

Antarctic snowfall variability and forced change



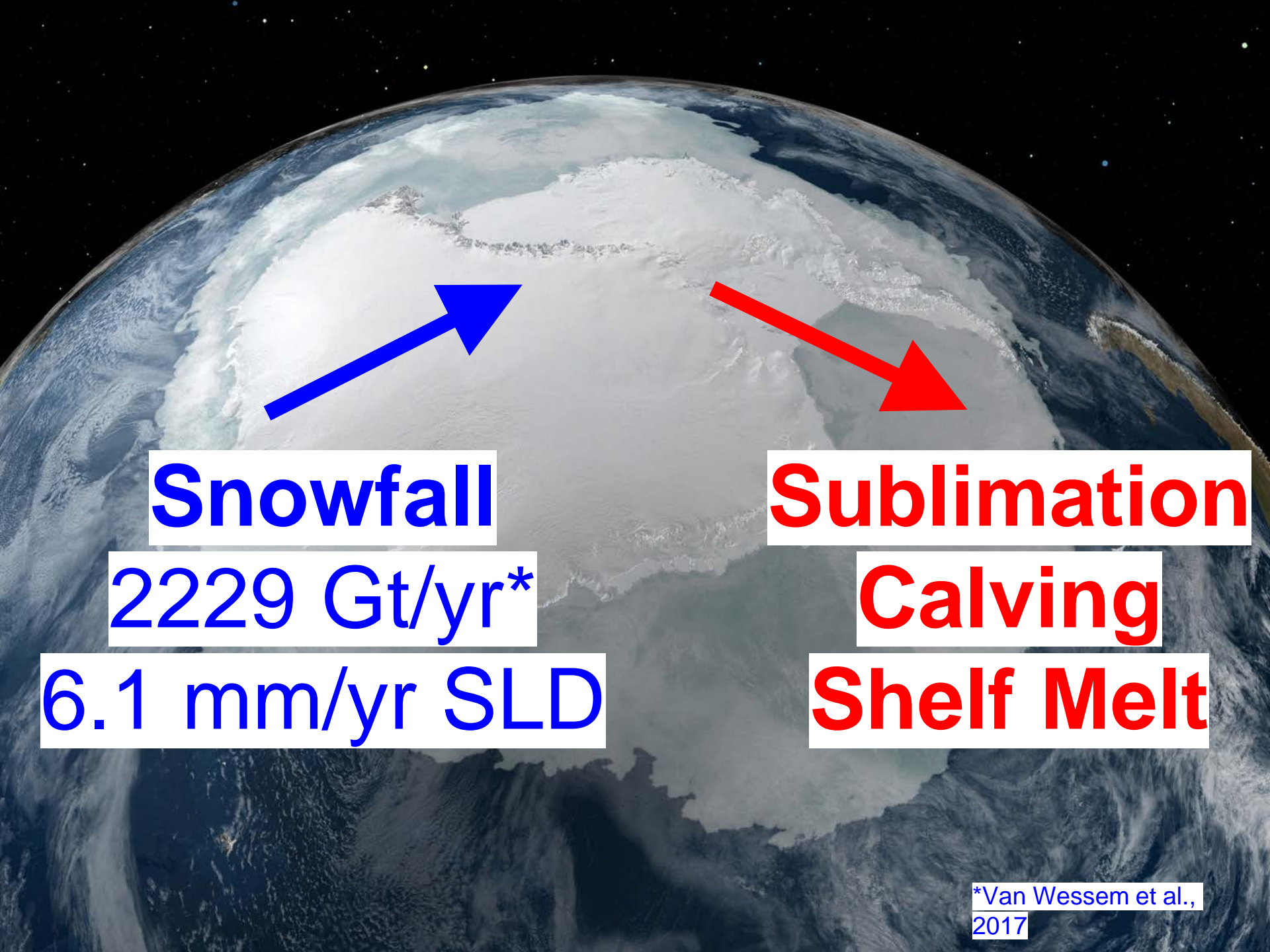
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Marcus Lofverstrom⁴, Raymond Sellevold⁵, Miren Vizcaino⁵

CESM LE community, Laura Landrum⁴, Marika Holland⁴, Lorenzo Polvani⁷, Hailong Wang⁸

