



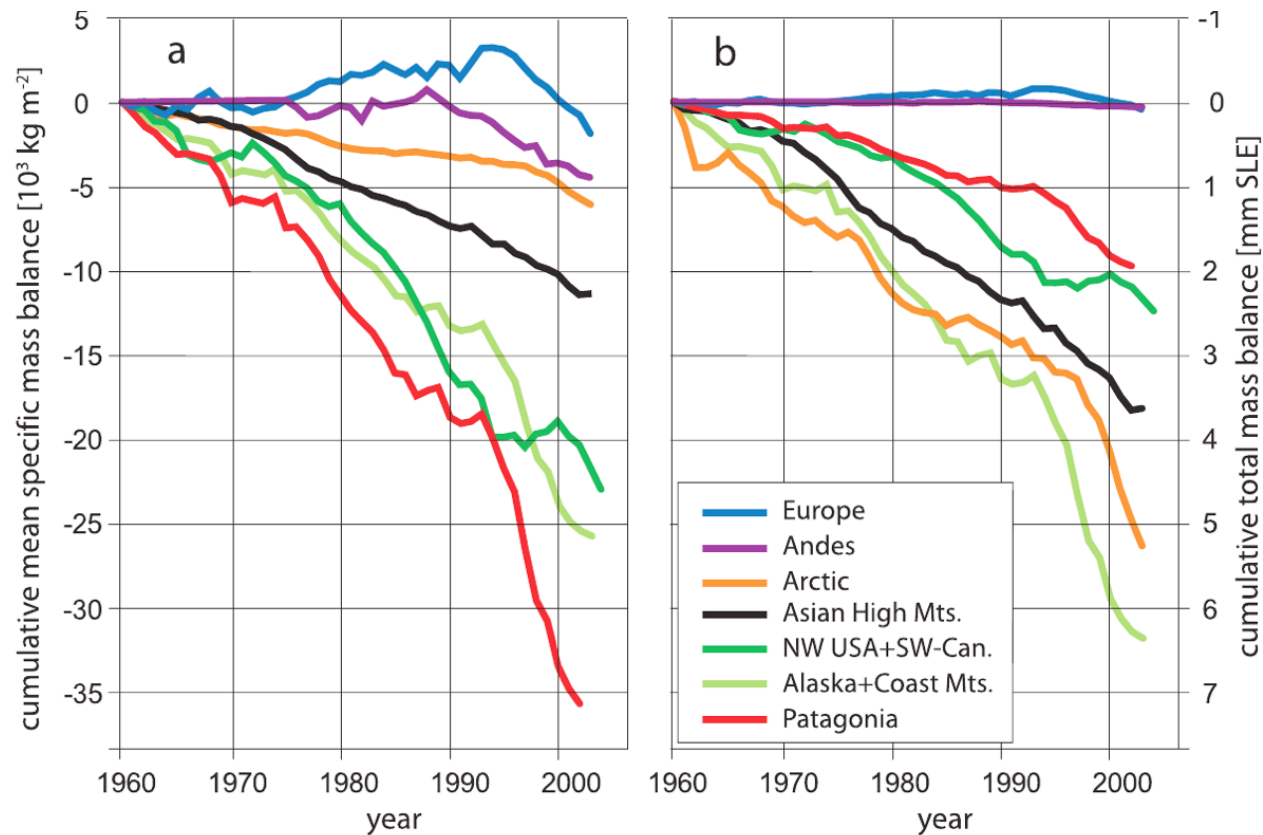
International Cryosphere  
Climate Initiative

