

A world map is centered on the slide, showing the continents in a light blue color against a darker blue background. The map is slightly faded and serves as a backdrop for the text.

GEIA

GLOBAL EMISSIONS INVENTORY ACTIVITY

Moving Forward

GEIA Center <http://geiacenter.org/>

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Overview of Presentation

- ✿ *Foundations -- Dedicated network of scientists, over a dozen inventories, emission state-of-science summaries, GEIA web site, > 500 on the GEIA Email network...*
- ✿ *Major Issues -- Making information more dynamic, dealing with exchange processes, addressing air quality - climate continuum, looking to the past, present & future, dealing with uncertainties, ...*
- ✿ *New GEIA Initiatives-- (Workshops 2001, 2002)*
 - Building on the GEIA foundations to better address the major issues*
 - Enhancing interactions with broader research communities*
 - Expanding information being provided by GEIA*
- ✿ *Moving Forward -- New GEIA*
 - Building on GEIA Foundations & Initiatives*
 - Creating a more cross-cutting, responsive GEIA*

A world map is shown in the background, with continents in a light blue color and oceans in a darker blue. The text 'GEIA--' is overlaid on the map in a large, bold, yellow font.

GEIA--

- ✿ Has been developing and distributing state-of-the-art global inventories and information since 1990
- ✿ Is a cross-cutting activity of International Global Atmospheric Chemistry Program, a core project of the International Geosphere-Biosphere Program
- ✿ Maintains communication and data distribution with GEIA site <http://geiacenter.org/> & Email Network

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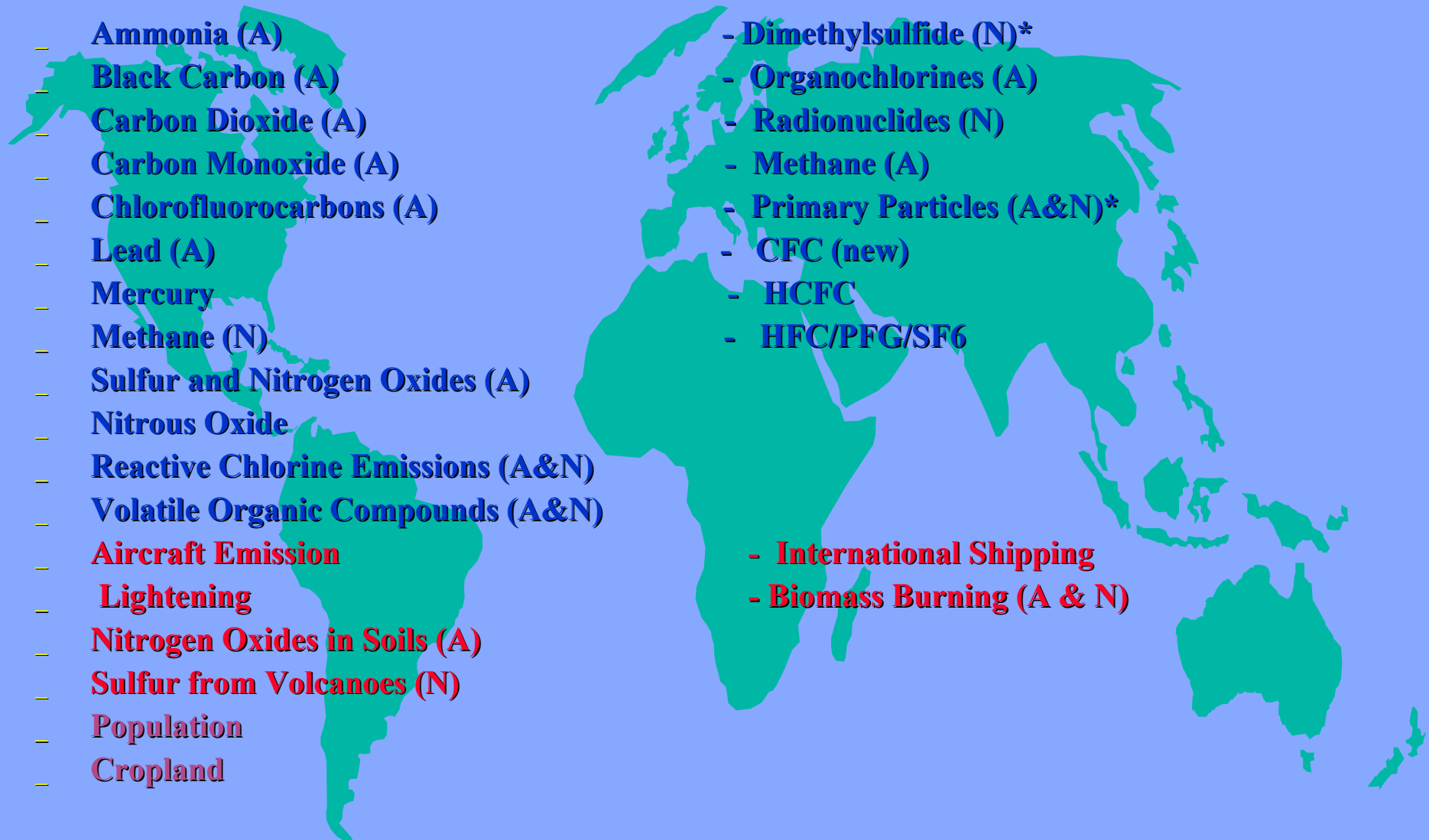
GEIA traditionally seeks to provide:

- ✿ Data on 1x1 degree grid worldwide and country by country
- ✿ Data evaluation, intercomparisons and updates
- ✿ Sectoral, seasonal and historical information for inventories

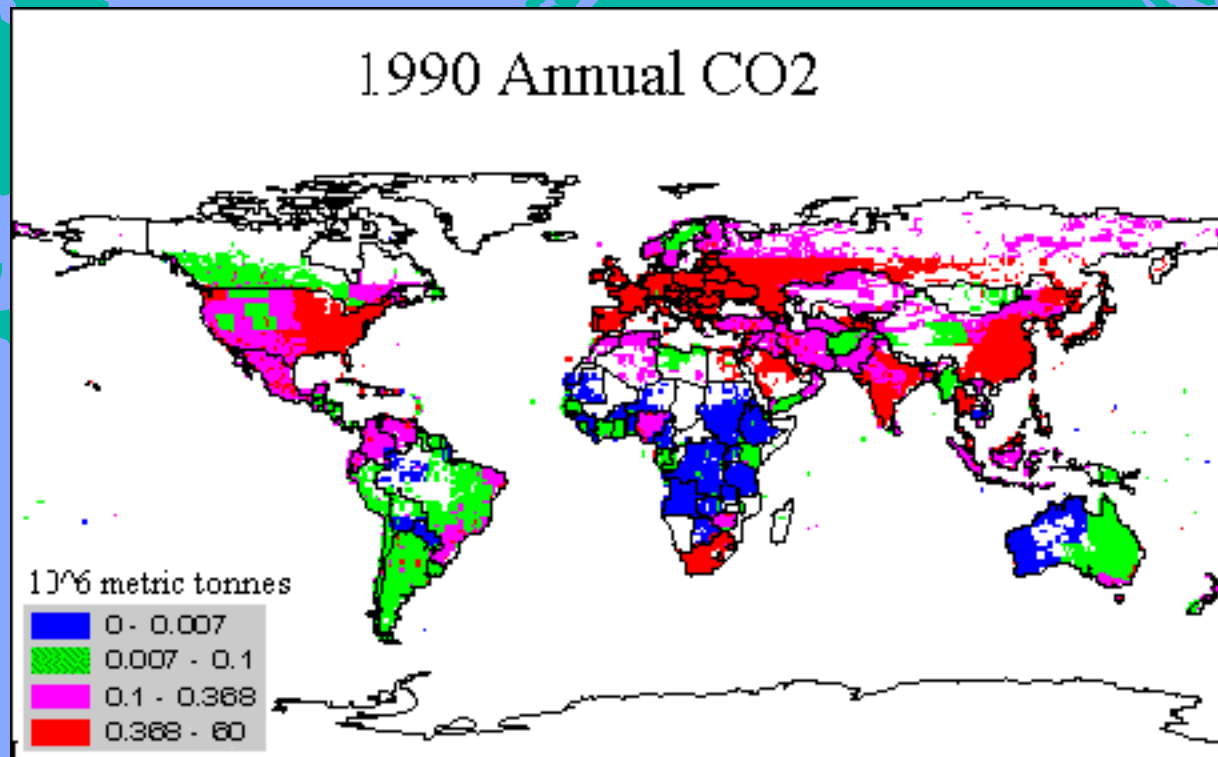
GEIA Achievements

- ✿ Core of dedicated participants
- ✿ 25 projects with completed inventories for most
- ✿ GEIA web site -- communication hub <http://geiacenter.org/>
- ✿ 13 international planning workshops since 1990
- ✿ Growing user community (>500 on the GEIA Email Network)
- ✿ Expanded links to related programs and modeling efforts
- ✿ Enhanced QA and updating protocols for new information
- ✿ New State-of-Science emission review summaries

Data -- Inventories Available for Almost All



* Official Fully Peer-Reviewed GEIA Inventories still needed for these.



