



Global patterns in lake warming and potential consequences

Catherine O'Reilly

Department of Geography, Geology and
the Environment

Illinois State University, USA



NASA International Space Station





Photo by C O'Reilly



Science Museum of Minnesota



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Simple lake model

water
temperatures



density,
stratification



wind



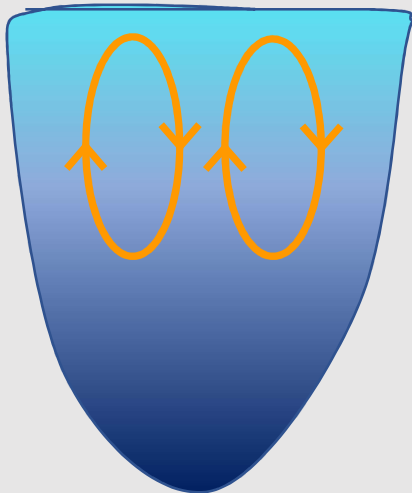
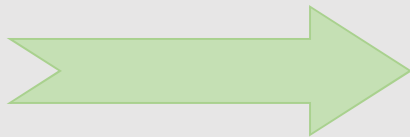
mixing



nutrient
availability



amount of algae
types of algae

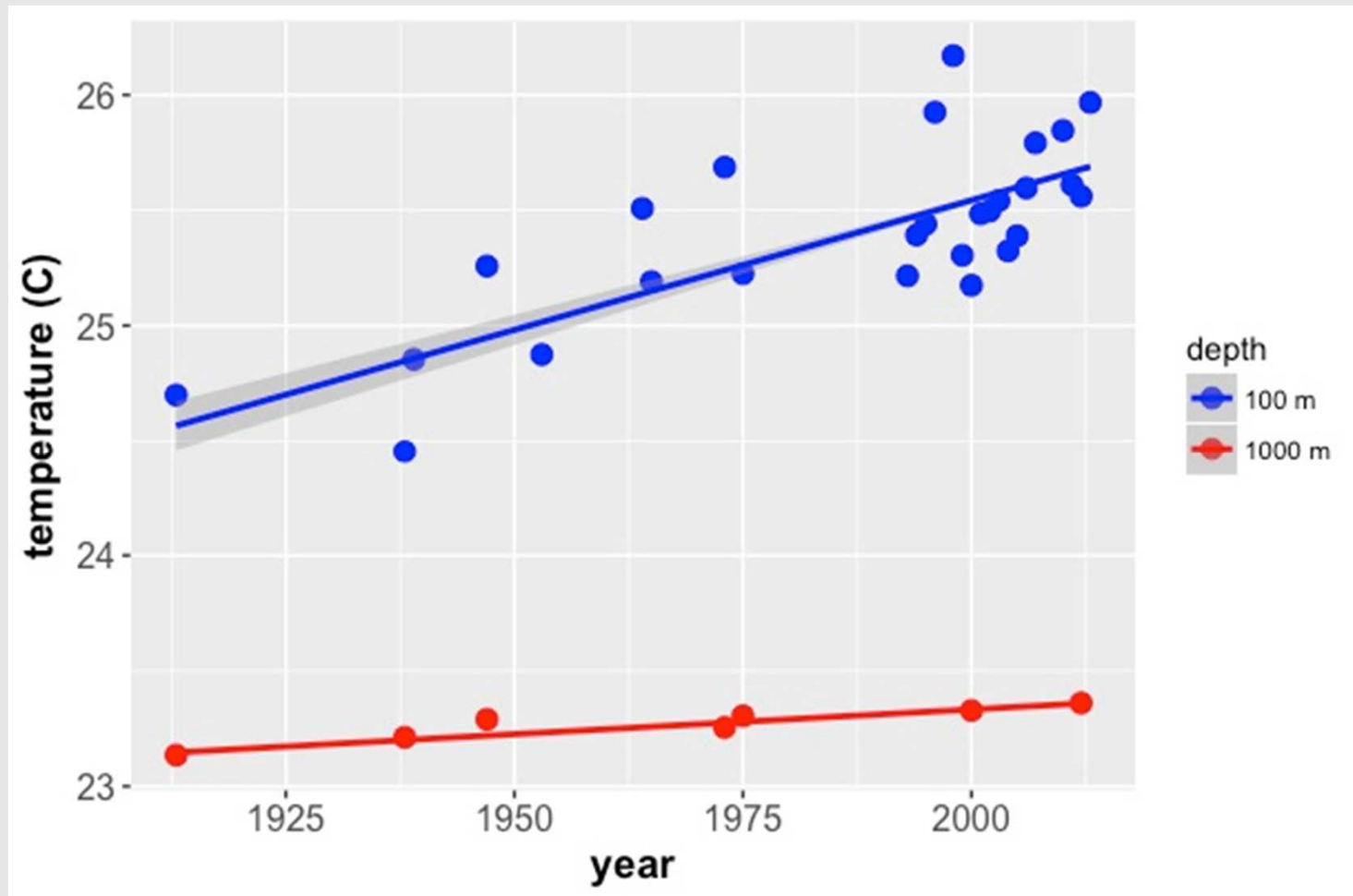




Modern in situ datasets have been collected from Lake Tanganyika. And now also a high-frequency buoy.



Tanganyika water temperatures



Surface and deep water are warming up.

