Science is Not Enough:
The Need for Planetary Design of Geopolitics

Invited Talk-Panel on "Planetary Data, Planetary Governance"

DESIGNING GEOPOLITICS

An Interdisciplinary Symposium on Computational Jurisdictions, Emergent Governance, Public Ecologies

Hosted by the Center for Design & Geopolitics in the UCSD Division of Calit2

UCSD, La Jolla, CA

June 3, 2011

Dr. Larry Smarr

Director, California Institute for Telecommunications and Information Technology

Harry E. Gruber Professor,

Dept. of Computer Science and Engineering

Jacobs School of Engineering, UCSD

Follow me on Twitter: lsmarr

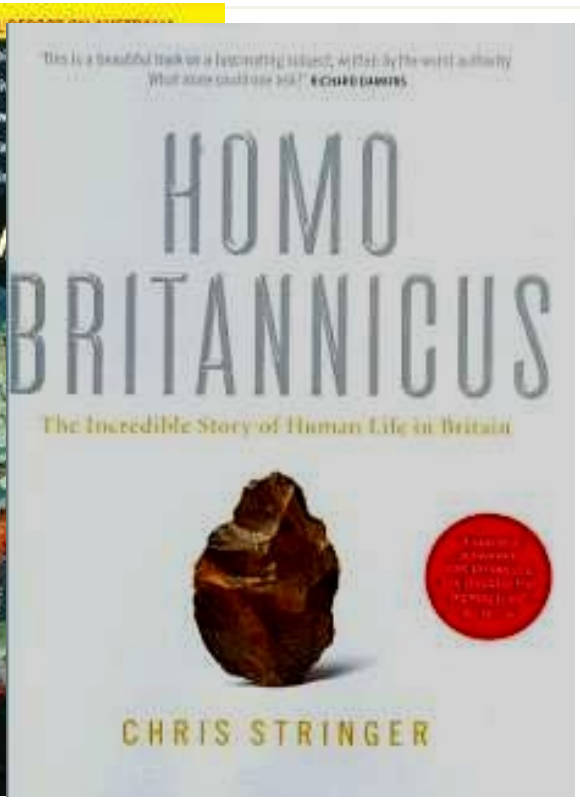
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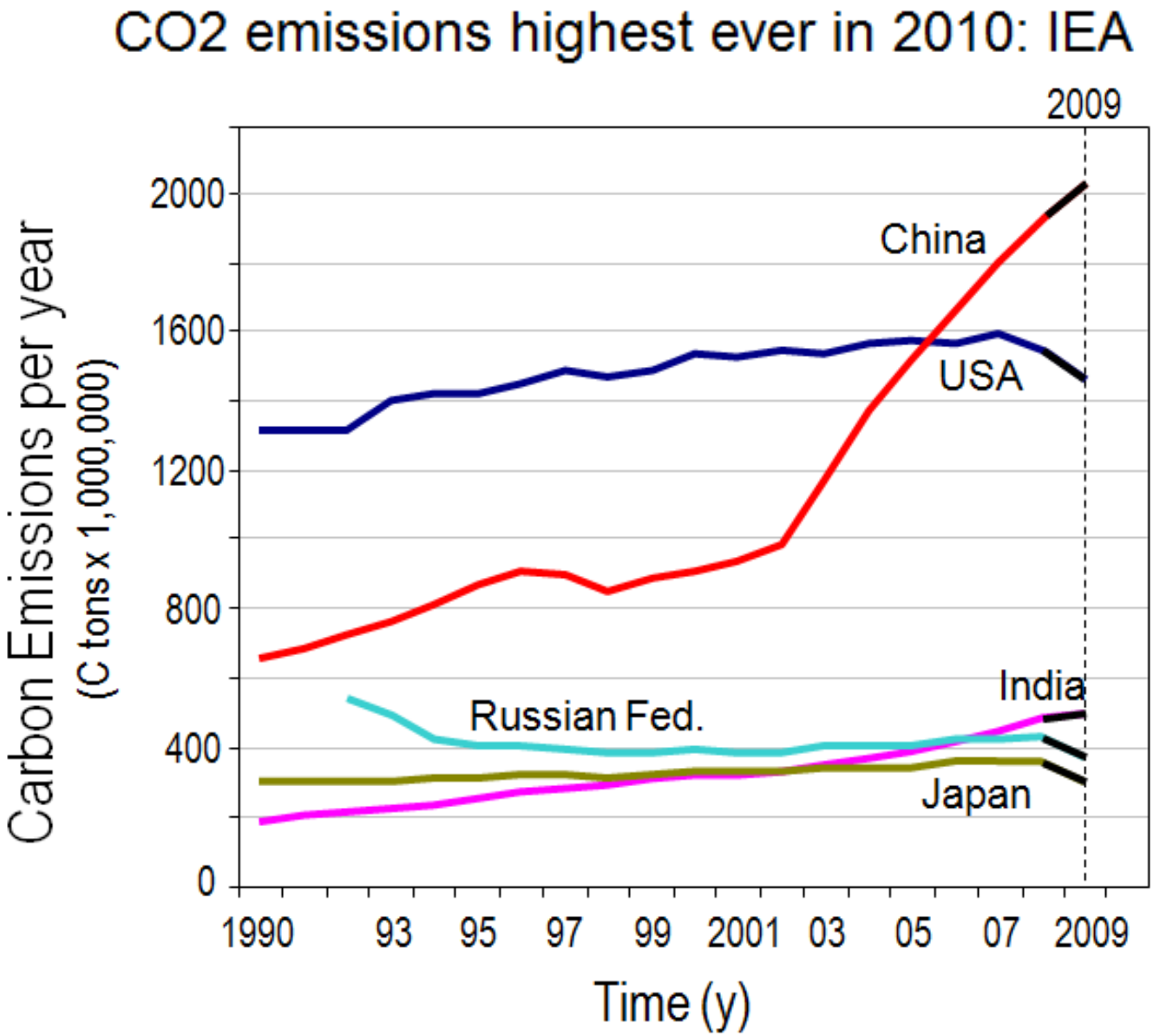
Atmospheric CO_2 Levels for 800,000 Years and Projections for the 21st Century