LANL¹, CU Boulder², NASA³, NCAR⁴, TU Delft⁵, NASA⁶, Columbia⁷, PNNL⁸





Snowfall

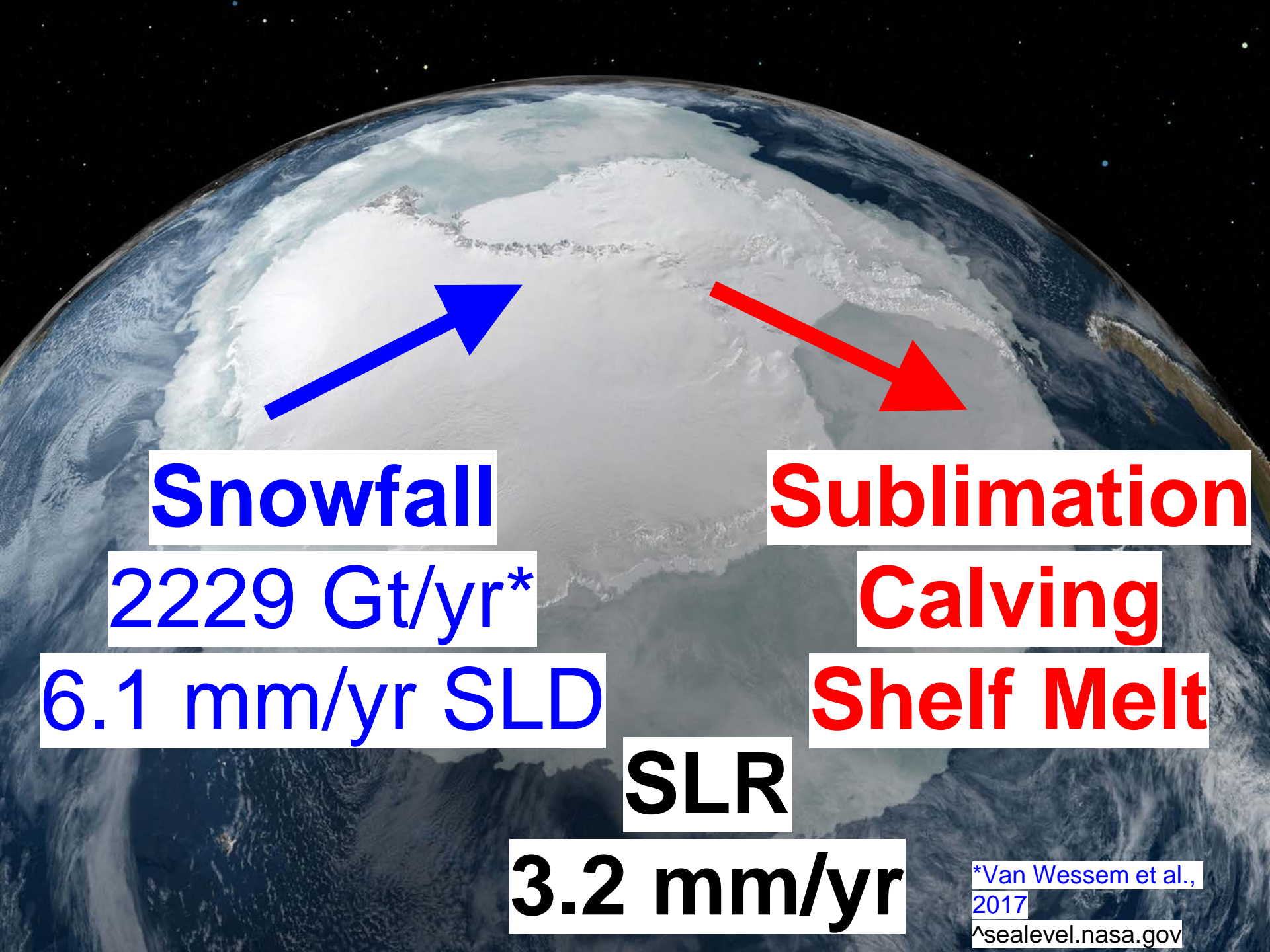
2229 Gt/yr*

6.1 mm/yr SLD

Sublimation

Calving

Shelf Melt



Snowfall

2229 Gt/yr*

6.1 mm/yr SLD

SLR

3.2 mm/yr

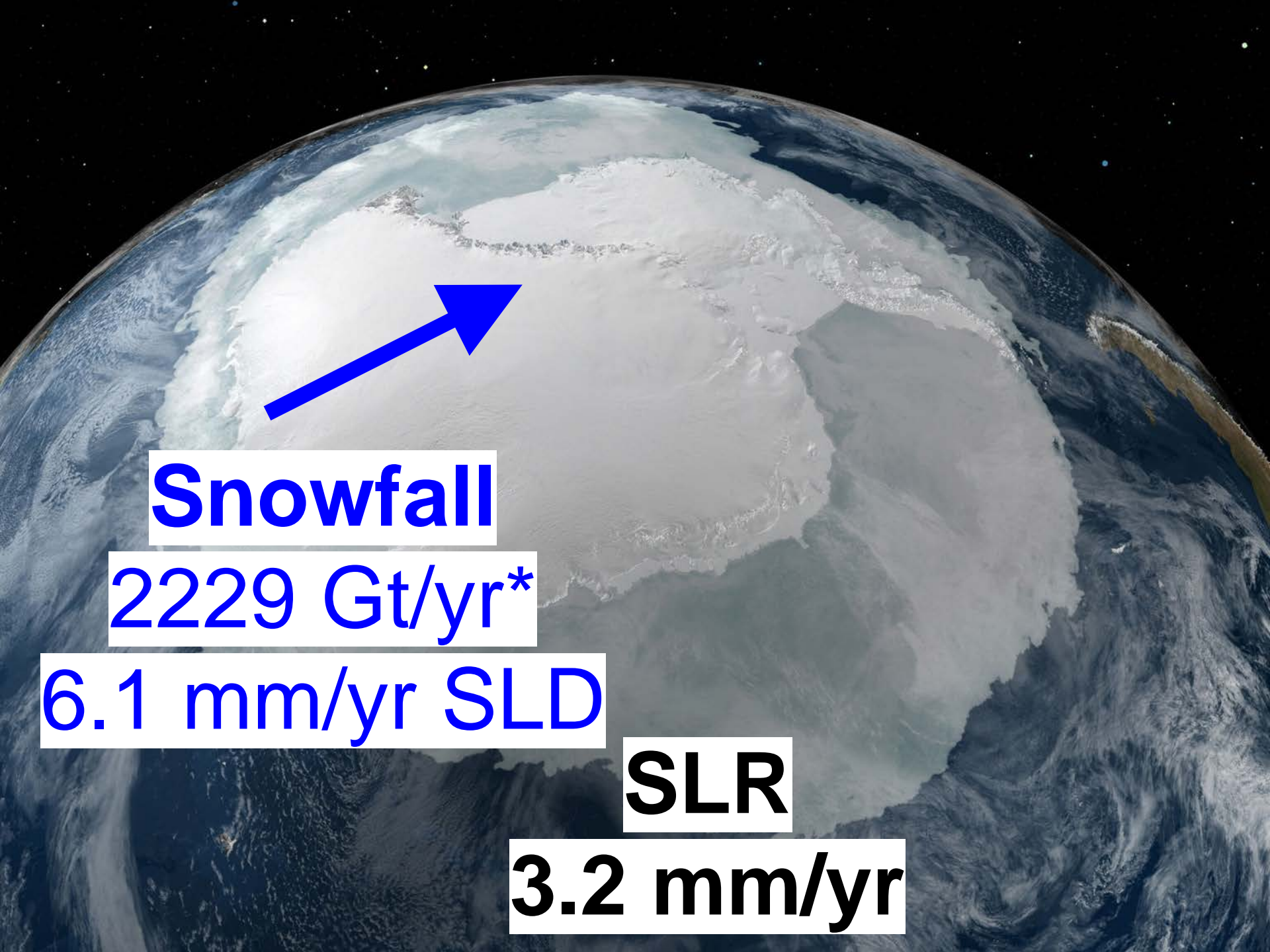
Sublimation

Calving

Shelf Melt

*Van Wessem et al.,
2017