Kraemer et al. 2015

30% decrease in fish
yields

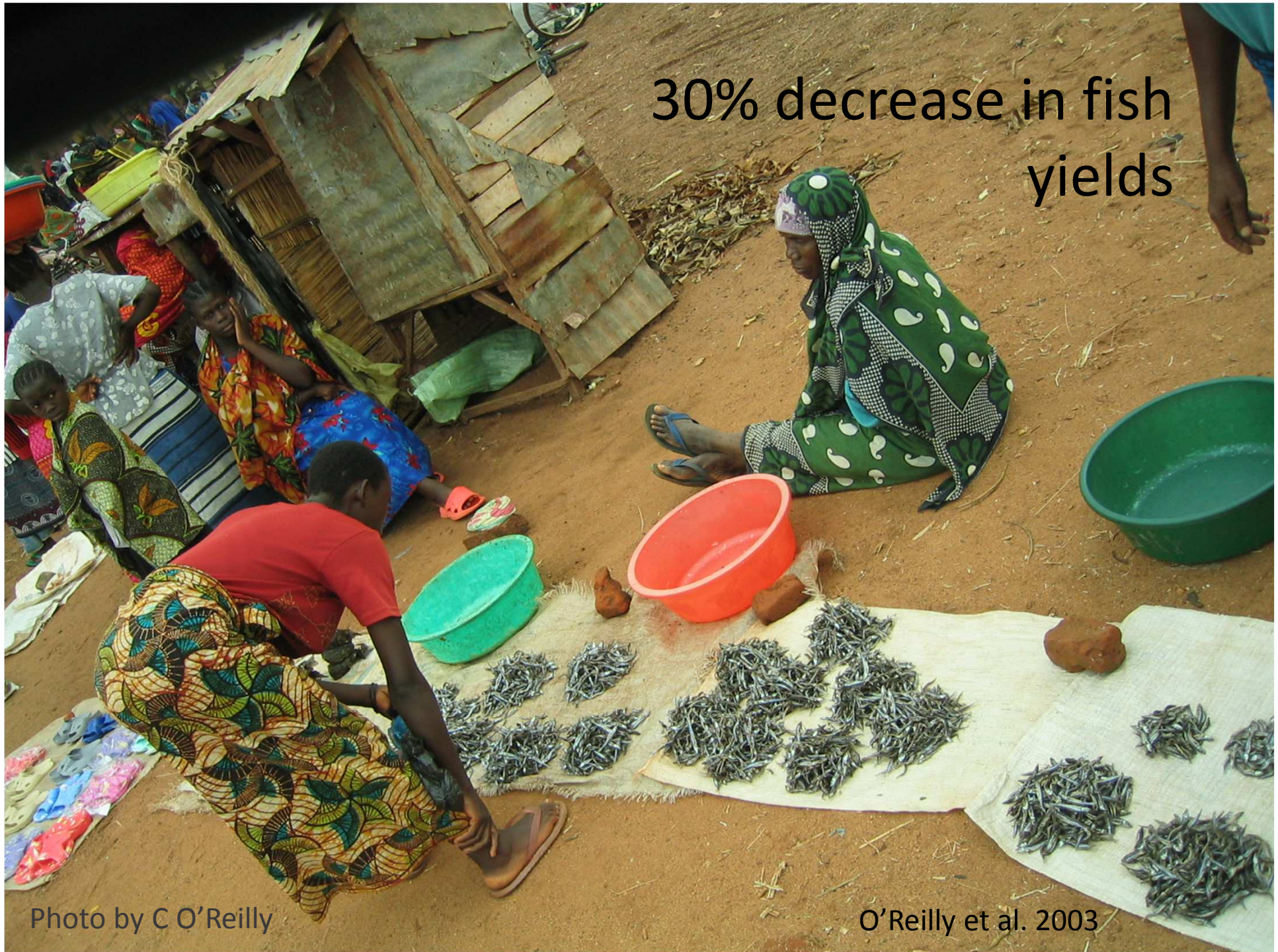
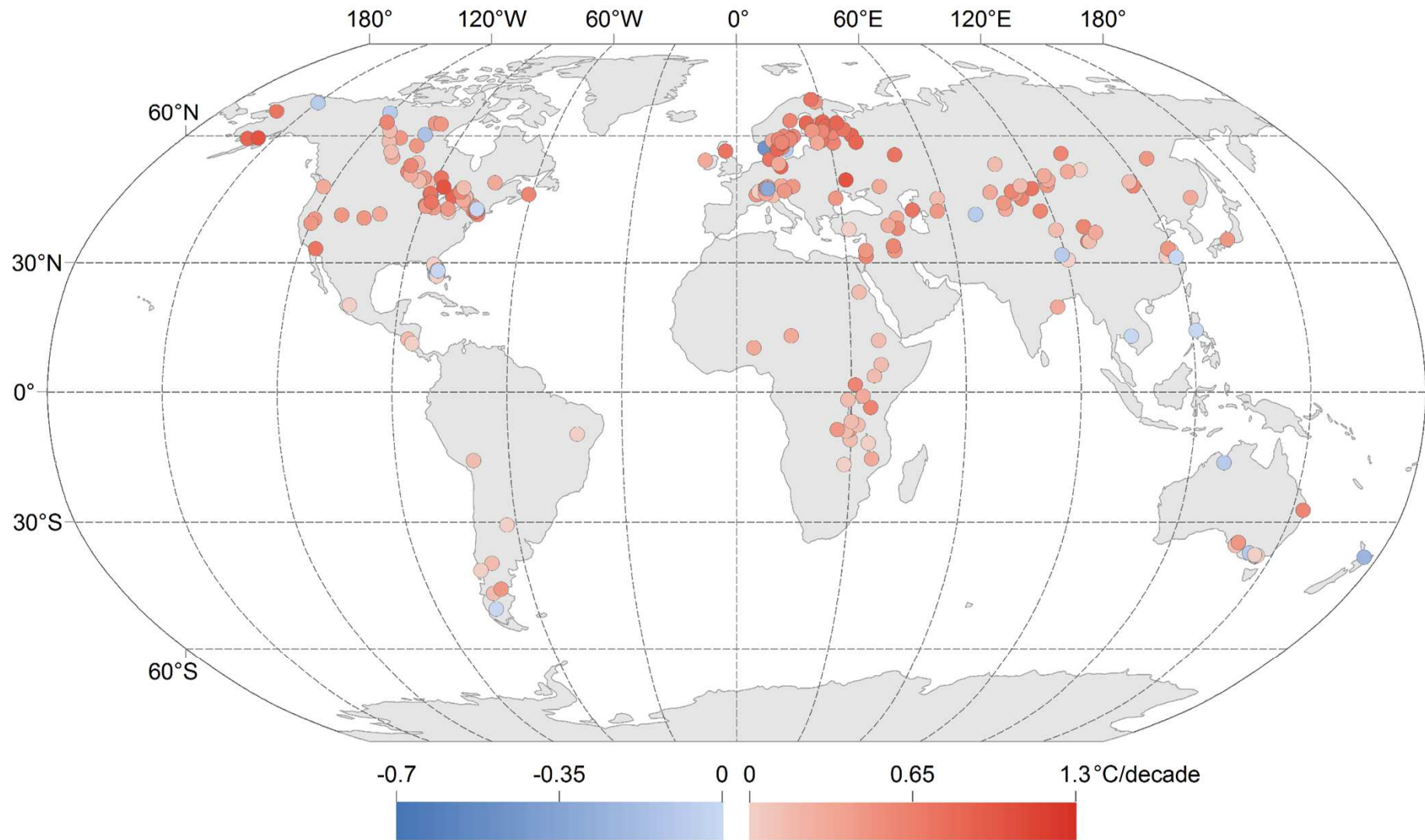