Each Ice Age
Swept the British Isles
Clean of Humans--
Then Repopulation





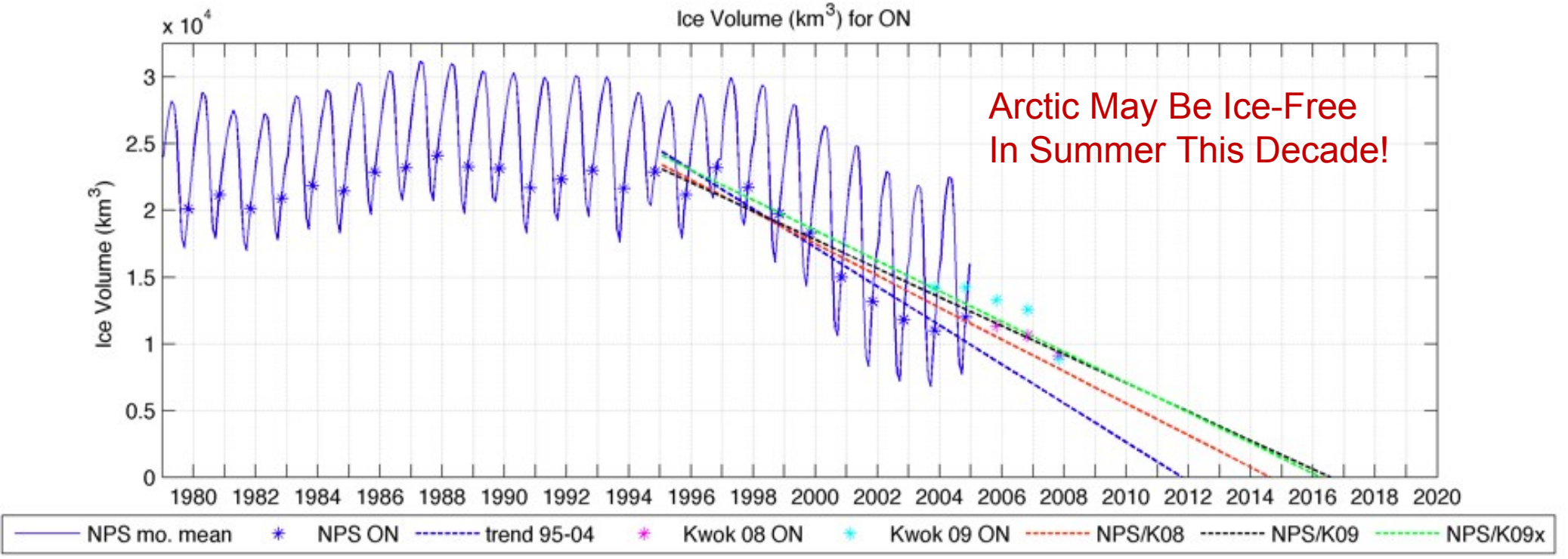
China Has Caught Up and Surpassed the US: Together They Dominate Global Emissions

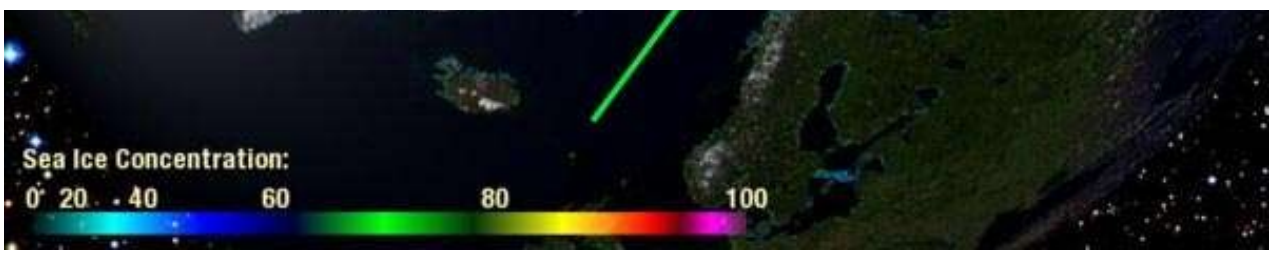


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Arctic Ice Melting Faster Than Expected:
Surely People Will Stop When They Understand the Future Risk!







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Source: Wieslaw Maslowski, NPS

it²

Leading Causes of Preventable Deaths in the United States in the Year 2000

1/3 of Deaths

Cause	Number of deaths resulting
Tobacco Smoking	435,000 deaths or 18.1% of the total deaths
Overweight and Obesity	365,000 deaths or 15.2% of the total deaths.
Alcohol consumption	85,000 deaths or 3.5% of the total deaths.
Infectious diseases	75,000 deaths or 3.1% of the total deaths.
Toxicants	55,000 deaths or 2.3% of the total deaths.
Traffic collisions	43,000 deaths or 1.8% of the total deaths.
Incidents involving firearms	29,000 deaths or 1.2% of the total deaths.
Sexually transmitted diseases	20,000 deaths or 0.8% of the total deaths.
Drug abuse	17,000 deaths or 0.7% of the total deaths.

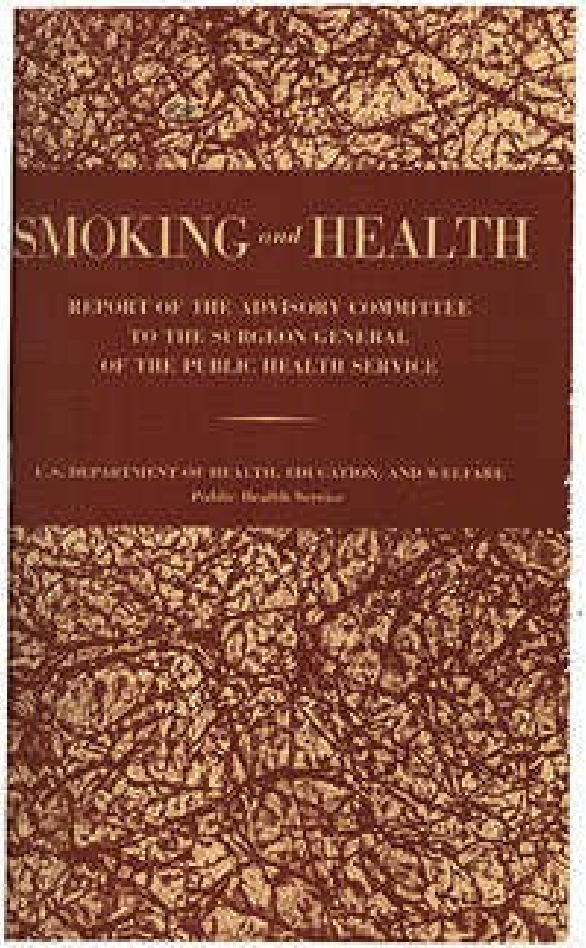
Let's Study How Humans Have Reacted to These Clear Dangers

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Mokdad AH, Marks JS, Stroup DF, Gerberding JL (March 2004). "Actual causes of death in the United States, 2000". JAMA 291 (10): 1238–45. doi:10.1001/jama.291.10.1238. PMID 15010446. www.csdp.org/research/1238.pdf.

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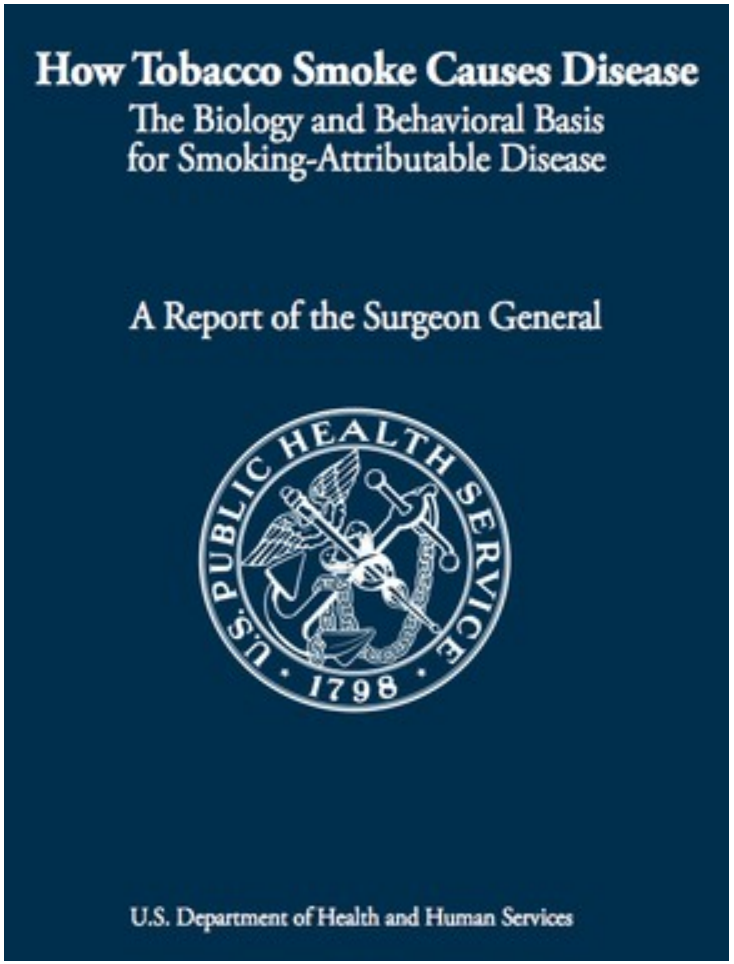
Science Has Known Smoking Tobacco Is Dangerous for Your Future Health For 50 Years