^sealevel.nasa.gov



Snowfall

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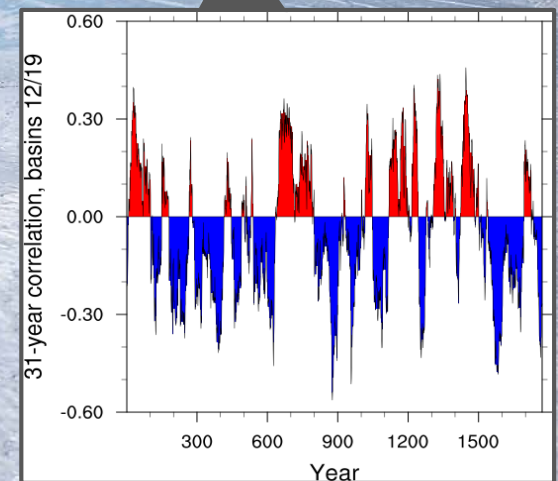
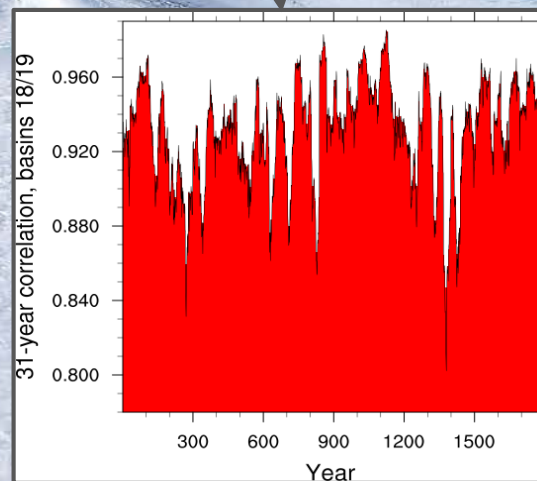
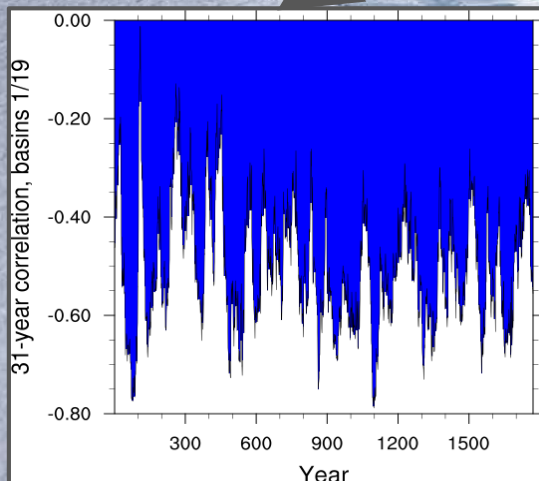
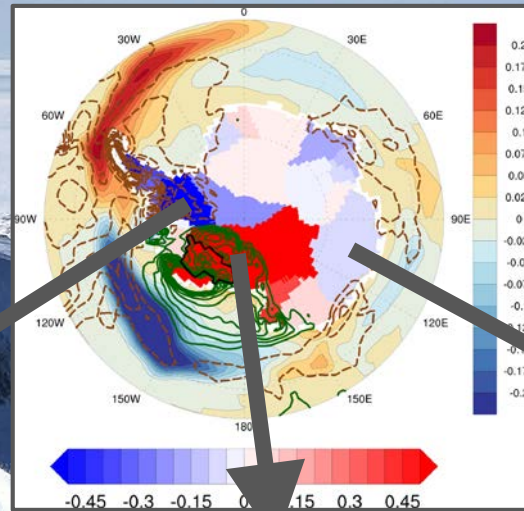
Patterns in AIS variability controlled by regional atmospheric circulation

(Fyke et al., 2017, The Cryosphere)