Photo by C O'Reilly

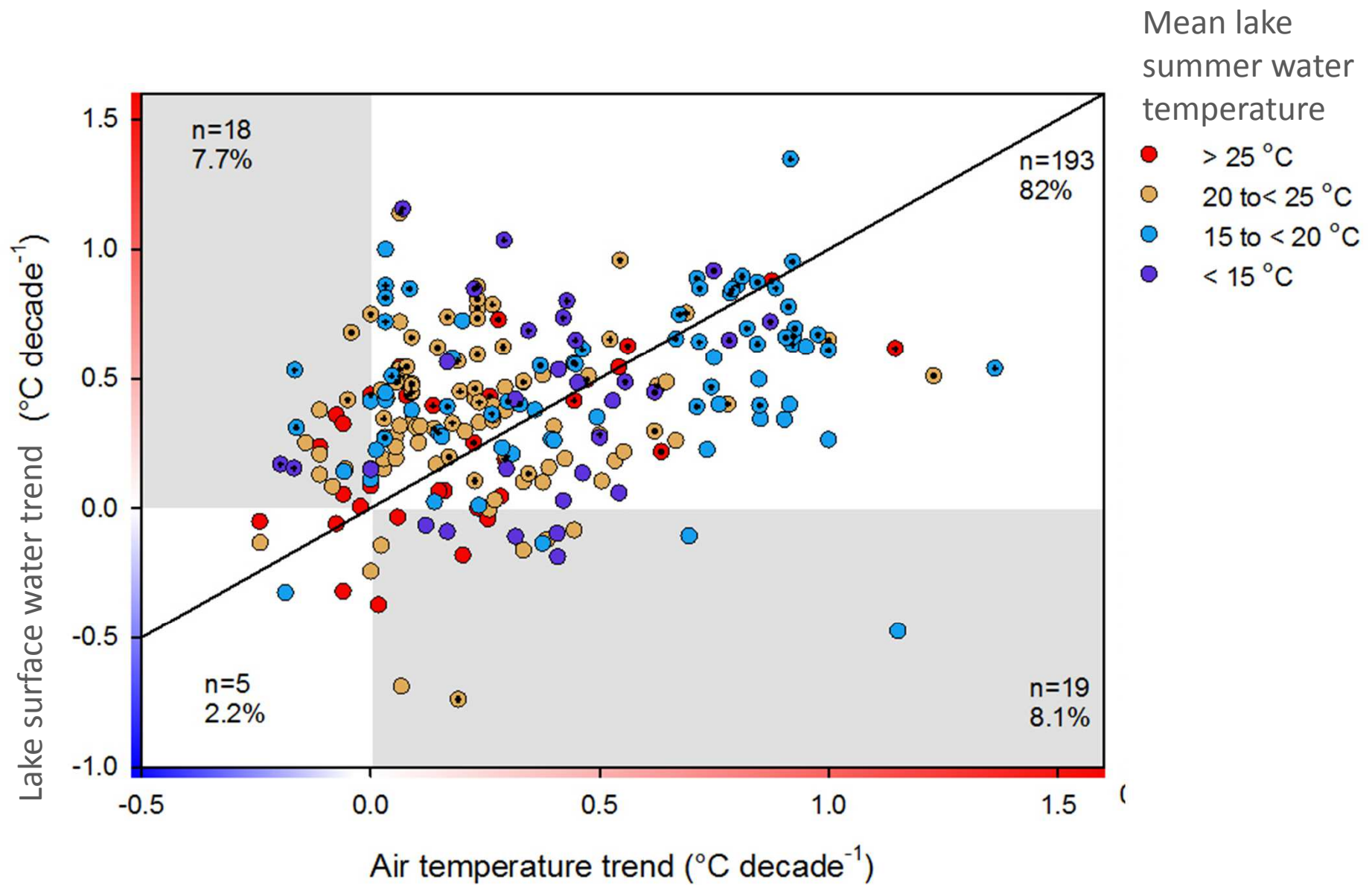
O'Reilly et al. 2003