# **The Future of Mountain Glaciers**

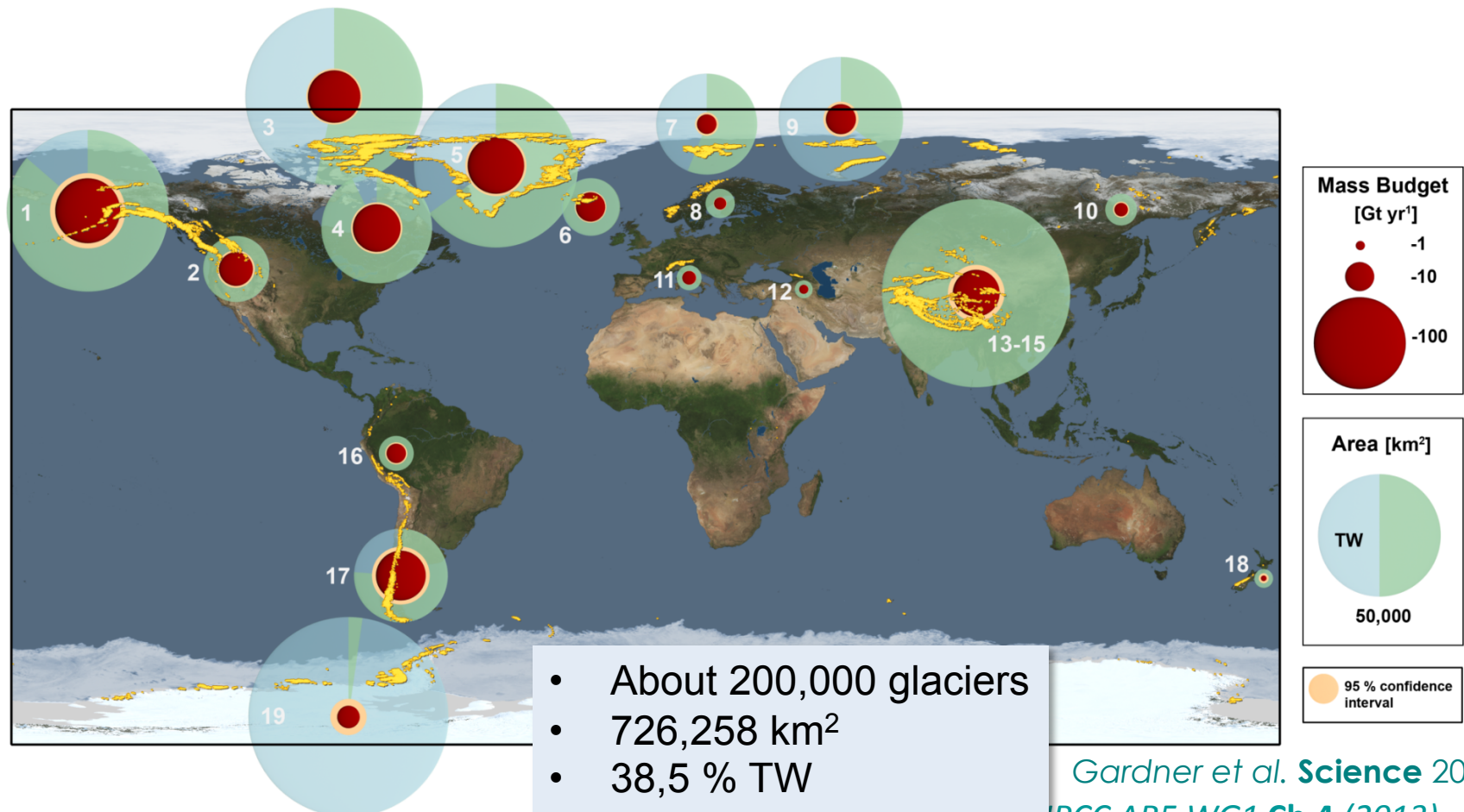
**Greater Preservation at 1.5 Degrees**

# Trends in 2007: Land Glacier Ice Loss

(from IPCC AR4, 2007)