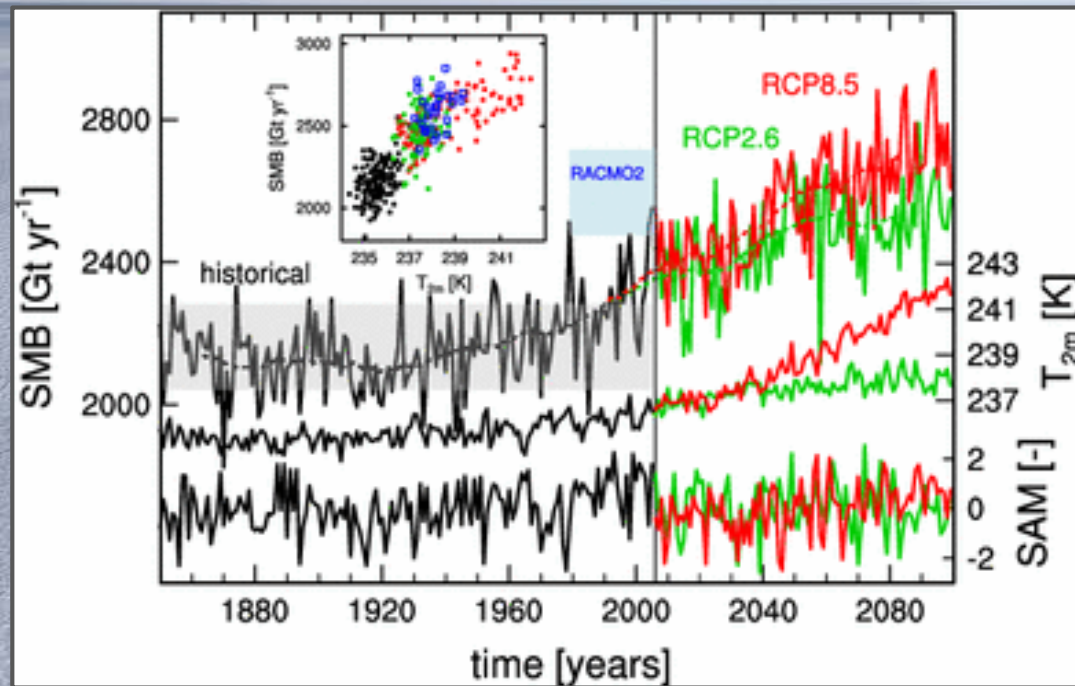
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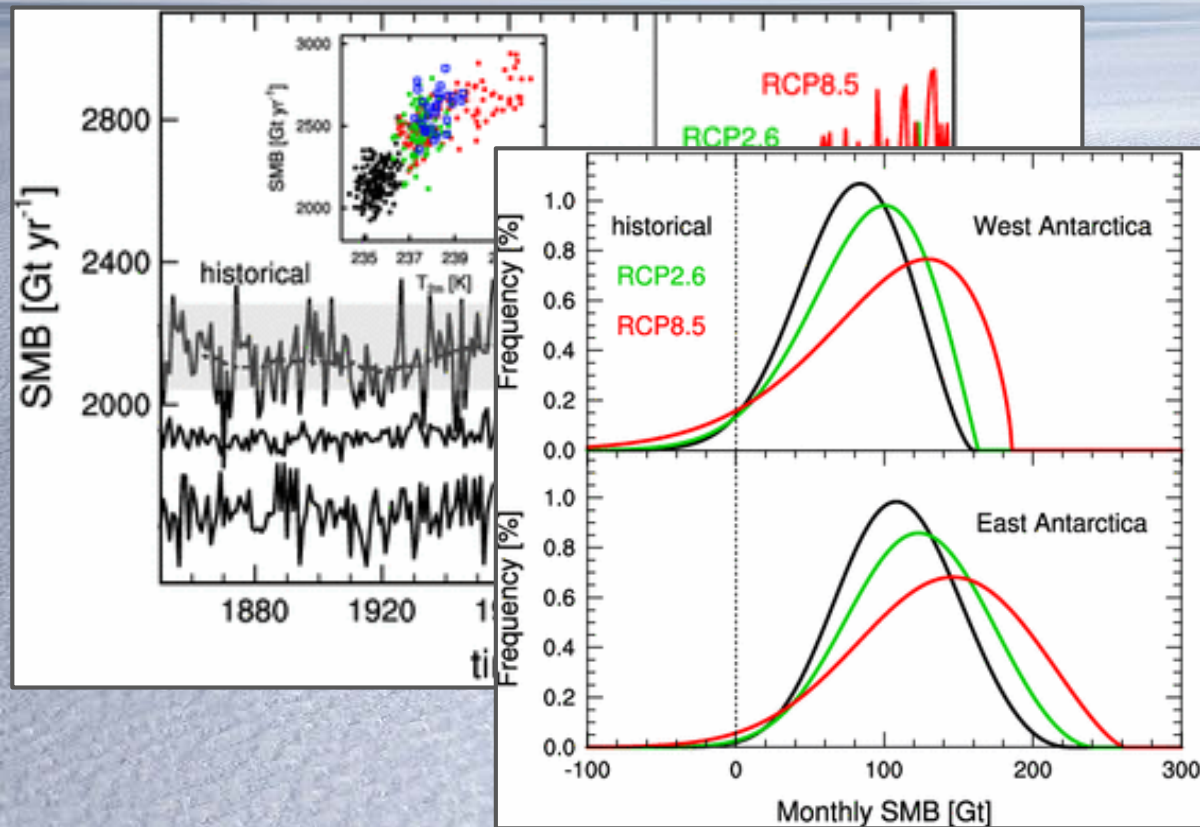
AIS snowfall will strongly increase in response to anthropogenic forcing

(Lenaerts et al., 2016, Climate Dynamics)