Jan. 1964

Nearly 50 Years

30
Surgeon General
Reports

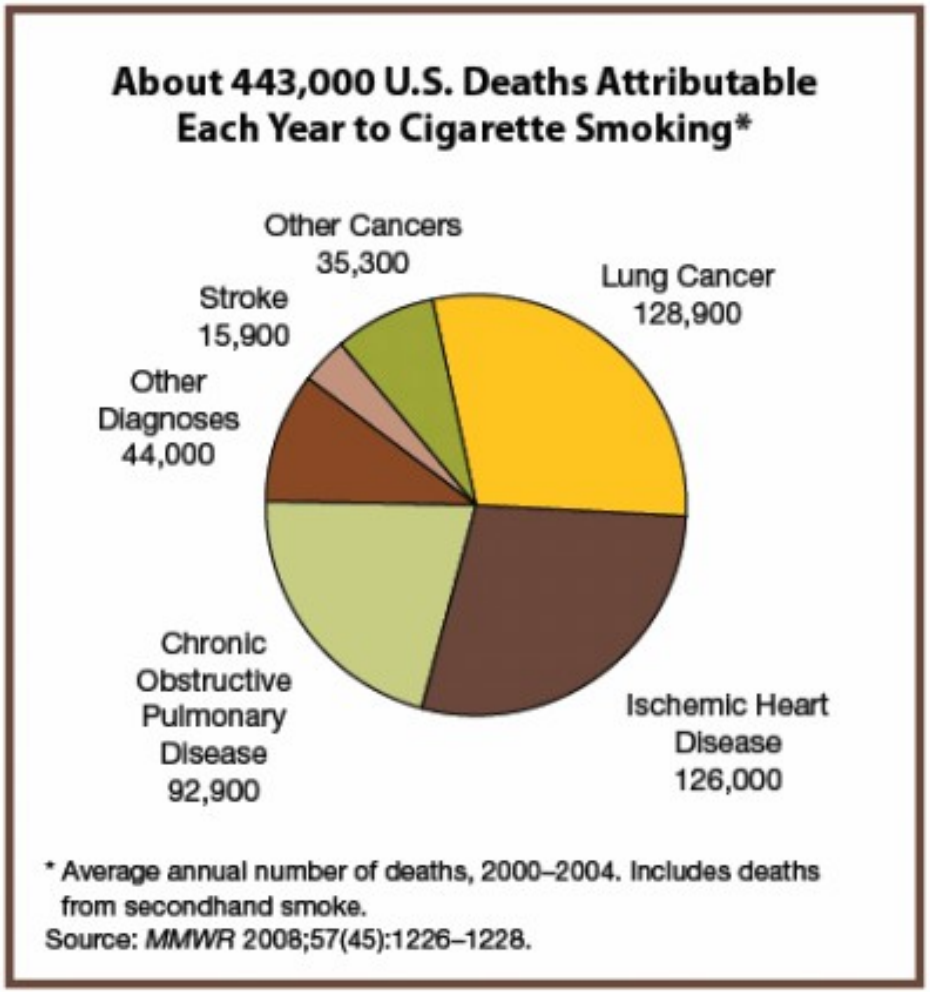


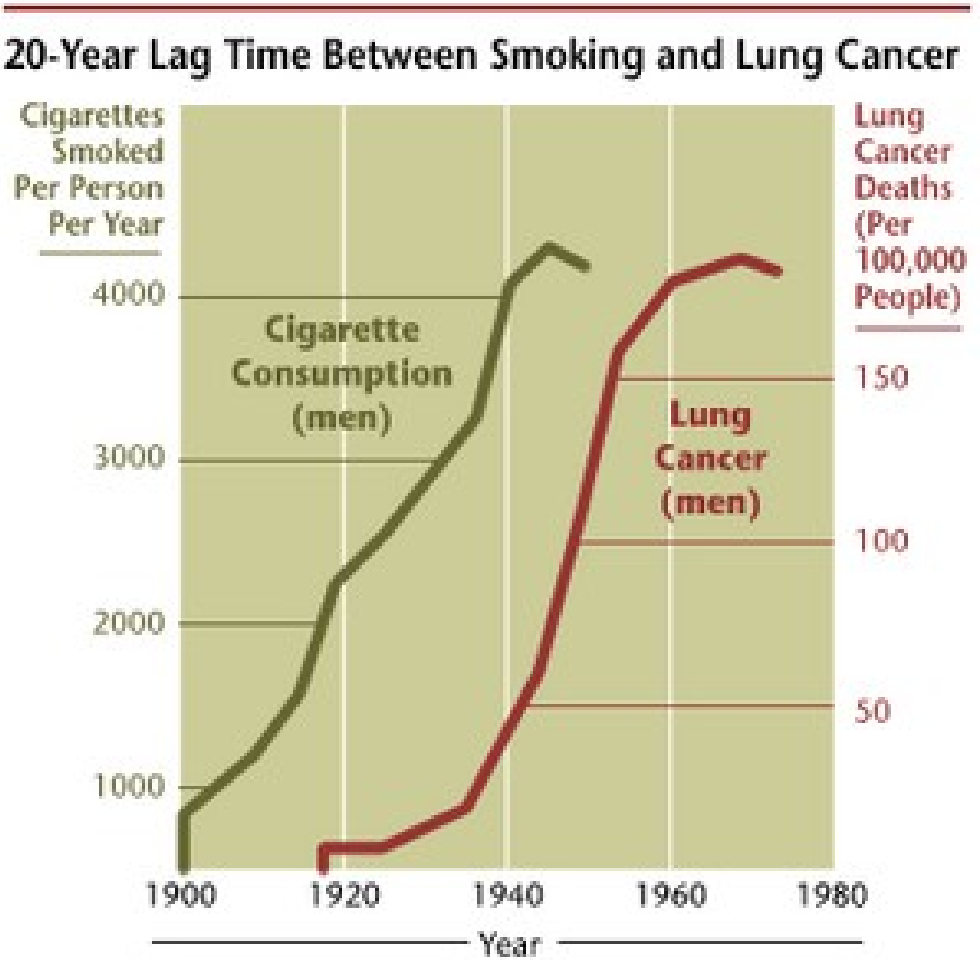
Dec. 2010

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"Tobacco Use is The Single Most Preventable Cause Of Disease, Disability, & Death In The United States"-CDC





Another 8.6 million live with a serious illness caused by smoking.
Despite these risks, ~46.6 million U.S. adults smoke cigarettes