AR 5, 2013:  
Glacier Shrinkage [Gt/yr]:  
2003 - 2009

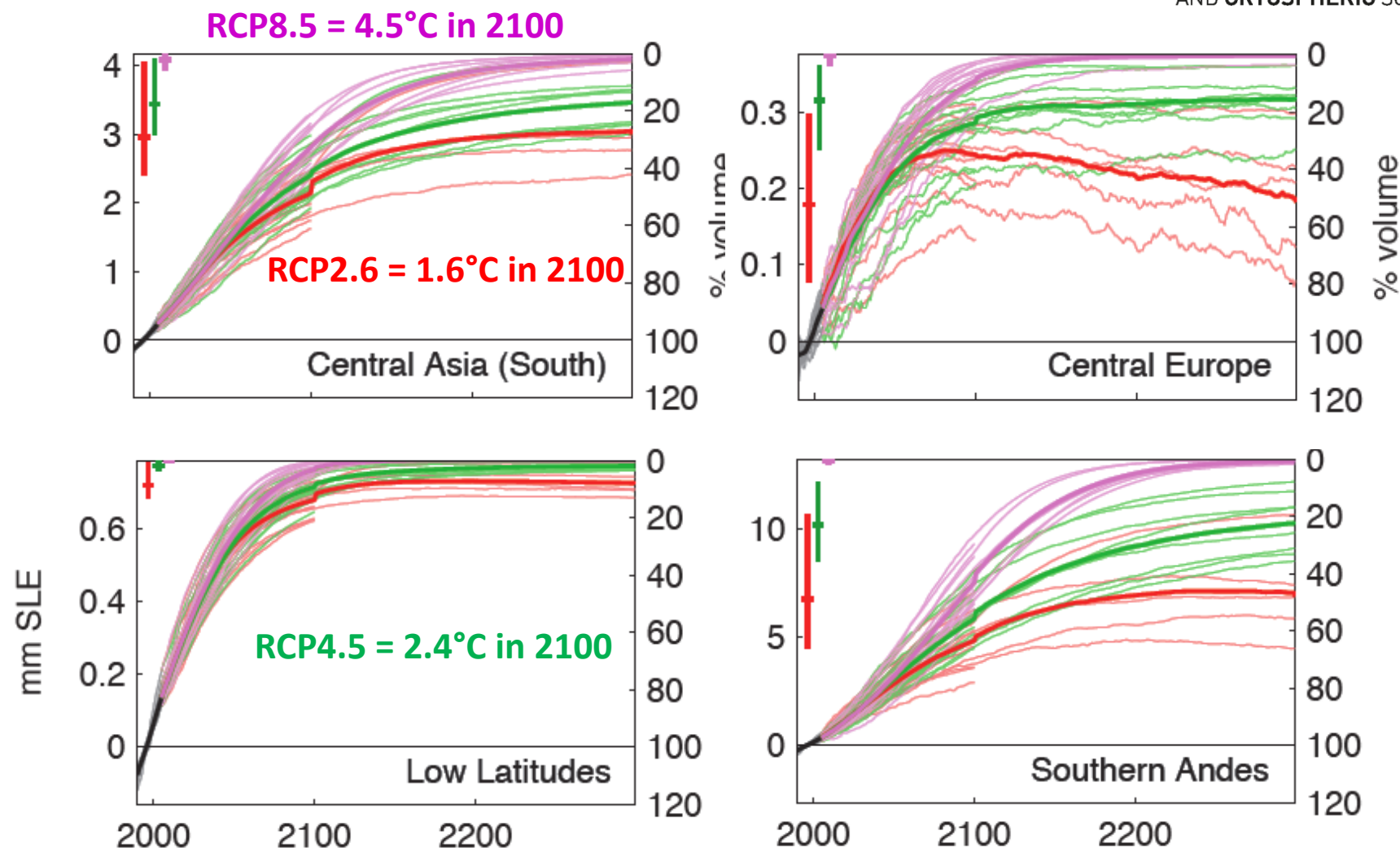


- About 200,000 glaciers
- 726,258 km<sup>2</sup>
- 38,5 % TW
- 412 mm SLE

Gardner et al. **Science** 2013  
IPCC AR5 WG1 Ch.4 (2013)

