

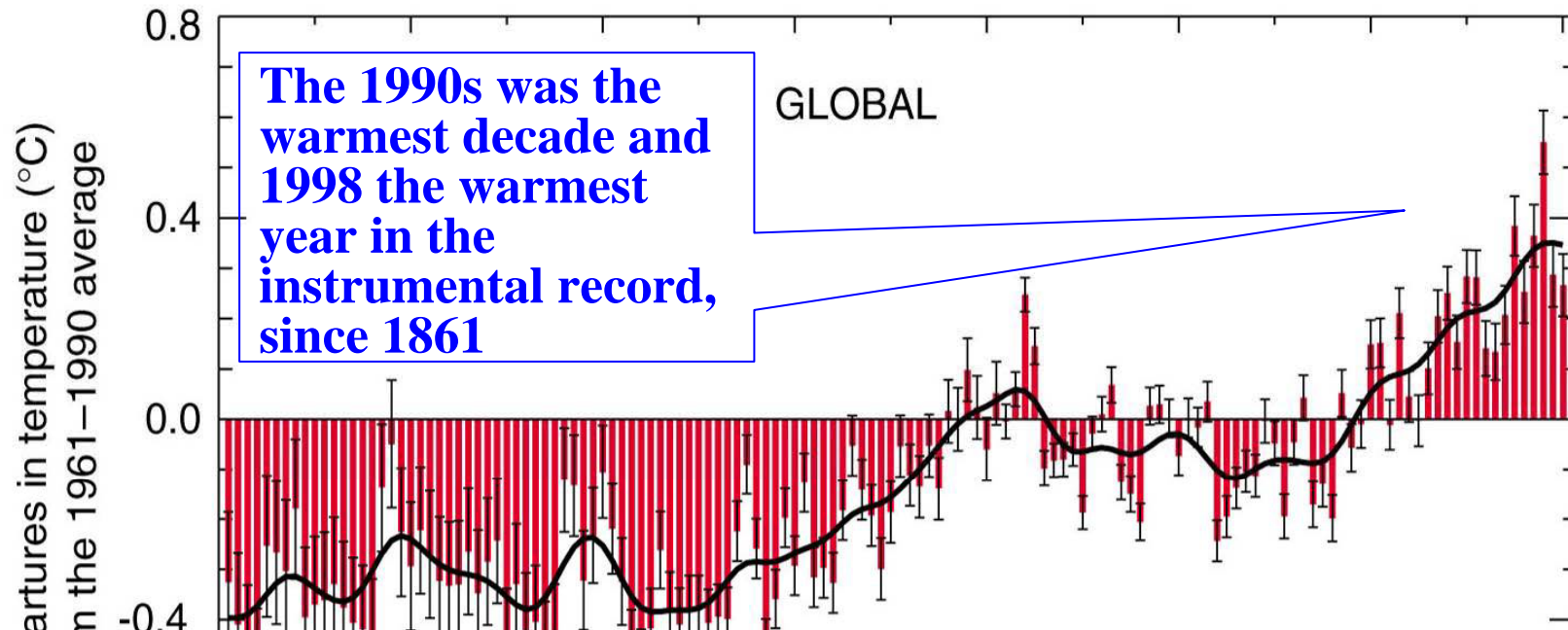
The Observation Facts of Global Climate Change

全球气候变化的观测事实



www.cleanairnet.org/caiasia

过去140年地球表面温度的变化



“The warming over the last hundred years is very unlikely to be due to internal variability alone as estimated from current models”

TAR WG I (2001)



