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Importance of OC and EC: An NSF perspective

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www.nsf.gov

International Workshop for the Development of Research Strategies for the Sampling and Analysis of Organic and Elemental Carbon Fractions in Atmospheric Aerosols

Durango, Colorado – March 4–5, 2003

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Presentation Outline

- **Background on NSF**
- **The NSF Perspective**
- **Workshop Mid-Term Report Card**
- **A Challenge to OCEC Participants**

…and all in 20 minutes !

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NSF *(Est. 1950)* Mission

- **To promote scientific progress**
- **To advance national health, prosperity and welfare**
- **To secure national defense**

NSF Strategic Goals

- **Ideas** - Discovery across frontiers and connections in service to society
- **People** - A diverse, internationally competitive and globally-engaged workforce
- **Tools** - Accessible, state-of-the-art information bases and shared tools

~12% FY 2003 Agency Budget Increase

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Goals Related To OCEC

Atmospheric Chemistry Program

- to characterize the ***chemical composition*** of the atmosphere and its ***variability***
- to understand ***chemical transformations*** and ***transport processes*** in the atmosphere

Interdisciplinary/Crosscutting

- to understand the role of atmospheric chemistry in the ***radiation budget*** of the earth
- to understand how natural and anthropogenic emissions affect ***regional/global air quality***

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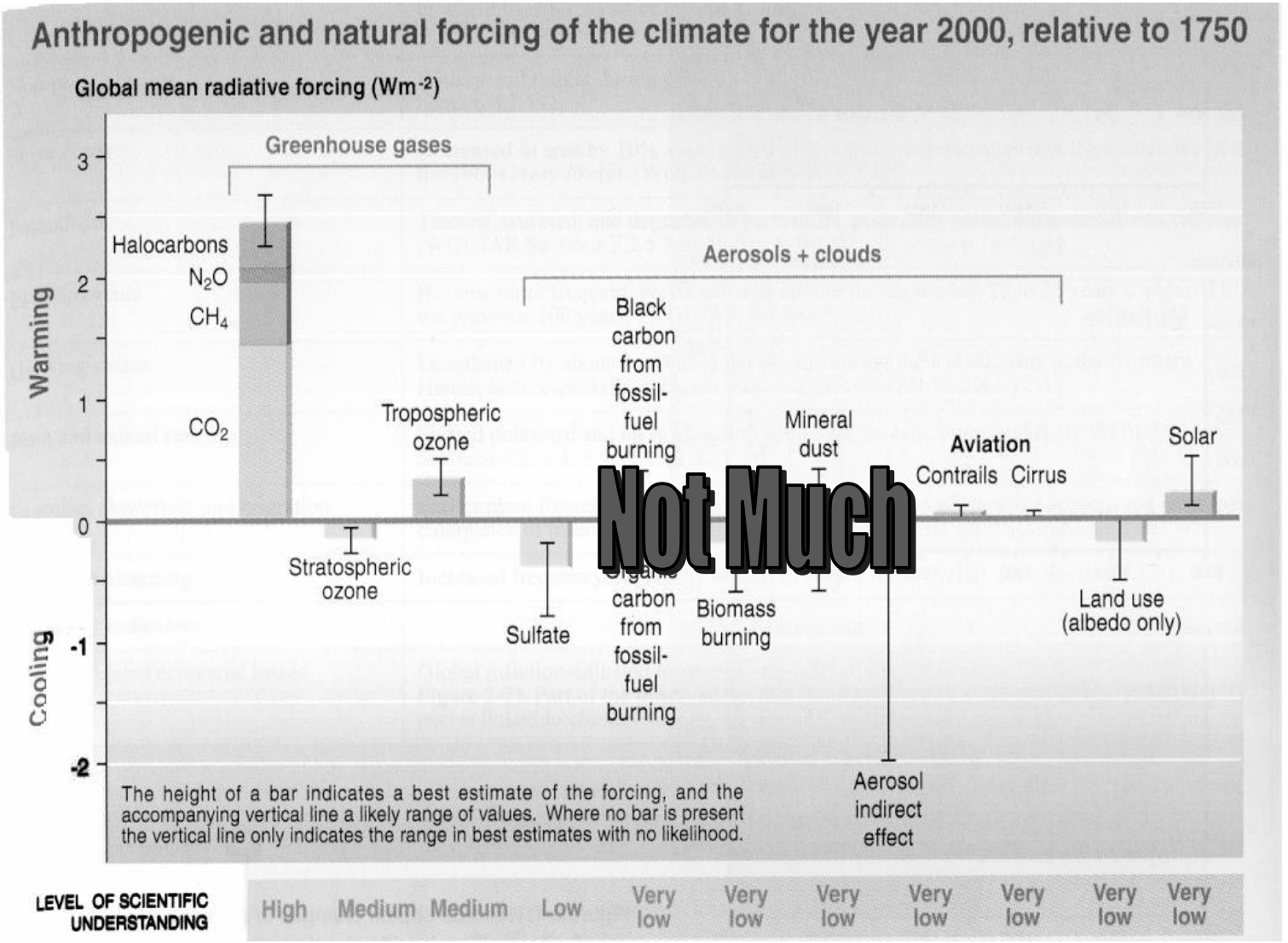
Global Climate: What We Know