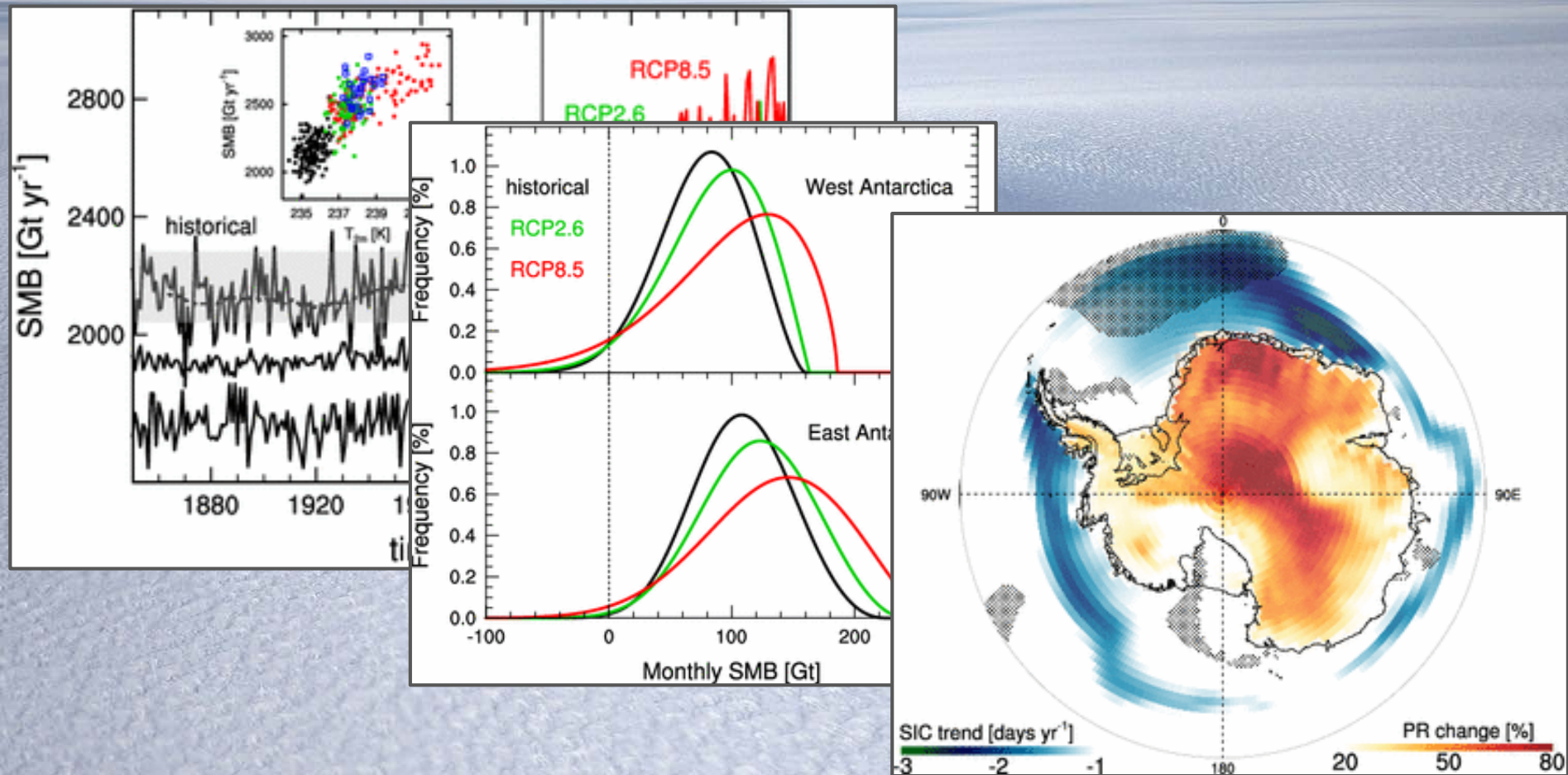
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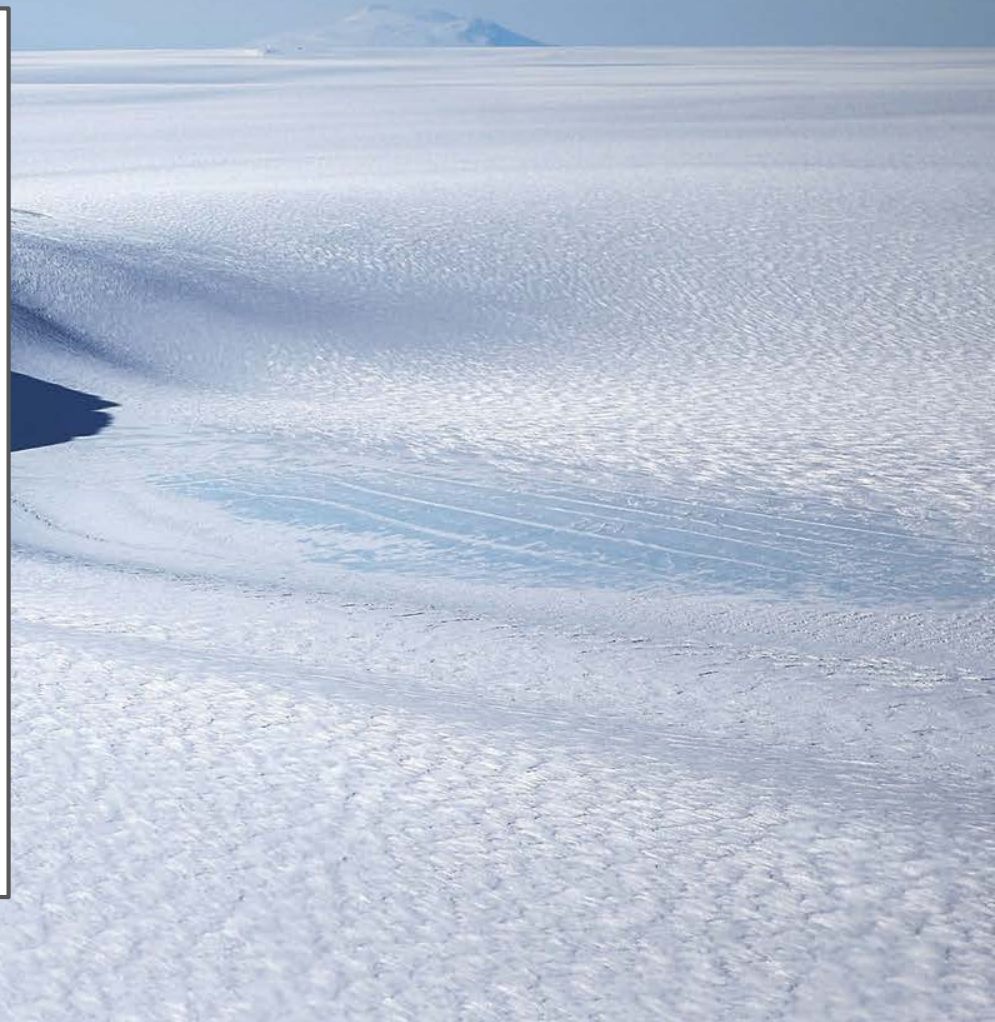
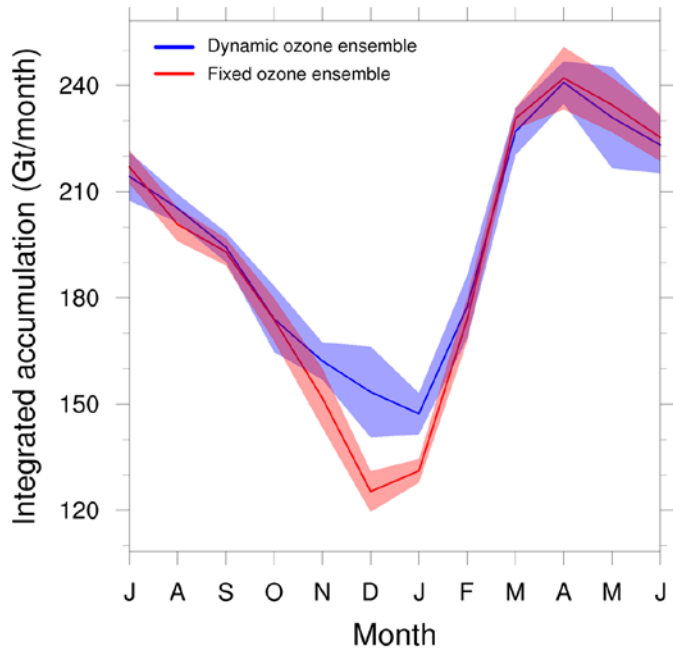