Direct Observations of Recent Climate Change 近年气候变化的直接观测

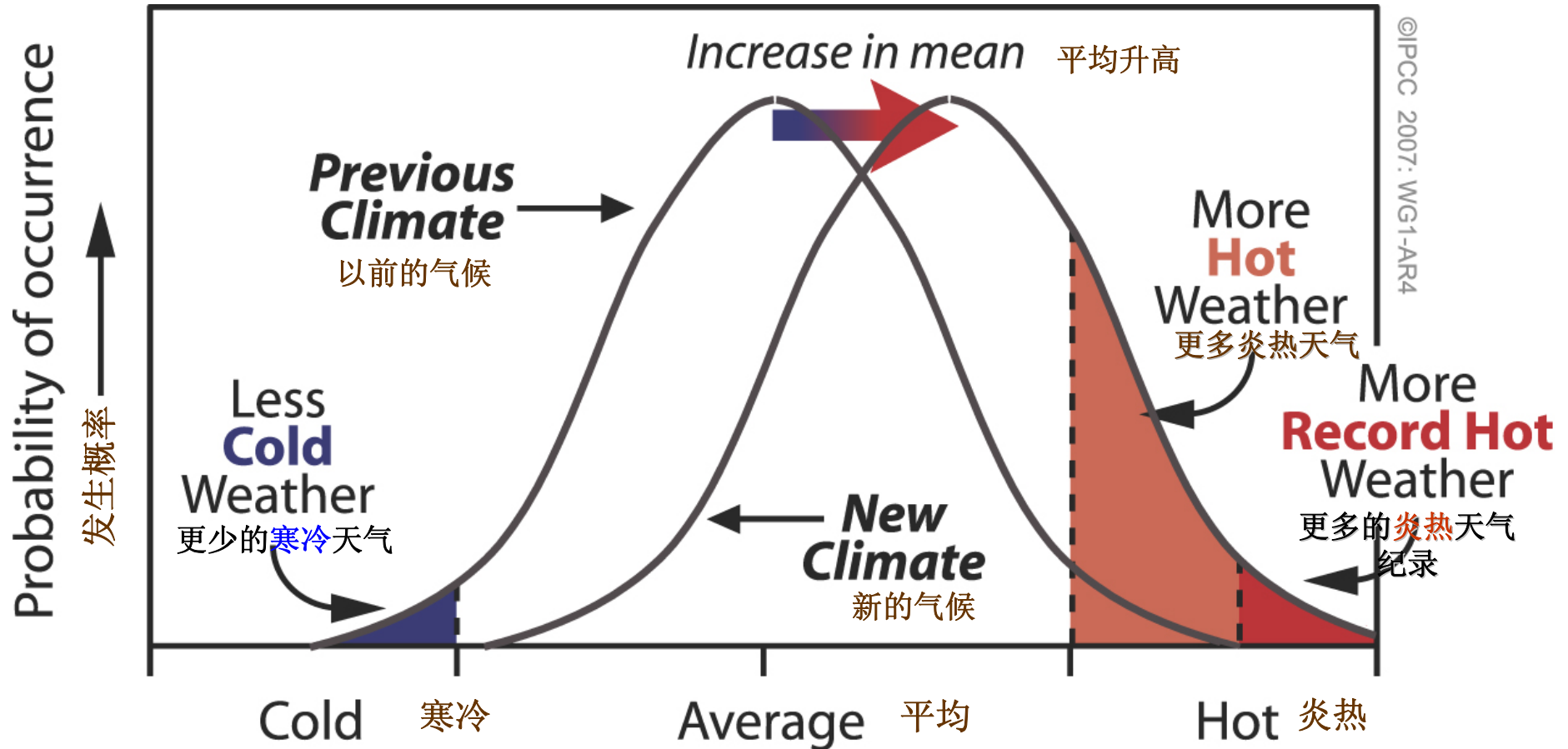
Since the TAR, progress in understanding how climate is changing in space and in time has been gained through:

- ☑ improvements and extensions of numerous datasets and data analyses (资料和分析)
- ☑ broader geographical coverage (地理覆盖范围)
- ☑ better understanding of uncertainties (不确定性理解)
- ☑ a wider variety of measurements (观测手段)

Warming of the climate system is **unequivocal**, as is now evident from observations of increases in global average air and ocean temperatures, widespread melting of snow and ice, and rising global mean sea level. (气候系统变暖是不容置疑的!)