From: ***Climate Change 2001: Synthesis Report,*** **IPCC, 2001.**

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Some NSF-Supported Programs:
Regional Air Quality / Global Change

AEROCE 1990–2000, North Atlantic Ocean
Ground-based and airborne measurements

ACE-2 **http://rea.ei.jrc.it/~vandinge/ace2/ace2main.html**
June/July 1997, Portugal and NE Atlantic
Airborne, ground-based and ship-borne measurements

INDOEX **http://www-indoex.ucsd.edu**
Jan.-April 1999, Indian Ocean region

ACE-Asia **http://saga.pmel.noaa.gov/aceasia/index.html**
Ground-based network operations 2000-2002
Airborne field intensive March-April 2001

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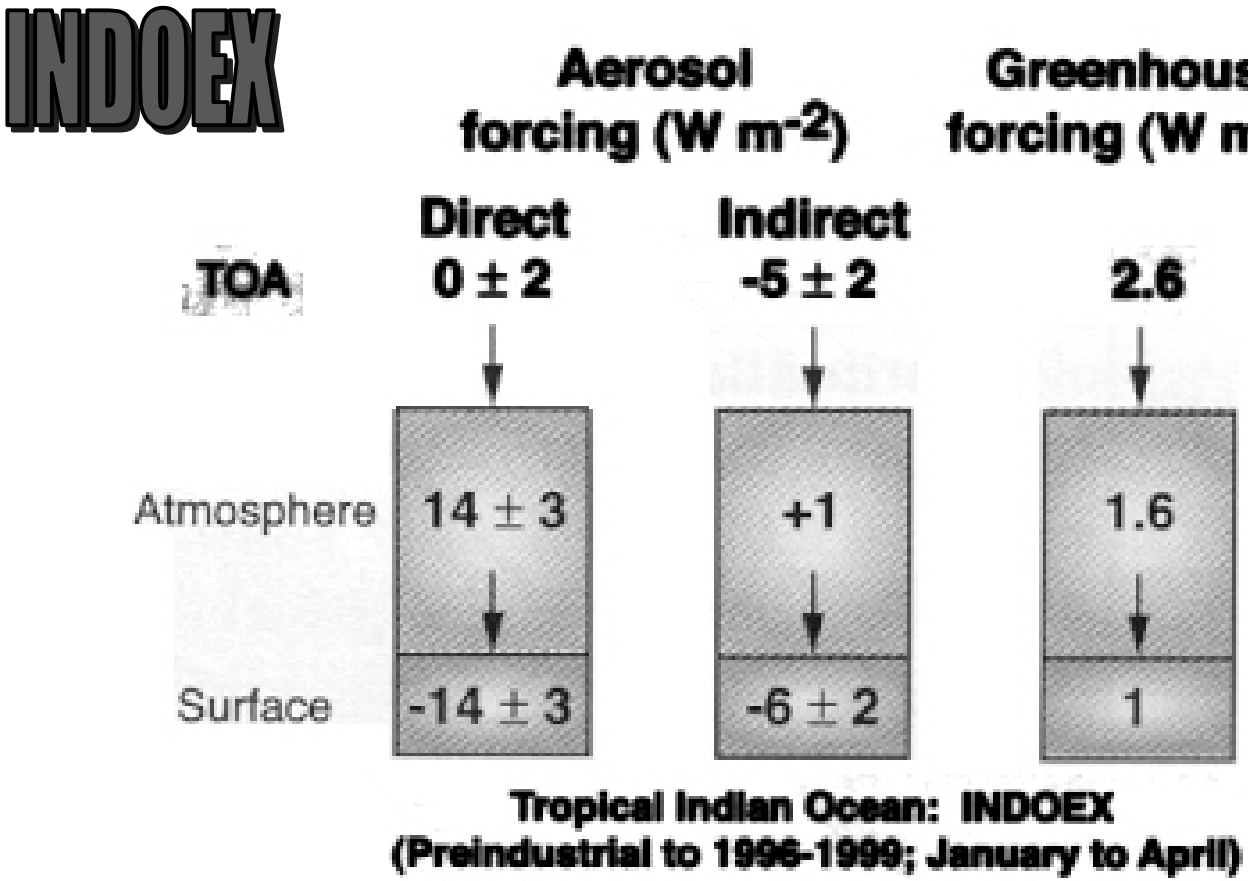
Carbonaceous Aerosols: "…A Major Wildcard…"