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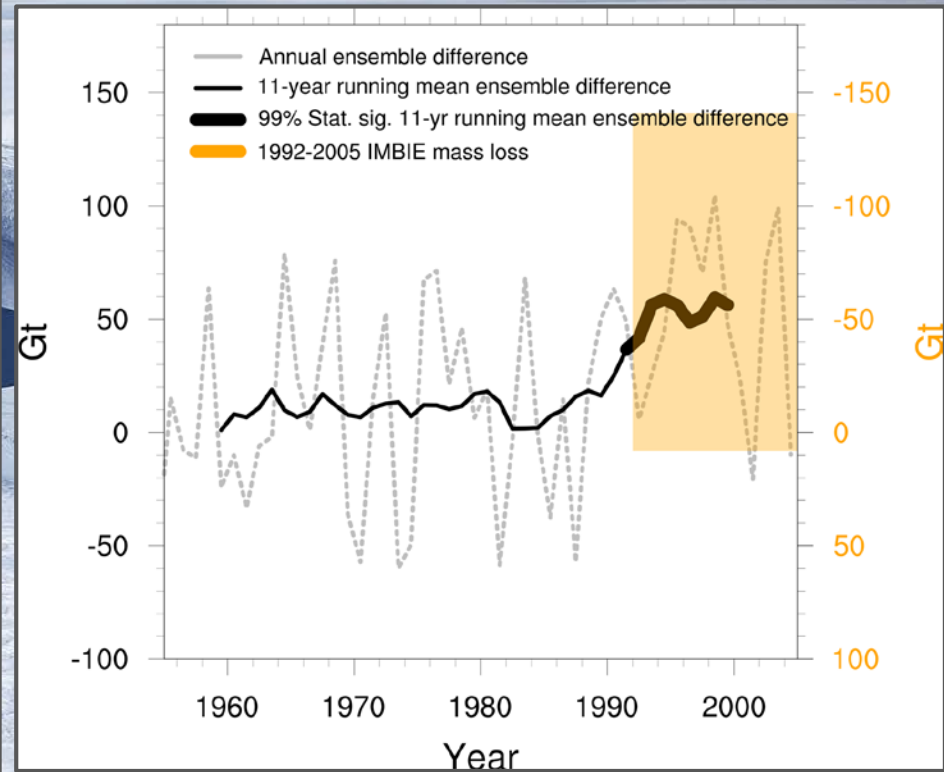
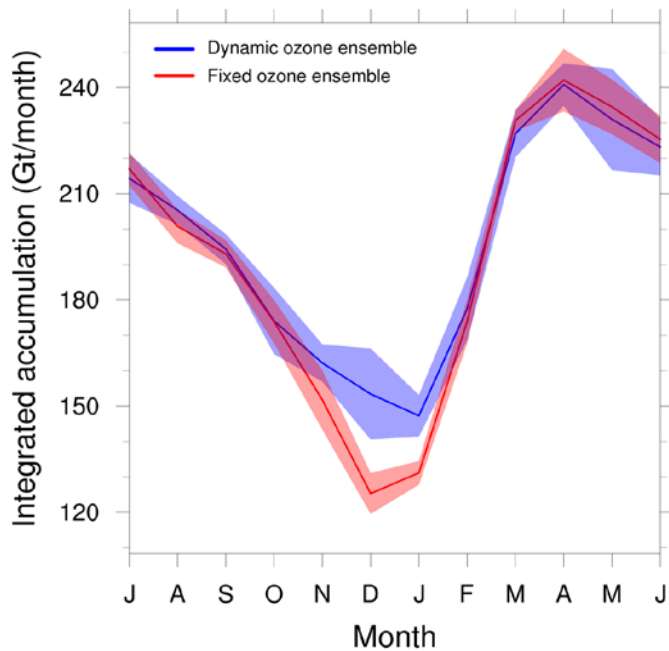
Recent snowfall trends display strong ozone signature