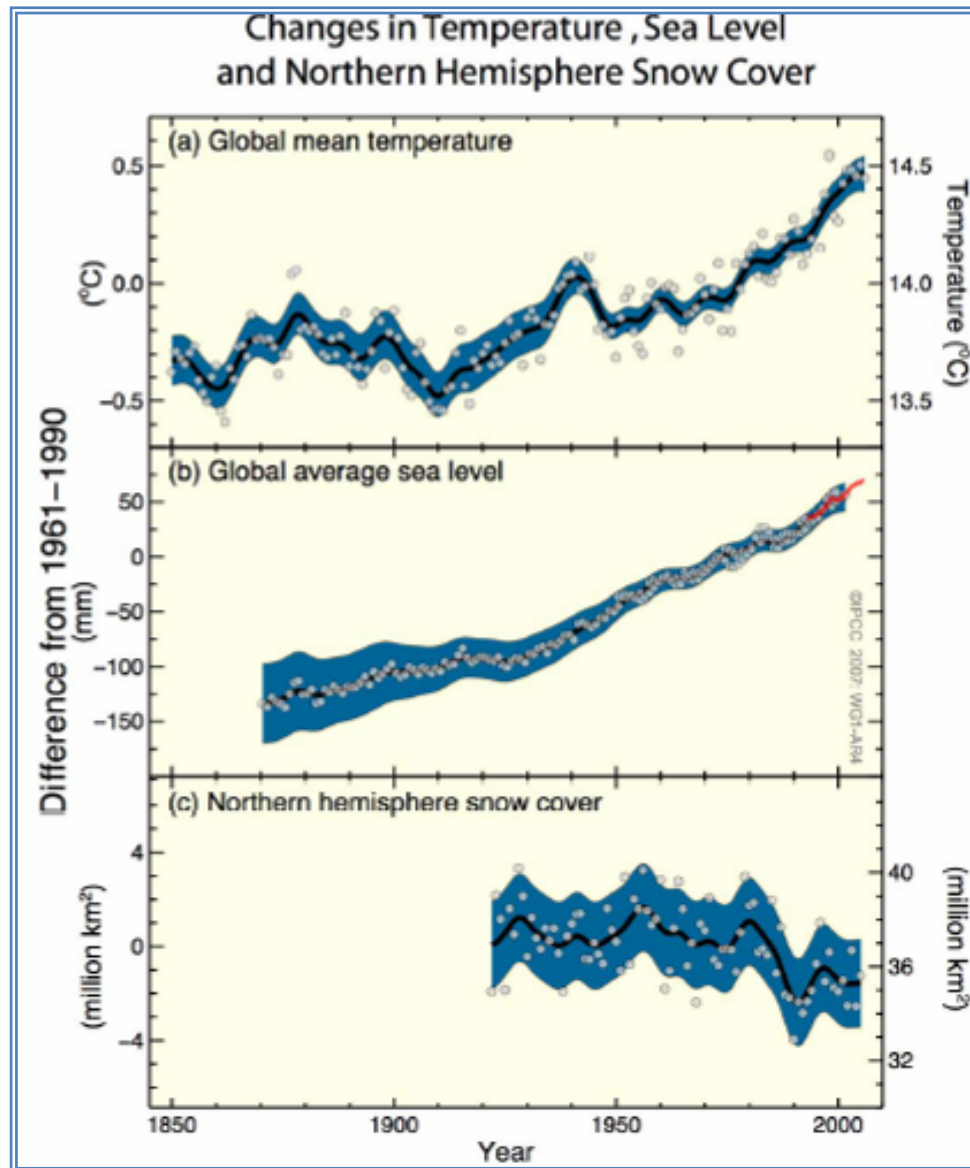
AR4 WG I (2007)

Increase in Temperatures 温度升高



AR4 WG I (2007)

Increase in Temperatures 温度升高



Global mean temperature
(全球平均温度)

Global average sea level
(全球平均海平面)

Northern hemisphere Snow
cover
(北半球雪盖)

AR4 WG I (2007)



