Thank you!

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