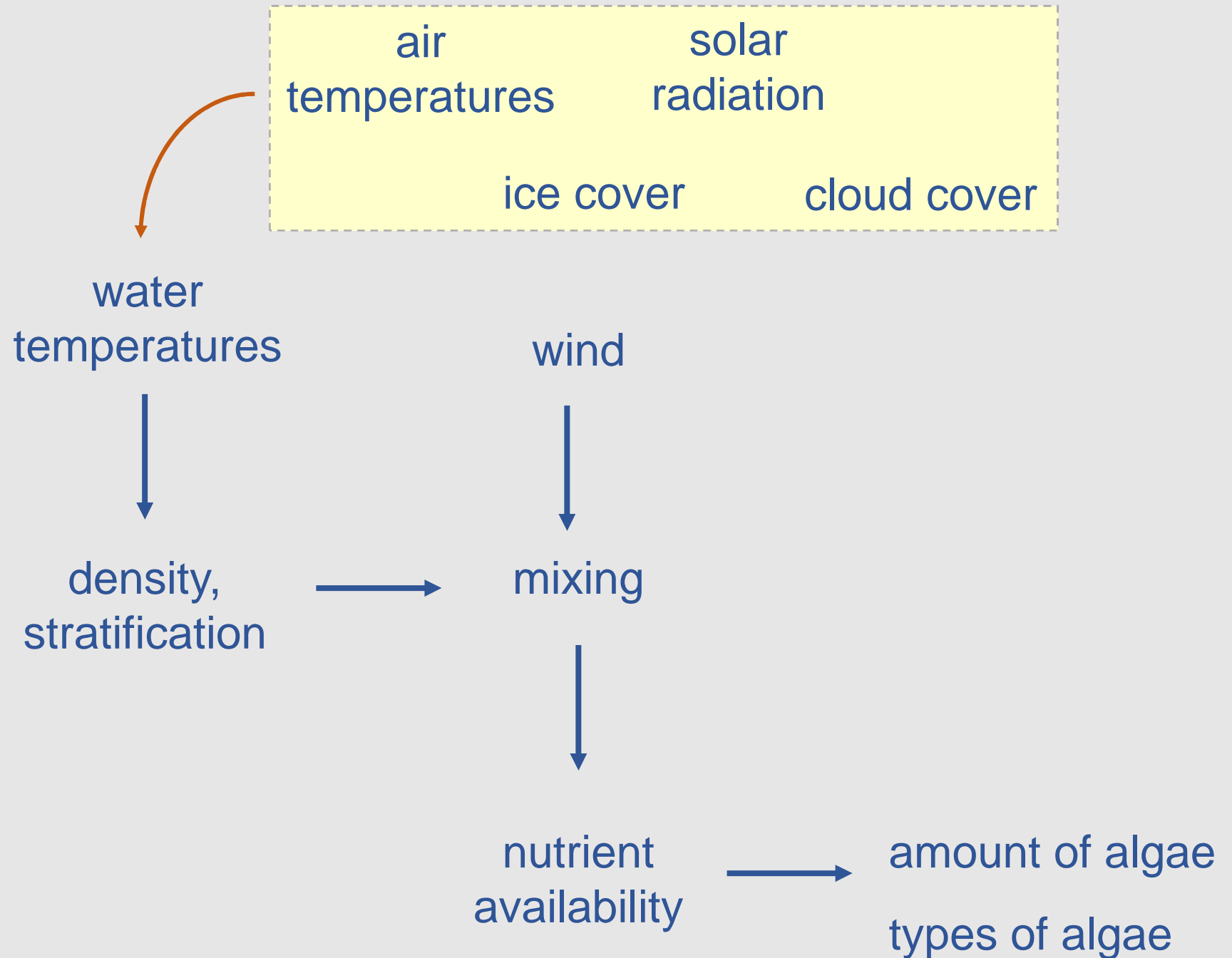
Lakes are warming at a global average of 0.34 C per decade