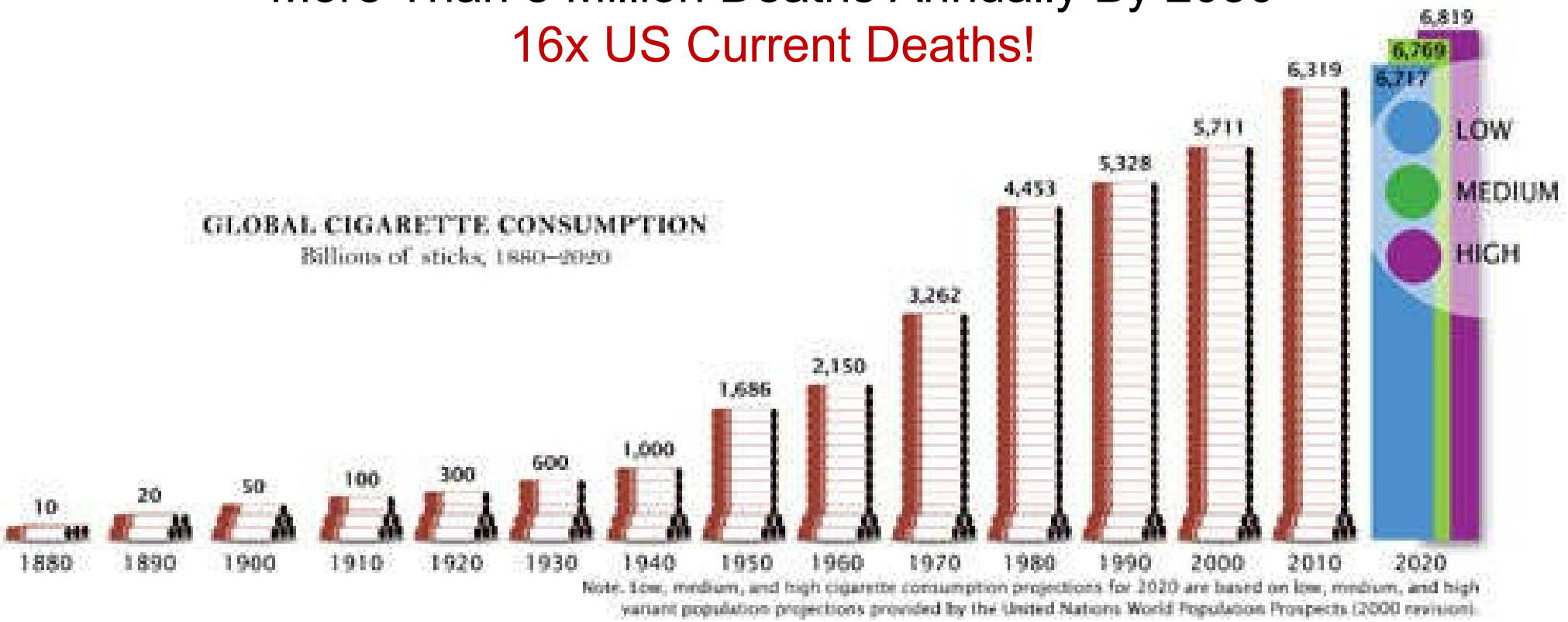
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www.cdc.gov/chronicdisease/resources/publications/aag/osh.htm

In Spite of the Scientific Knowledge, Global Cigarette Consumption Has Tripled Since 1960

Current Trends Show That Tobacco Use Will Cause More Than 8 Million Deaths Annually By 2030

16x US Current Deaths!

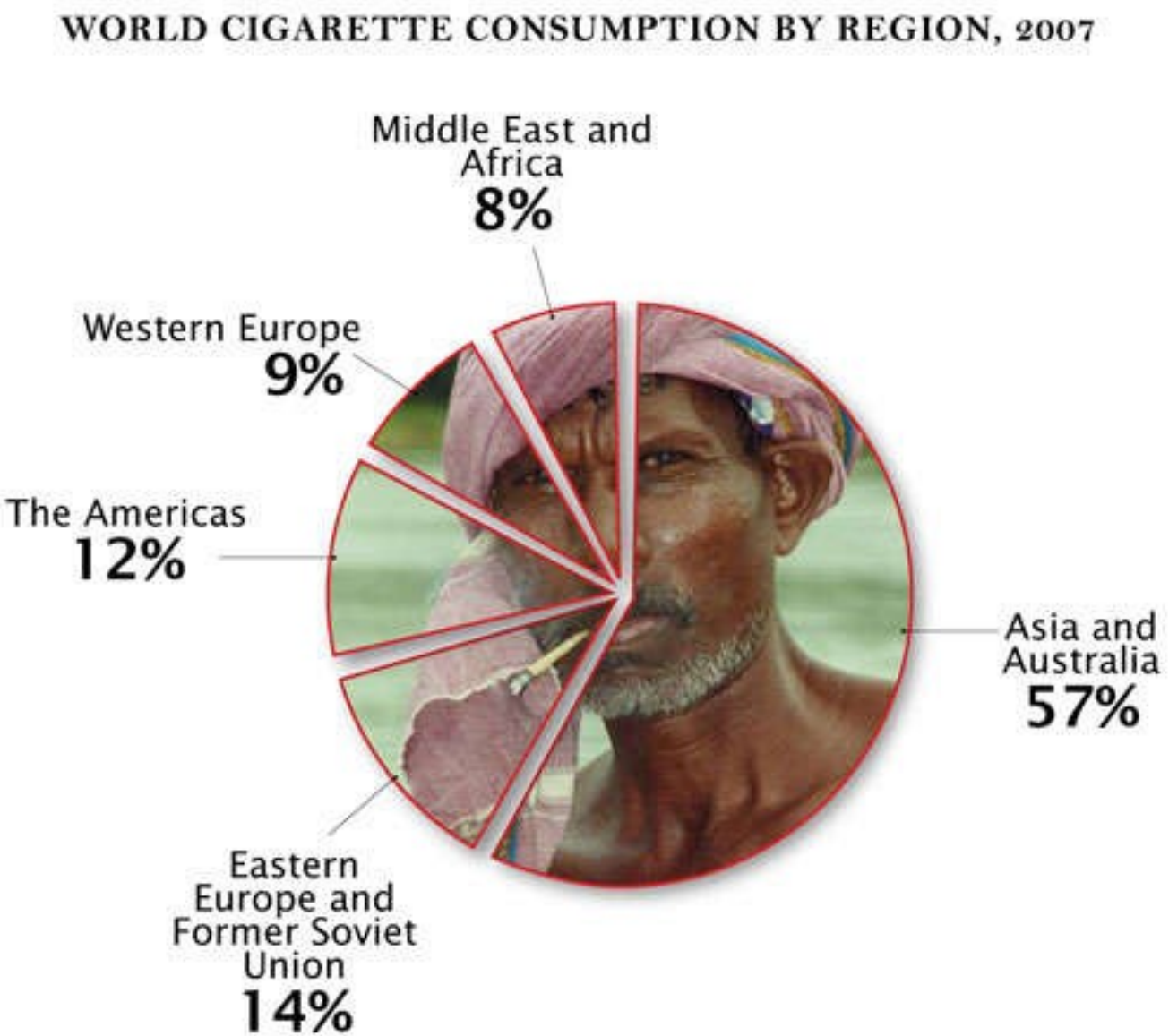


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www.tobaccoatlas.org/consumption.html