From: Ramanathan et al., *Science, 294,* 2119-2124, 2001.

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OCEC Workshop: Report Card

- **IDEAS** **B**
  - **Recognition of Emerging Importance**
  - **Addresses Critical Need**
  - **Where is the Global Perspective?**

- **PEOPLE** **A^{-}**
  - **The Usual Suspects *(…but that's a good thing)***
  - **International Representation**
  - **Early-Career Scientist Participation**
  - **Where are the Climate Modelers?**

- **TOOLS** **?**
  - **Community OCEC Standards**
  - **Common (Operational) Definitions**
  - **Technological (Method/Protocols) Consistency**

Key: On Track – Needs Attention – Huh?

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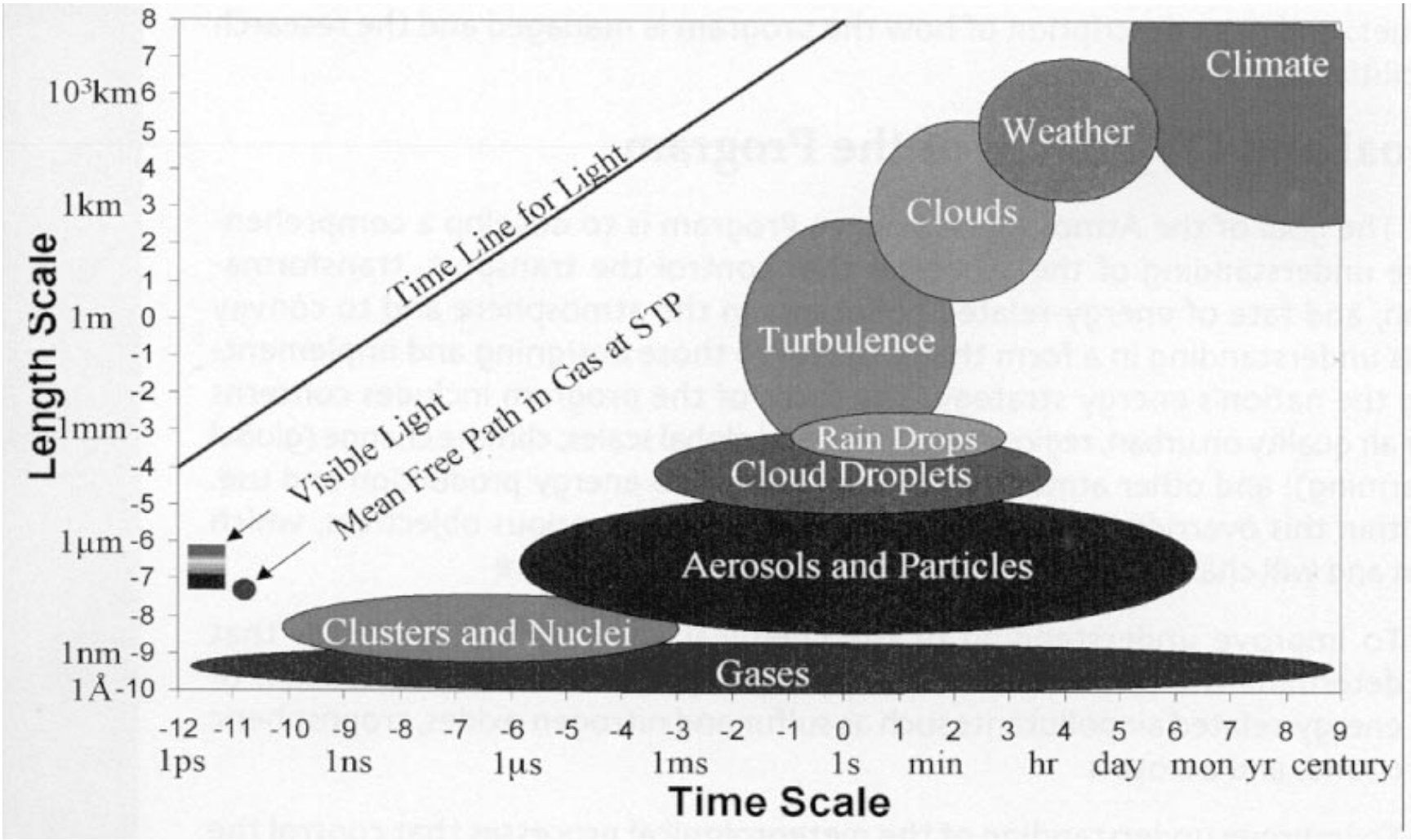
The World Outside Of The Lab