Increase in Temperatures 温度升高

Global average air temperature

- ▣ Updated 100-year linear trend of **0.74** [0.56 to 0.92] °C for 1906-2005 (百年变化趋势为**0.74**, 高于**TAR**的**0.6**)
- ▣ Larger than corresponding trend of 0.6 [0.4 to 0.8] °C for 1901-2000 given in TAR

Average ocean temperature increased to depths of at least 3000 m – ocean has absorbed 80% of heat added

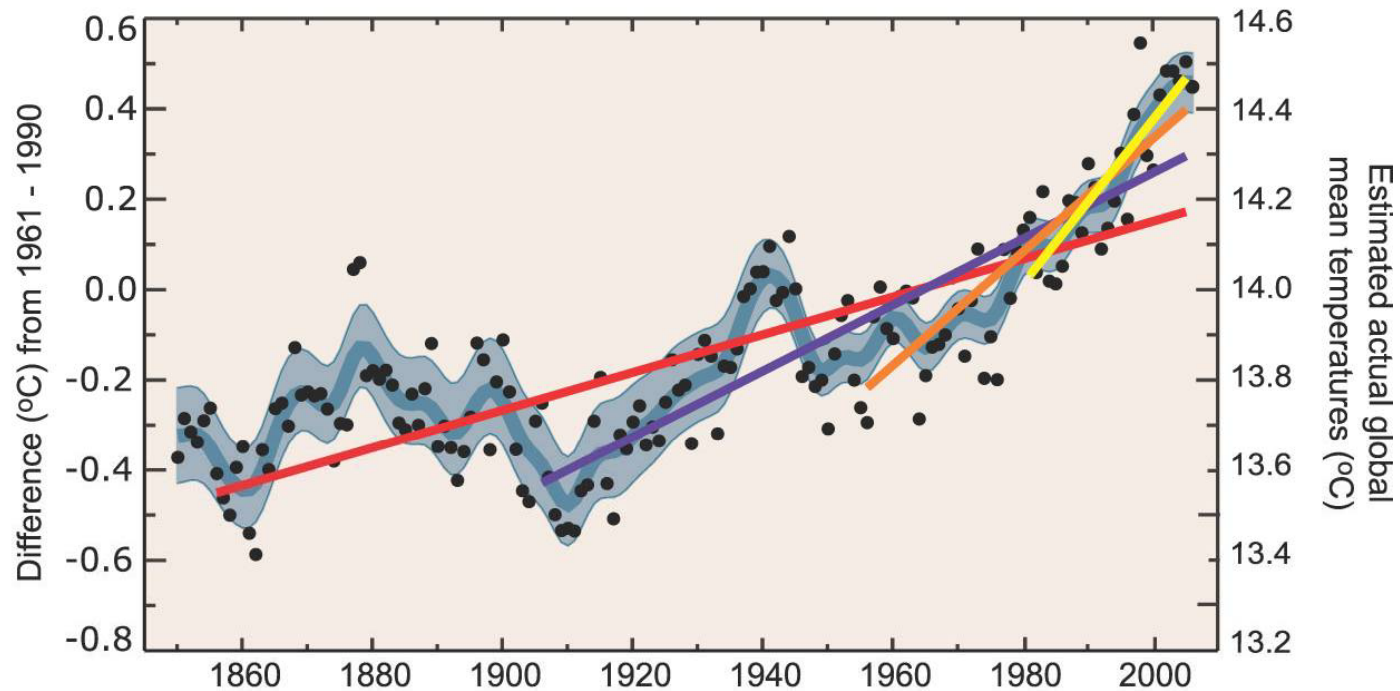
- ▣ Seawater expansion and SLR (海水膨胀和海平面上升)

Increase in Temperatures 温度升高

Warmest 12 years:

1990,1995,1997,1998,1999,2000,2001,2002,2003,2004,2005,2006

Global Mean Temperature

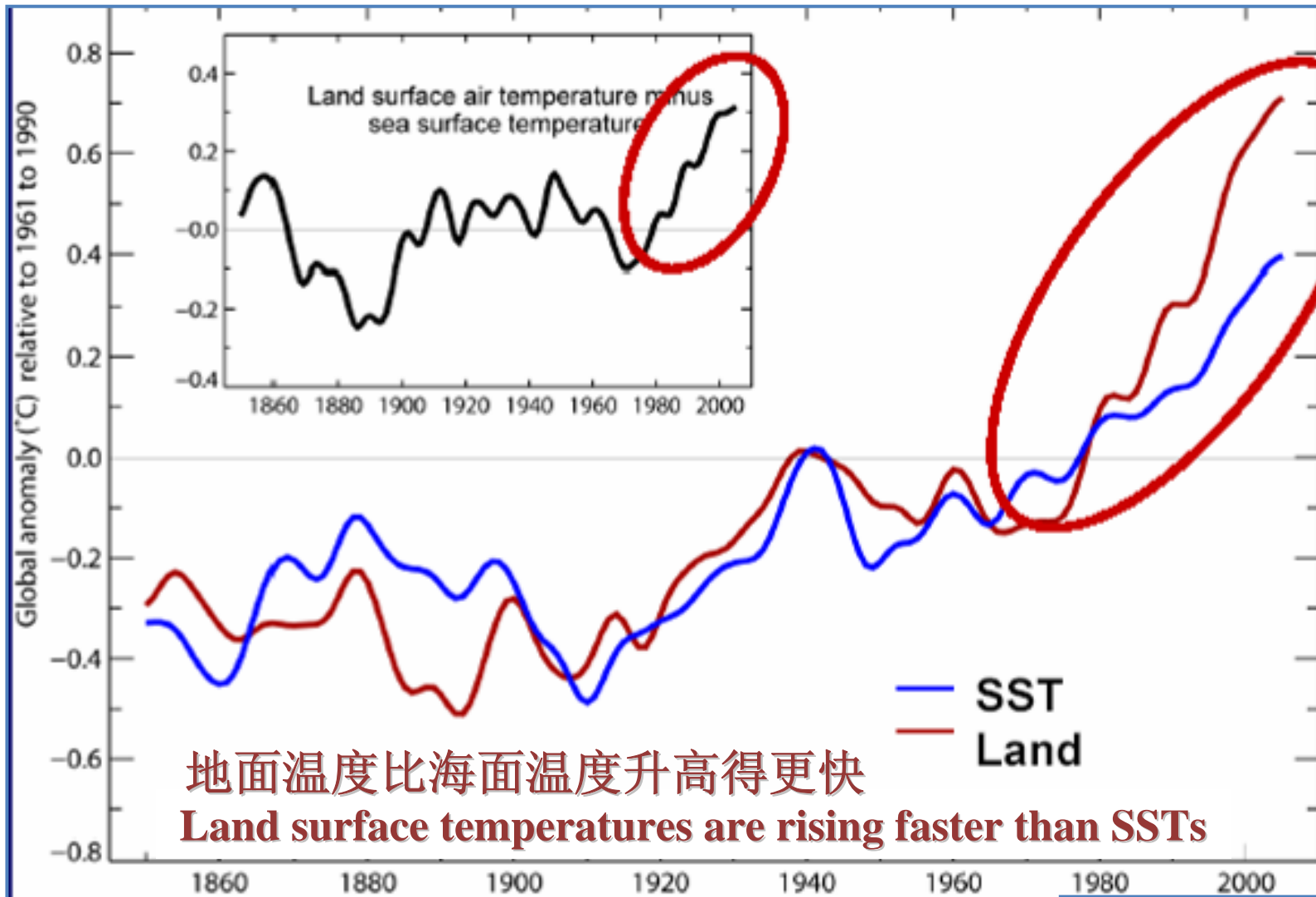


- Annual mean
- Smoothed series
- 5-95% decadal error bars

Period	Rate
Years	°C per decade
25	0.177±0.052
50	0.128±0.026
100	0.074±0.018
150	0.045±0.012