(Fyke/Lenaerts and Medley, in review)



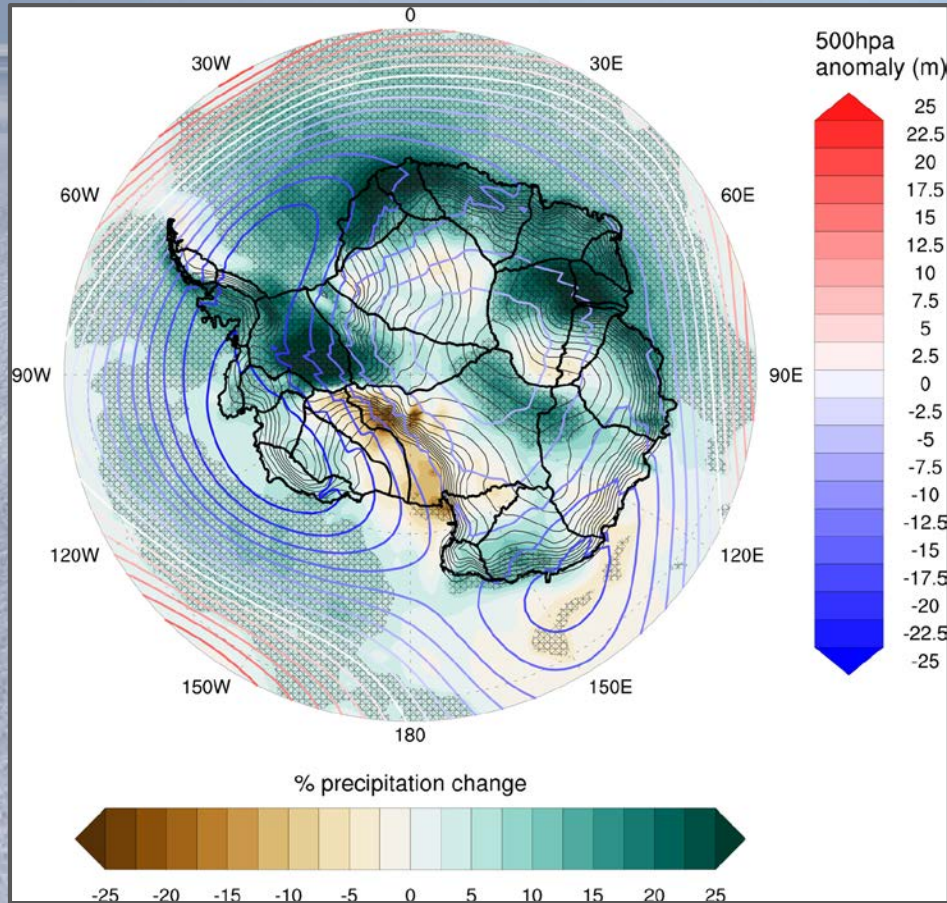
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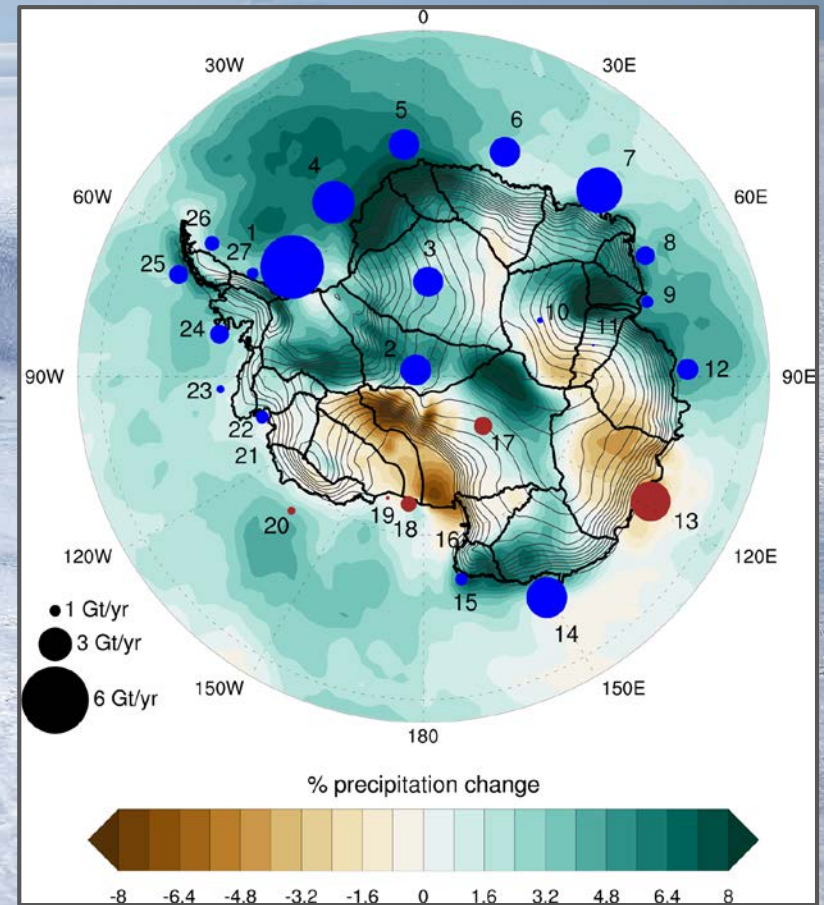
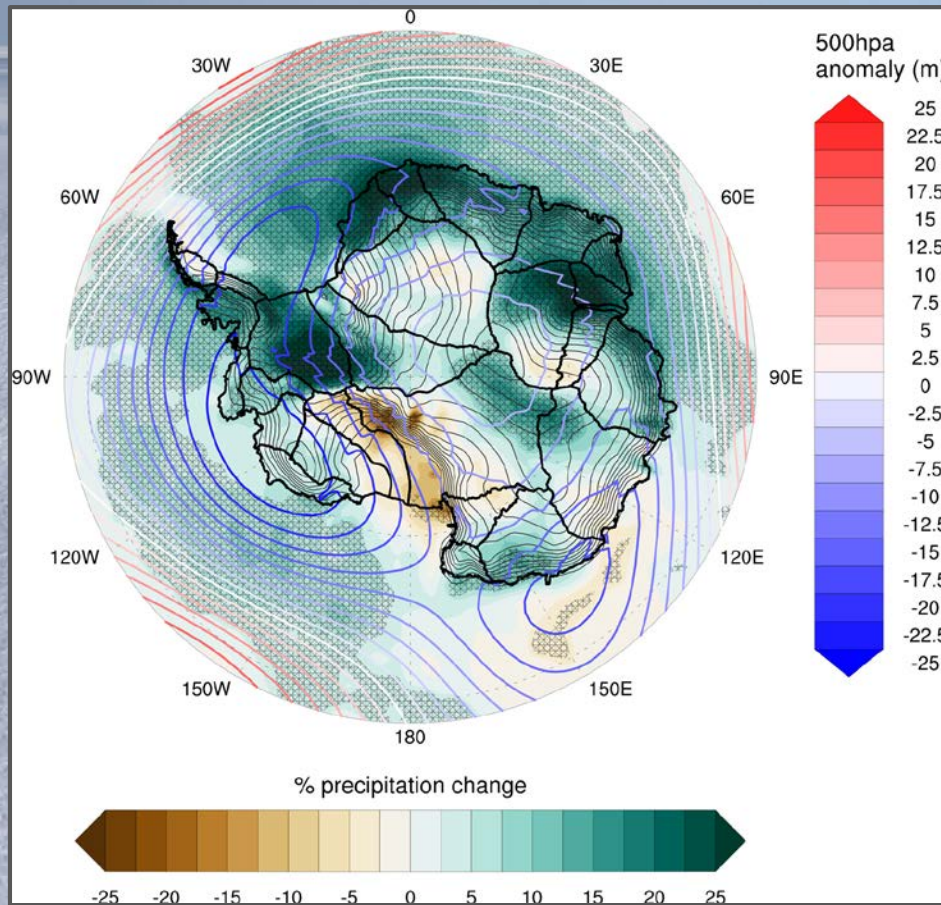
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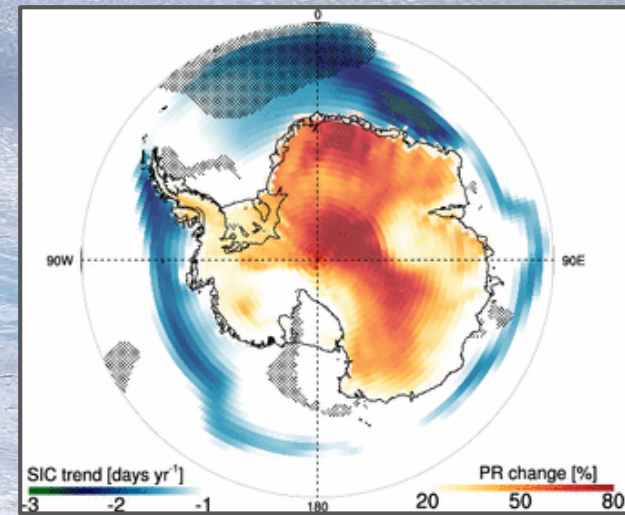
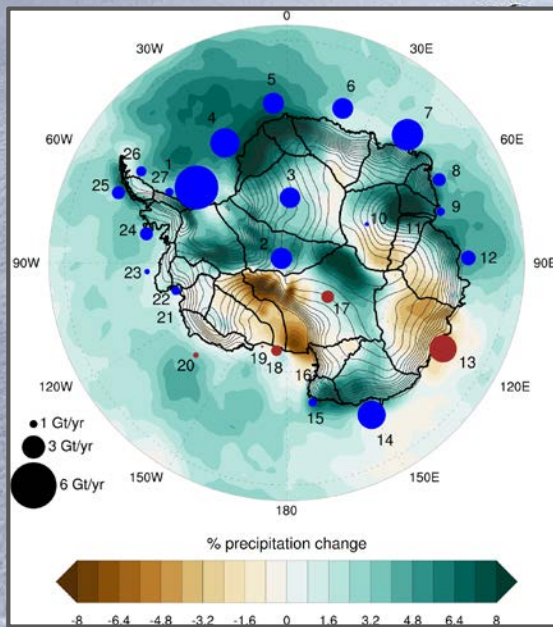