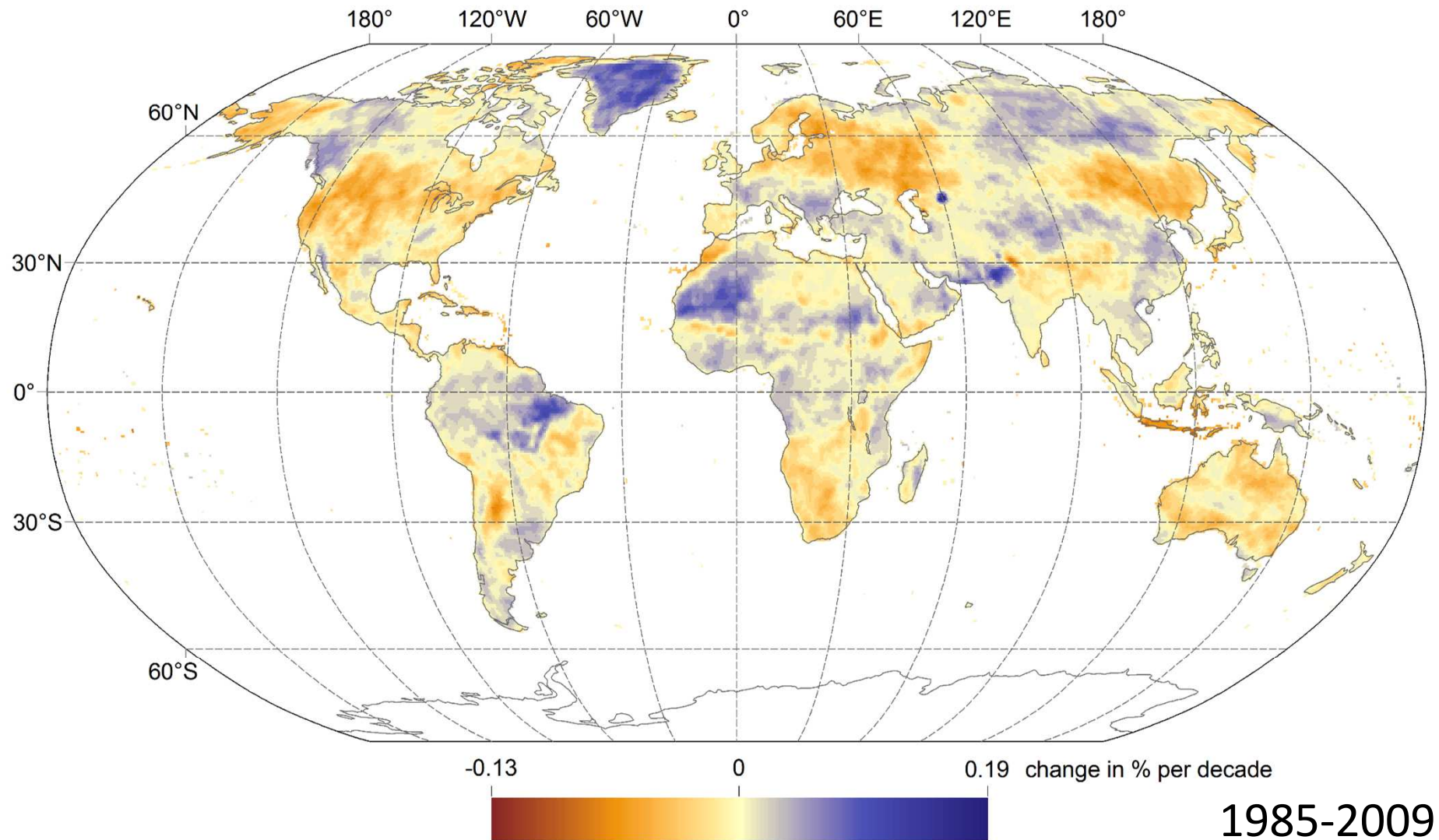
O'Reilly et al. 2015

1985-2009





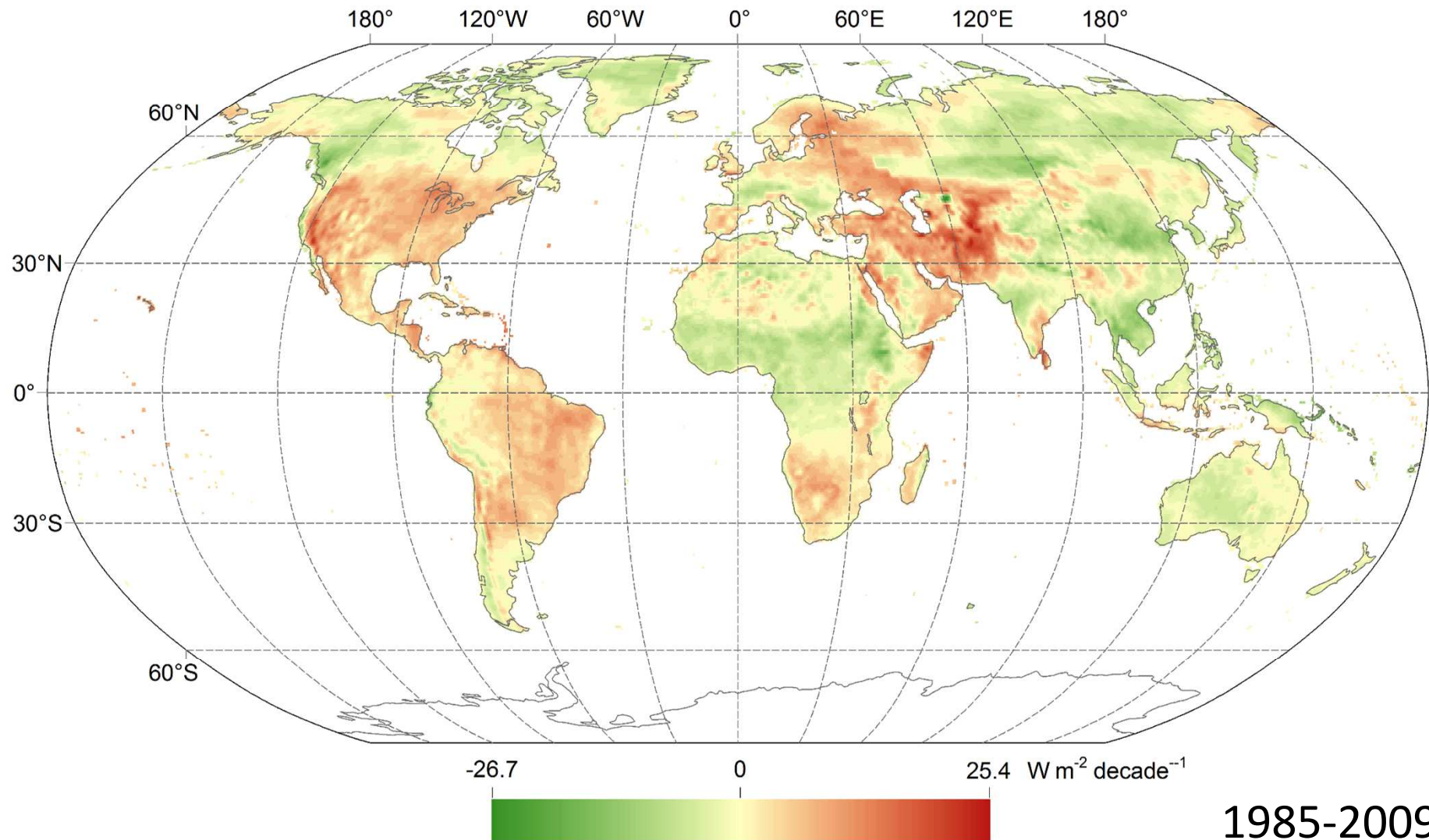