From: ***USDOE Atmospheric Science Program Strategic Plan*****, August 2002.**

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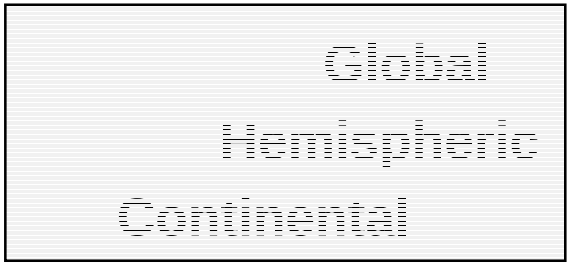
Scales of Relevance to OCEC

“CLIMATE”



Synoptic-

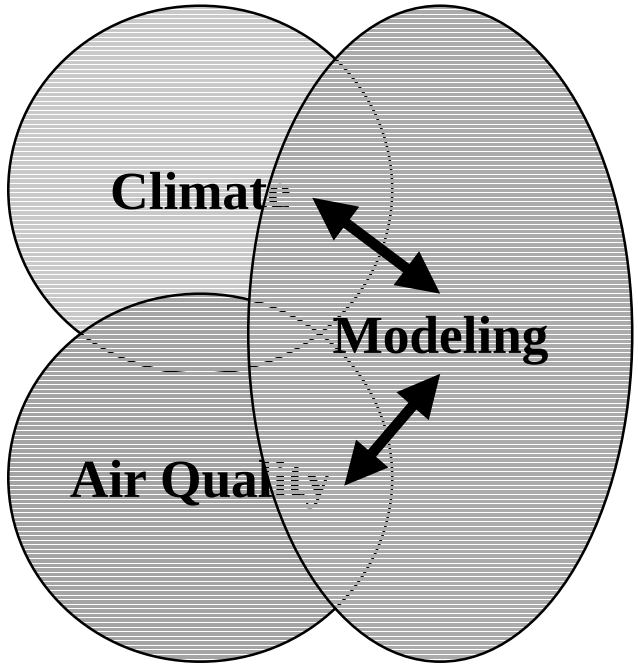
Regional **“VISIBILITY”**

Meso-

Local

Micro- **“HEALTH”**

Nano-



Who Should Play?

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The OCEC Challenge

- **Defining a research strategy is GREAT, but…**
  Reach a consensus… *please !*

- **Think outside the box – it's a big world**
  Health → Visibility → Climate *(→ Health, and iterates)*
- **Modeling is fun – try it sometime**
  An effective bridge between scales
  Provides community and policy relevance

Thanks so much for listening !