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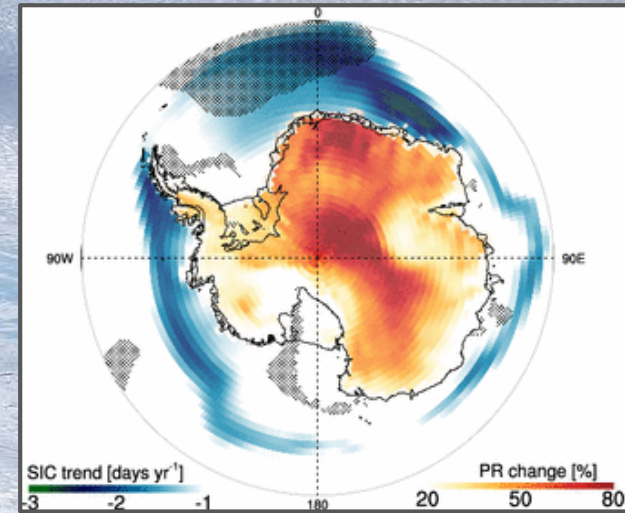
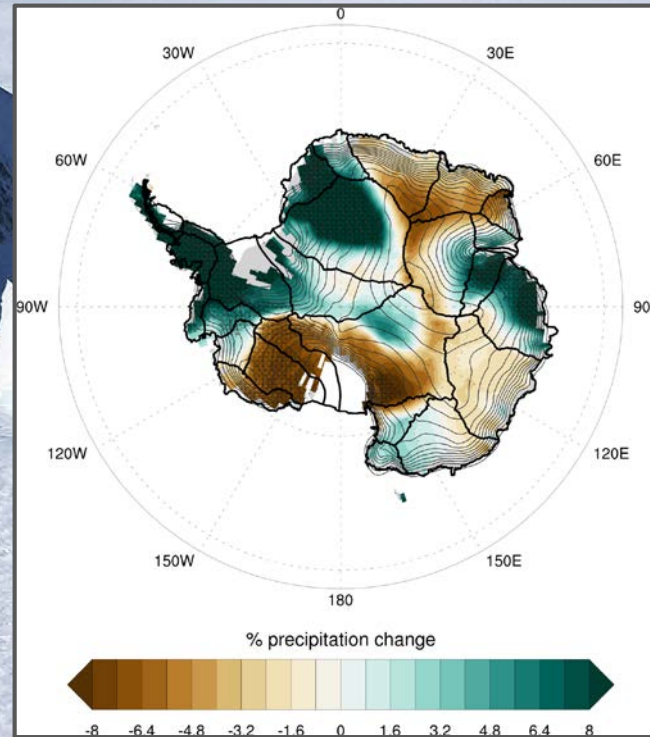
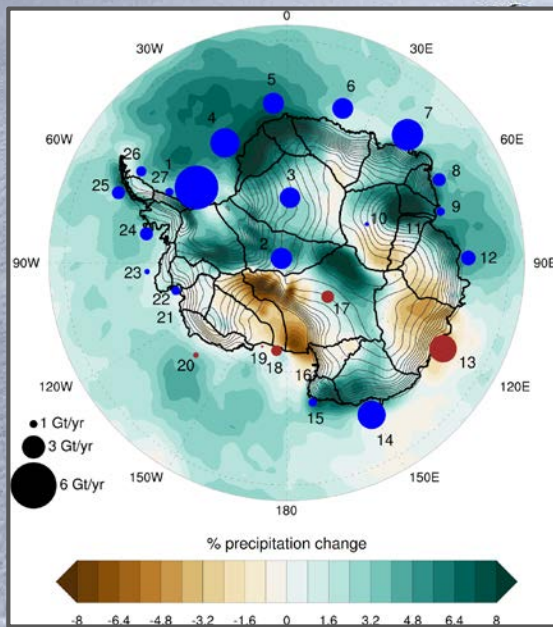
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Antarctic snowfall is important for sea level!

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