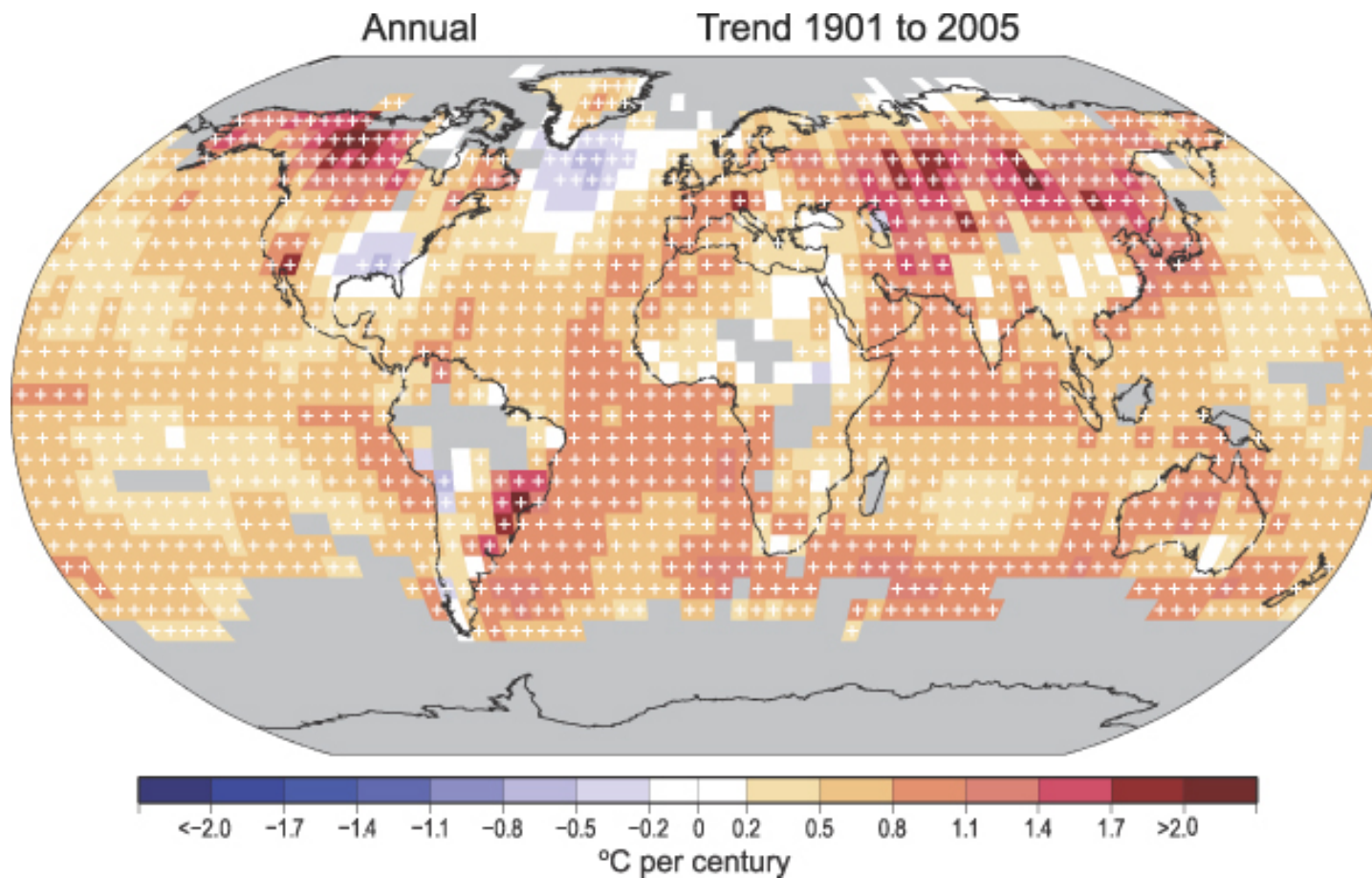
AR4 WG I (2007)