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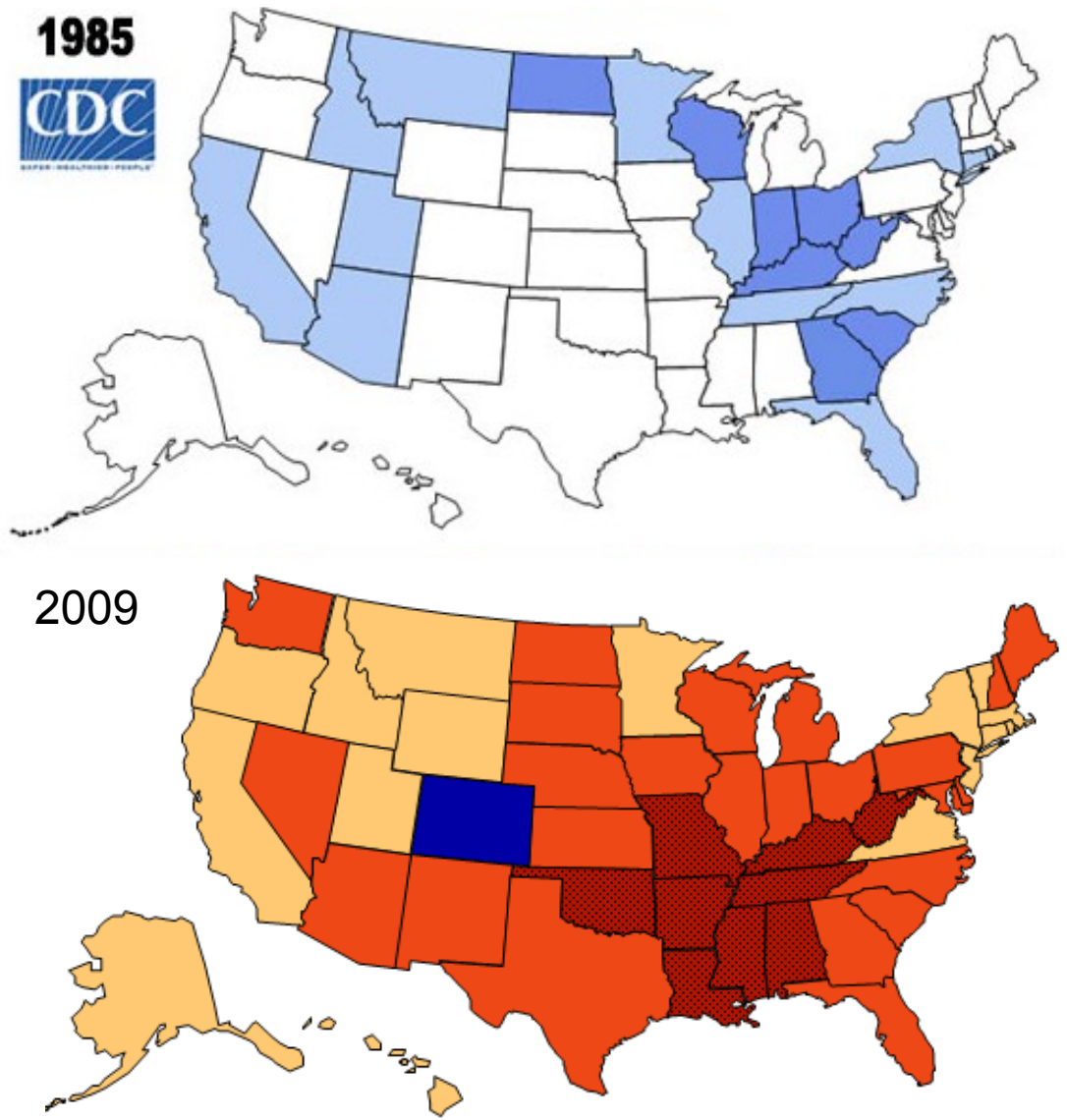
The US Cigarette Consumption Habit Has Been Adopted by the World



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During the 2000s, The Fraction of the Population That is Overweight or Obese Has Greatly Increased

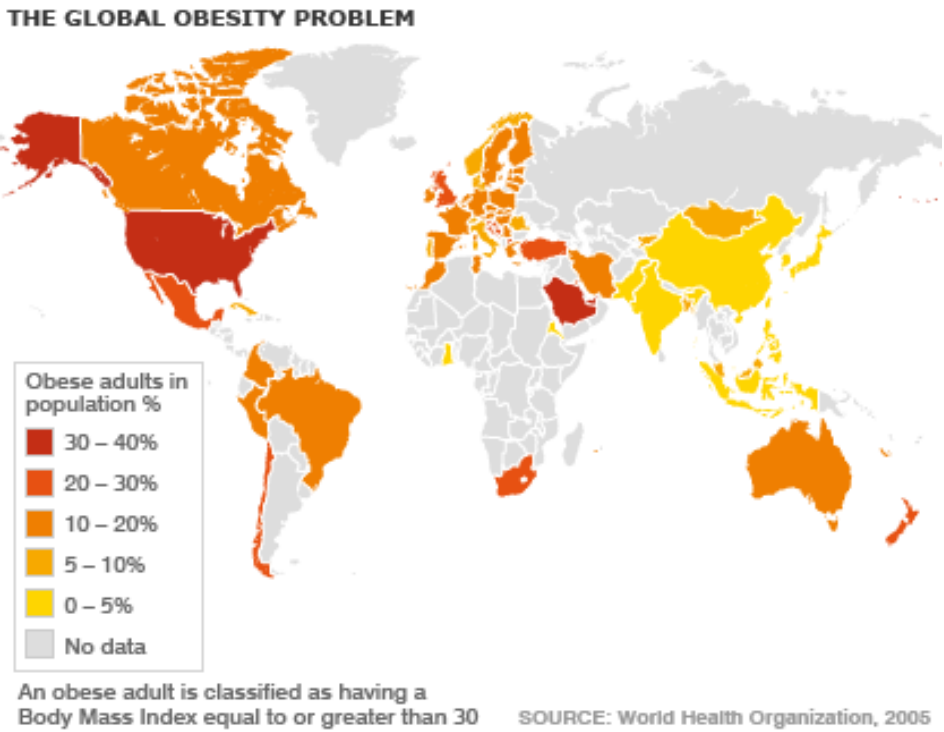
Source: Behavioral Risk Factor Surveillance System, CDC

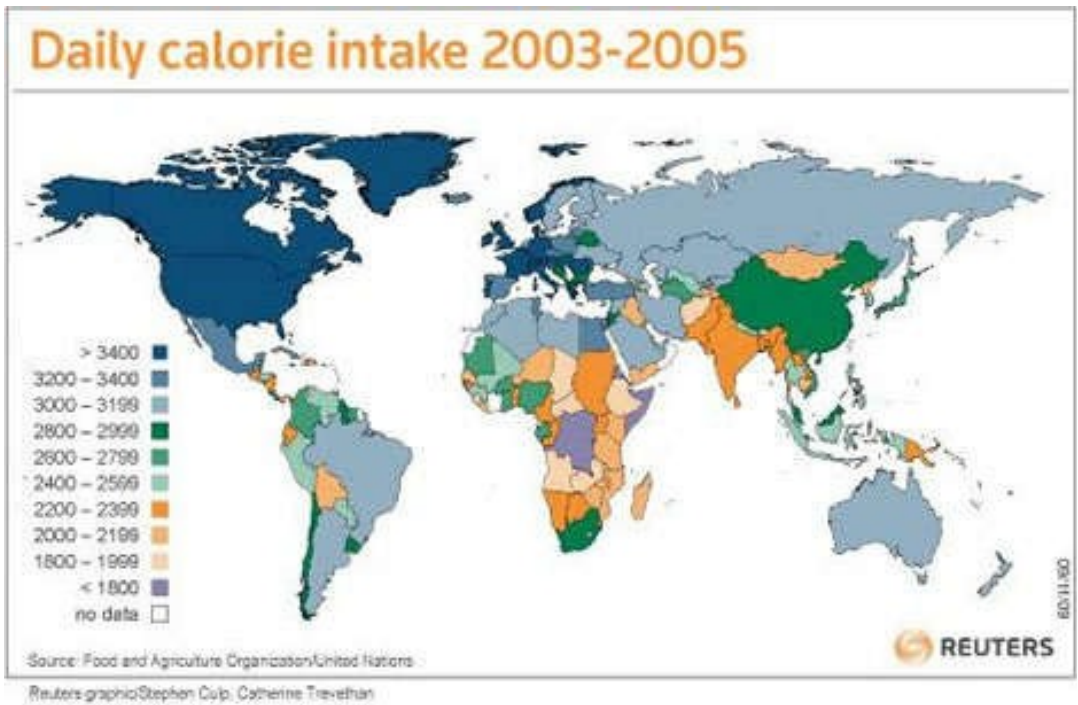


(*BMI ≥30, or ~ 30 lbs. overweight for 5’ 4” person)