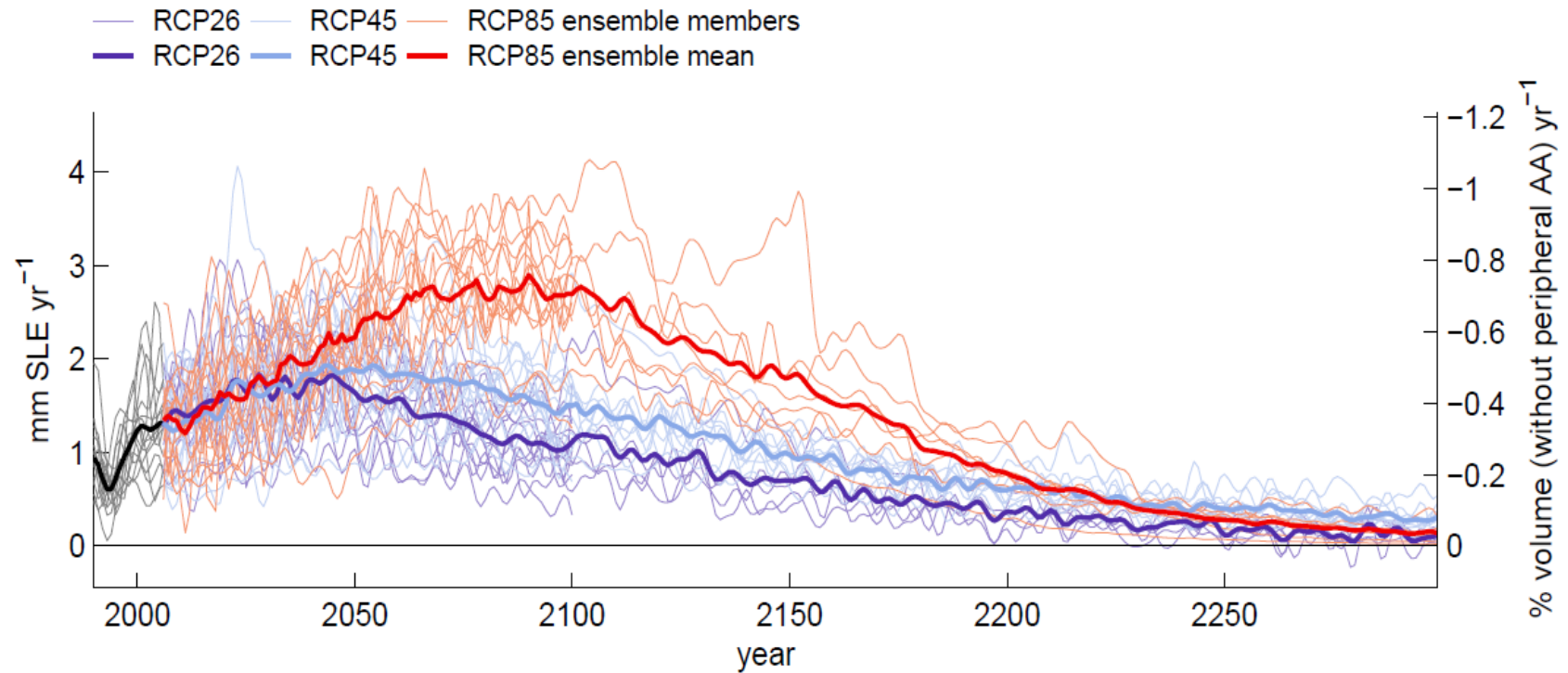


# Glacier Mass Loss – Different Regions Under Different Temperature Scenarios



# The Future of the Glaciers

Contribution to Sea-level Rise = Loss of Glacier Volume



Marzeion et al. **TC** 2012

# Take-Homes: Mountain Glaciers

- **Some glaciers (tropical, mid-low latitude) cannot survive even current to-date warming**
- **1.5 and 2 degrees difficult to distinguish (especially if focused on global SLR) at 2100 – clearer differences emerge later**
- **BUT important regional differences and local importance to water supplies**
- **Some regional glacier systems: Alps, southern Andes, parts of Himalayas serving Indus: preserve significantly more amounts of ice (and associated water services) at 1.5 degrees**