Increase in Temperatures 温度升高



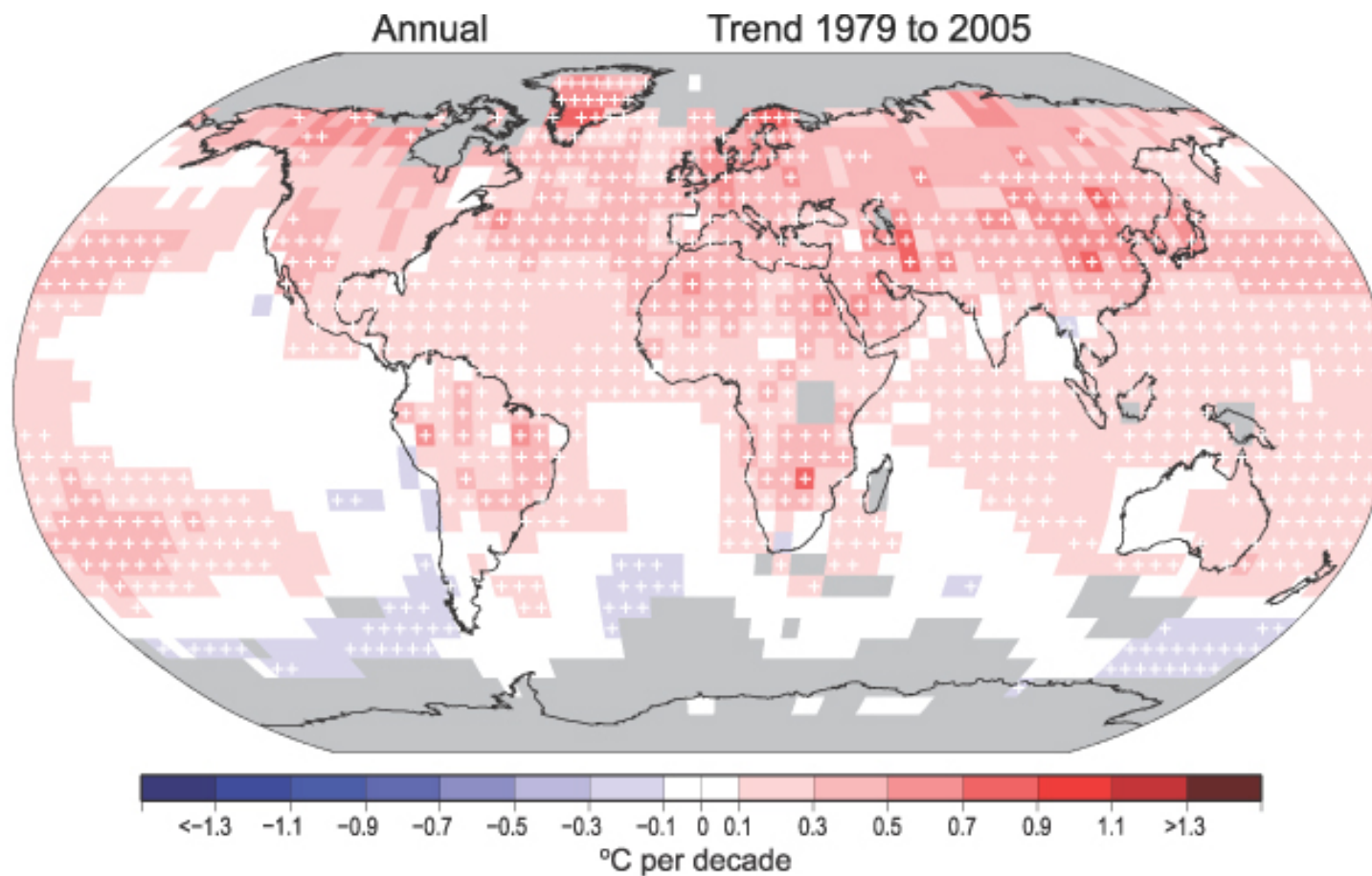
AR4 WG I (2007)