cloud cover trends



O'Reilly et al. 2015

PATMOS-x

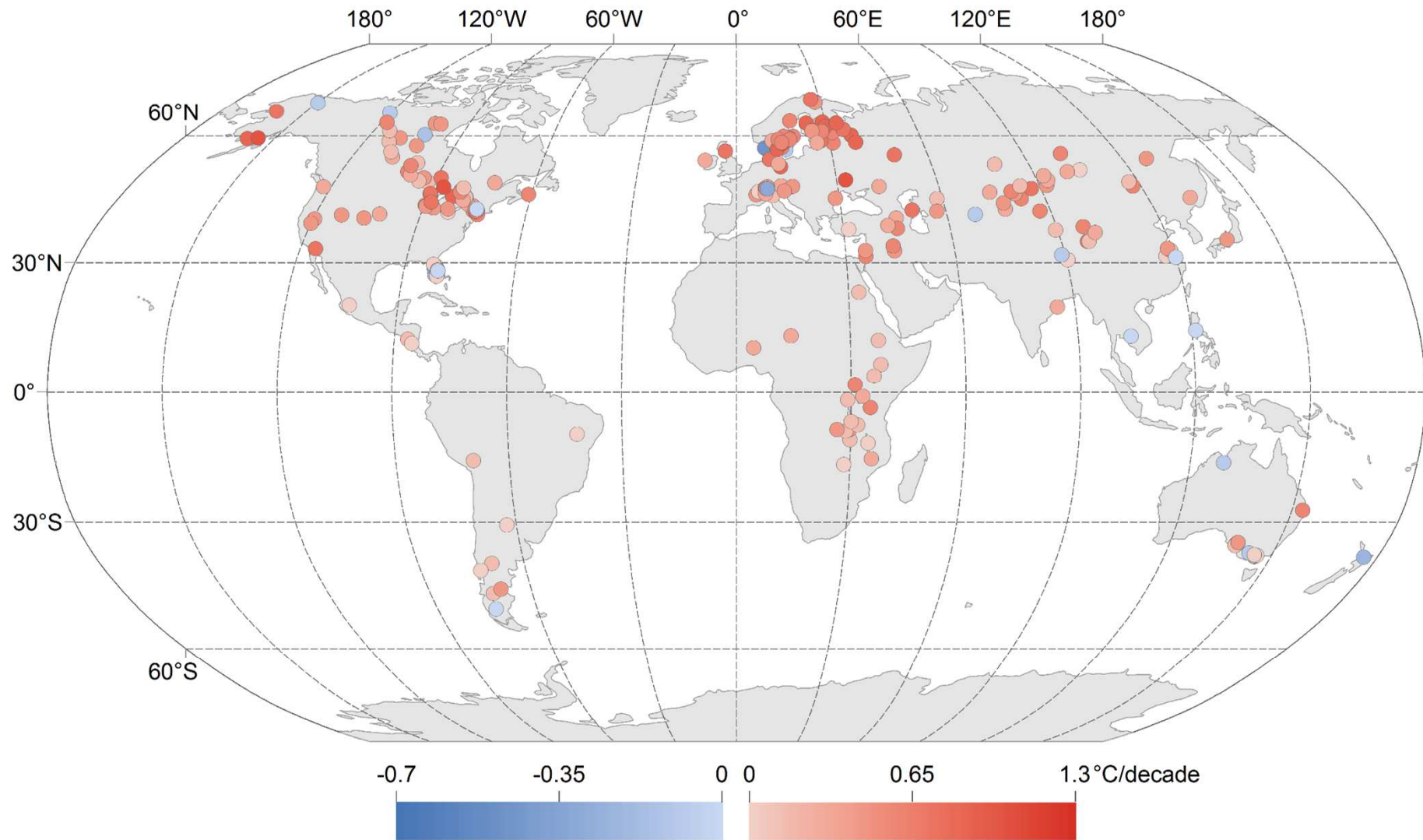
solar radiation trends



O'Reilly et al. 2015

1985-2009
GEWEX SRB

Lakes are warming at a global average of 0.34 C per decade



O'Reilly et al. 2015

1985-2009