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"As Many as 1 in 3 U.S. Adults Could Have Diabetes by 2050 if Current Trends Continue"-CDC





25 September 2010 Last updated at 23:16 ET

China faces obesity explosion

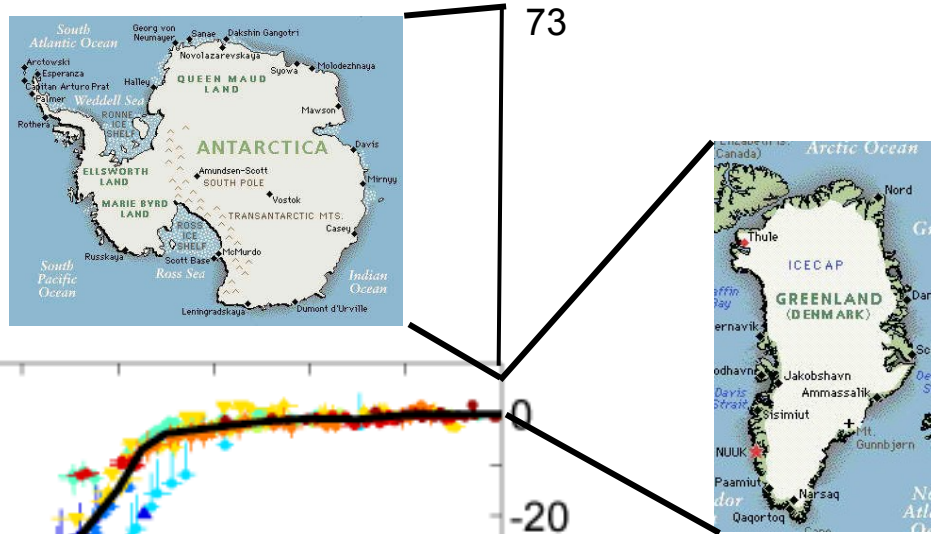
By Michael Bristow
BBC News, Beijing

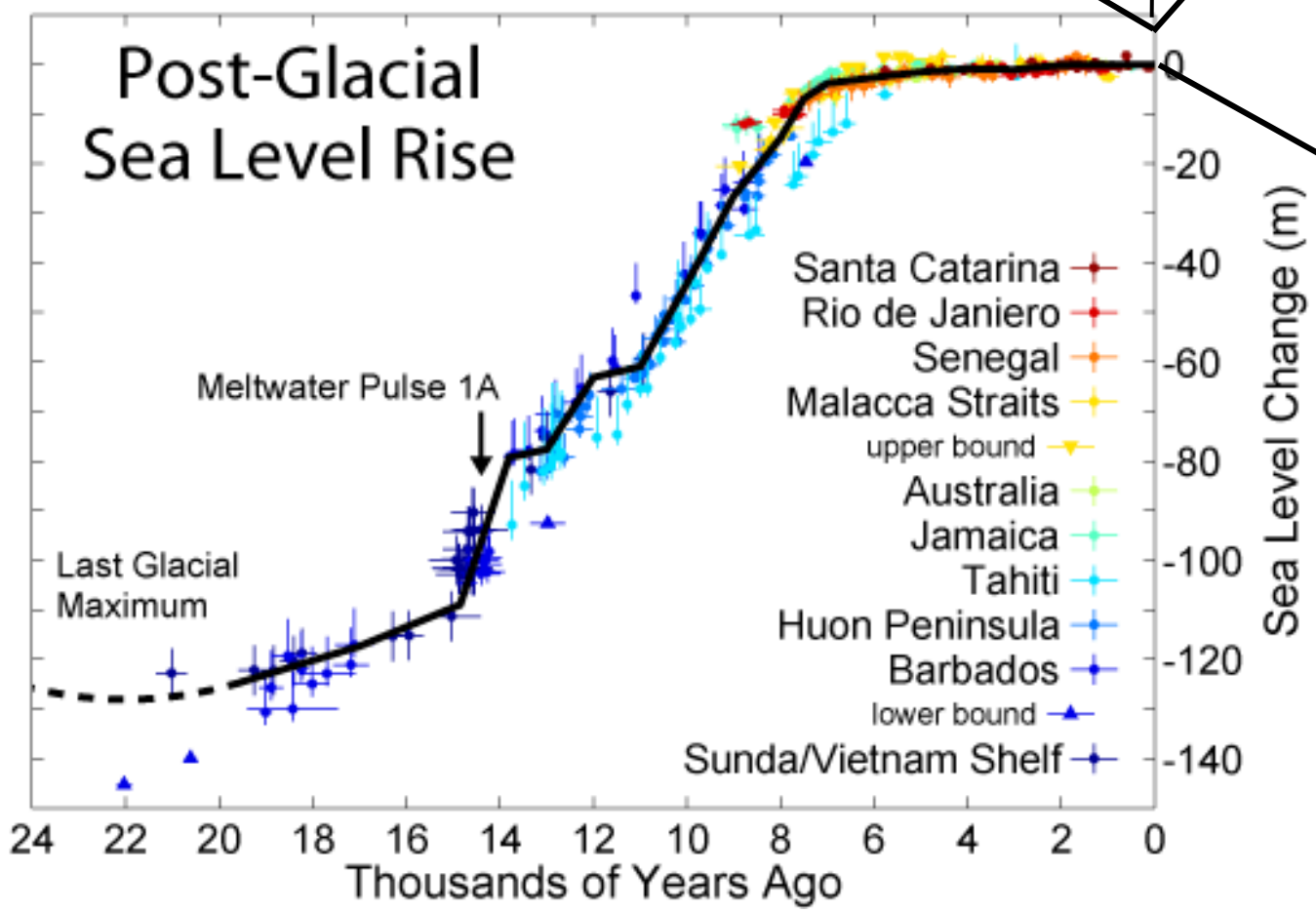
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Over All But the Last 8000 Years Humans Have Adapted to Continual Sea Level Rise