Increase in Temperatures 温度升高



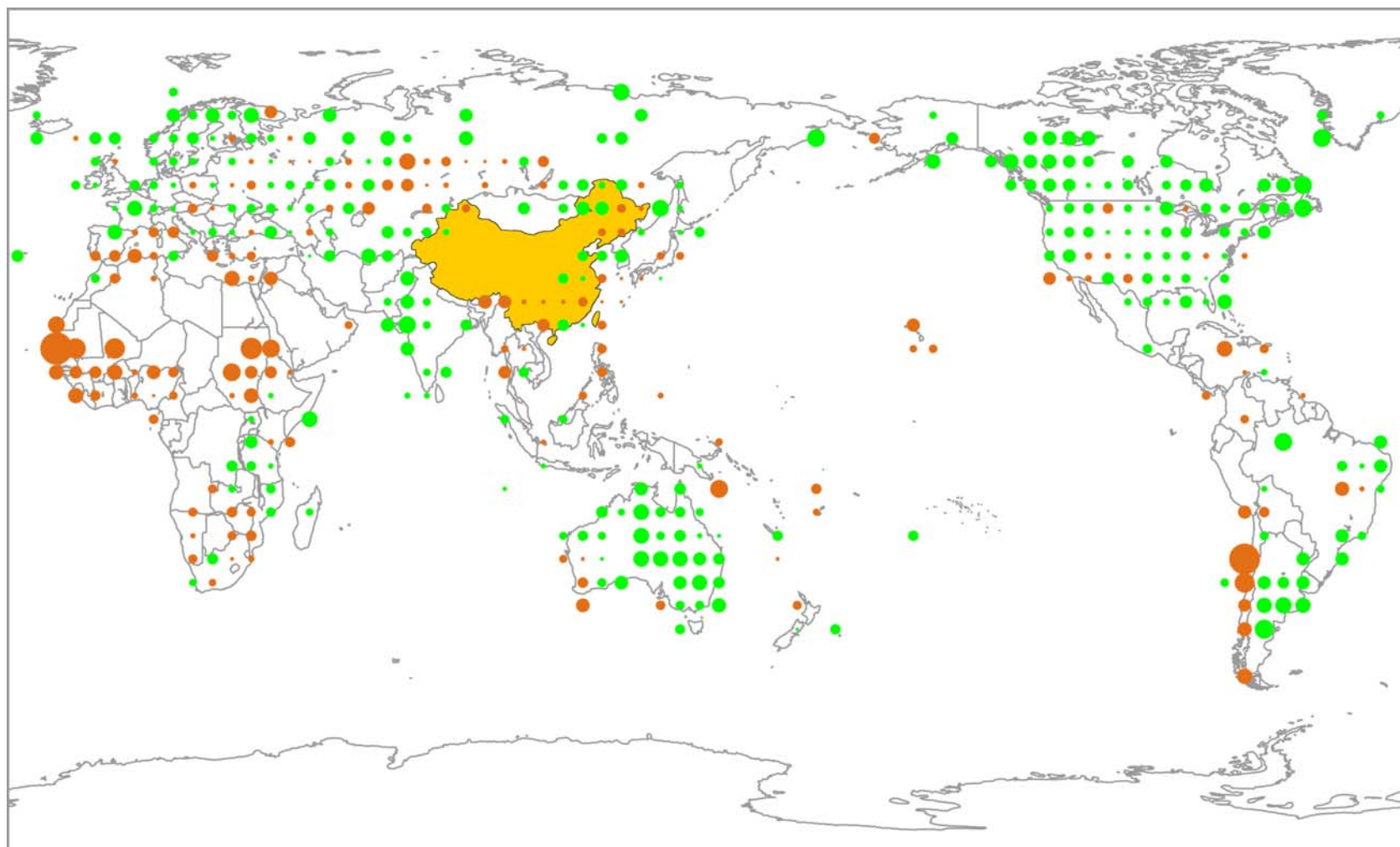
AR4 WG I (2007)

Increase in Temperatures 温度升高



AR4 WG I (2007)

The annual precipitation trend from 1900 to 1999 (1900-1999年降水趋势)



TAR WG I (2001)