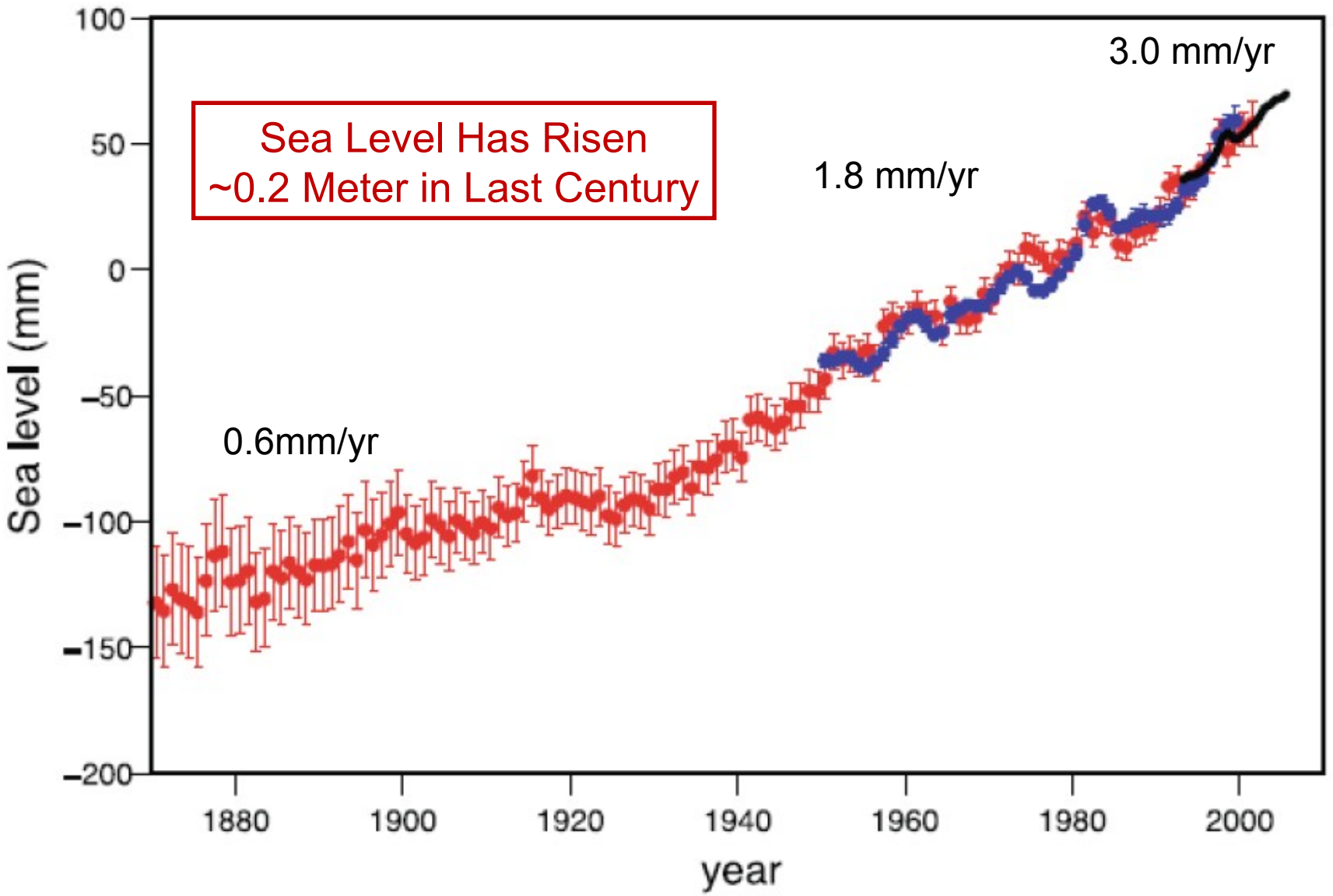
Future Potential Sea Level Rise





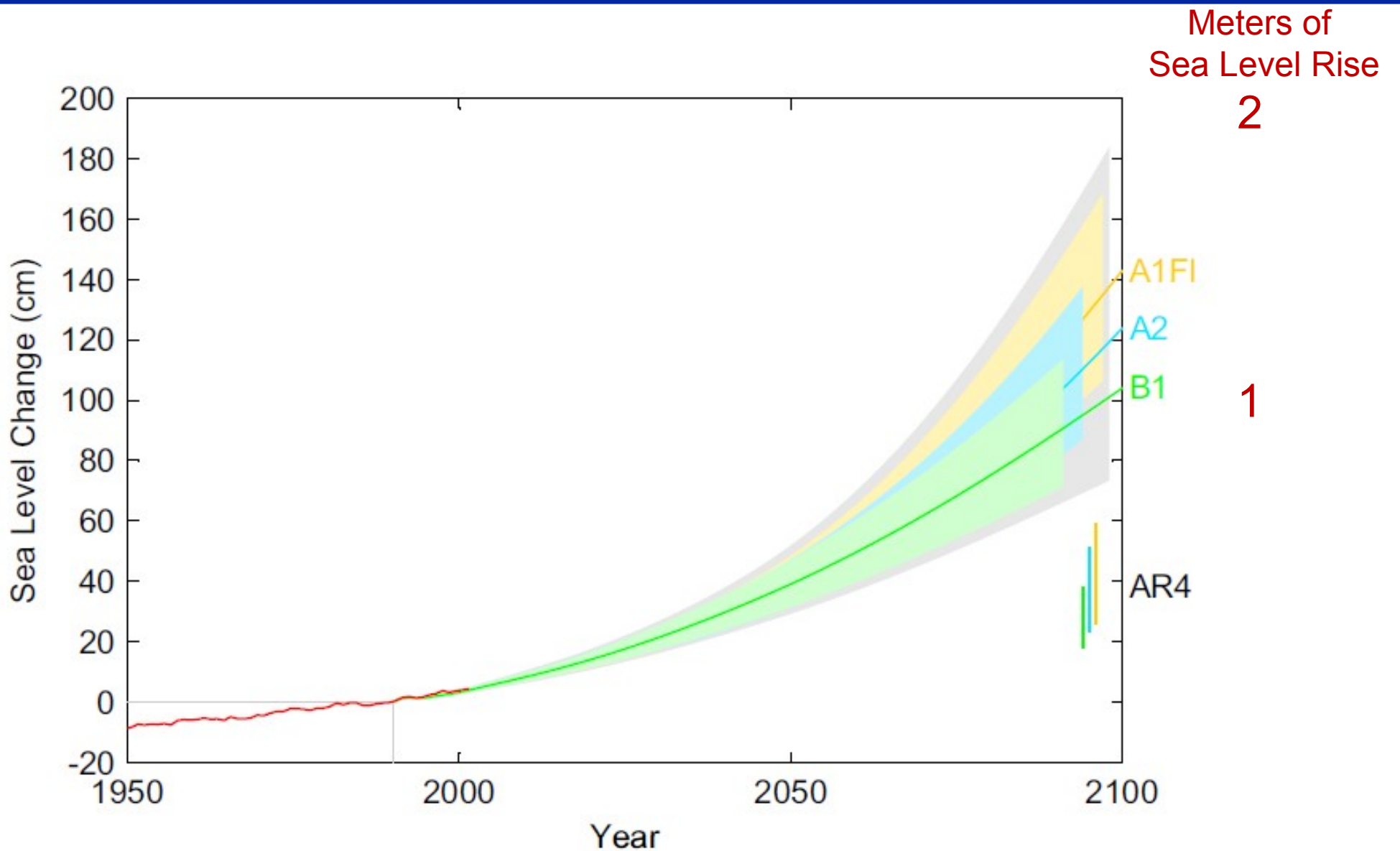
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Sea Level Has Been Slowly Rising For Over a Century While the Rate of Rise is Accelerating



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We Can Expect 1-2 Meters Sea Level Rise by 2100

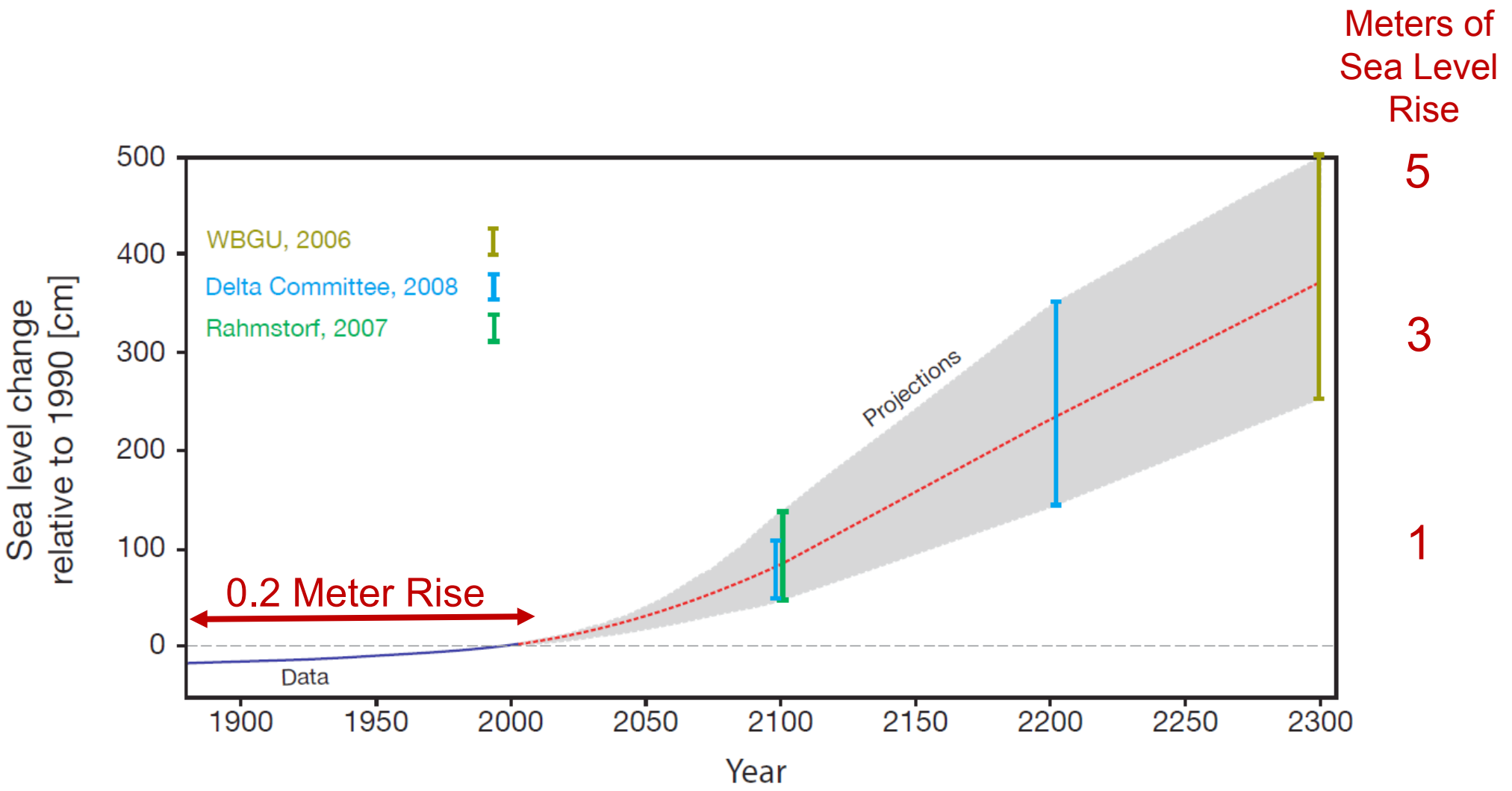


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"Global sea level linked to global temperature,"
Martin Vermeera & Stefan Rahmstorf, PNAS v. 106, p.21527 (Dec. 2009)

it²

Sea Level Rise Will Continue for Centuries: The Geodesign Challenge Facing Future Generations



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Source: The Copenhagen Diagnosis, Allison, et al. (2009)

Sea Level Rise Requires Most of Earth's Cities to Re-Engineer Themselves During the 21st Century



New York City is Envisioning Its Future
In a World with Continually Rising Seas:
"Rising Currents" Exhibit
Museum of Modern Art, NYC



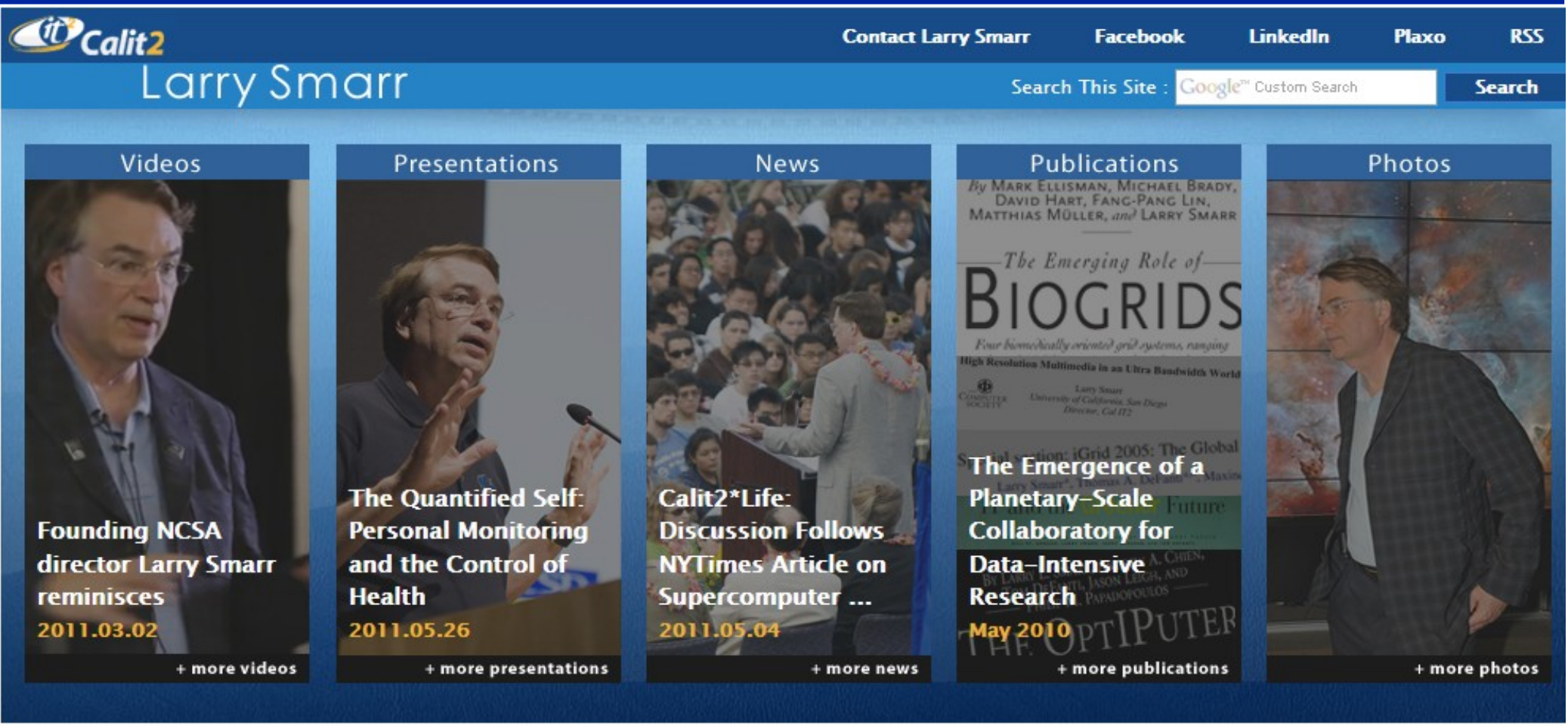
An Architects-in-Residence
Program Brought Together
5 Interdisciplinary Teams

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www.nytimes.com/2010/03/26/arts/design/26rising.html
www.moma.org/explore/inside_out/category/rising-currents#description

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You Can Download This Presentation at lsmarr.calit2.net



ABOUT LARRY SMARR

Larry Smarr is the founding Director of the California Institute for Telecommunications and Information

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