Example: 1x1 Inventory
(From <http://geiacenter.org/>)

GEIA QA



- ✿ International teams are developing data and updates
- ✿ Peer review is required for each GEIA inventory
- ✿ Consistency checks are done for data transferred to the web site
- ✿ User comments on data are relayed to project directors
- ✿ Guidelines for checking data are provided
- ✿ *Teams review new emissions information**
- ✿ *Work with modelers is helping improve GEIA contributions**

* *Most recent activities*

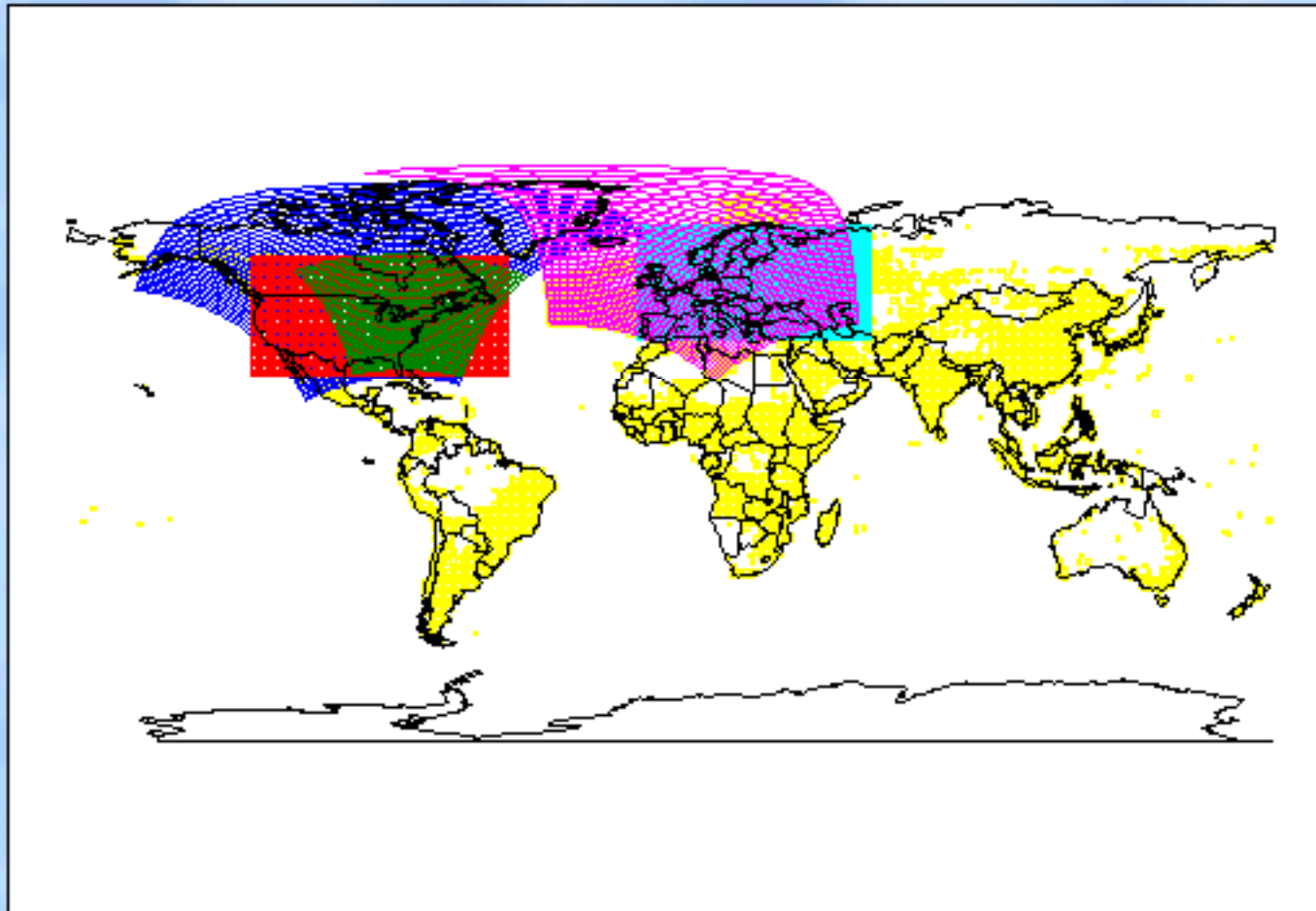


Challenges


(Outlined at the 2001-2002 Workshops)

- ✿ Climate-Air Quality Scale Continuum (time, space..)
- ✿ Major Data Gaps (chemicals, source types,..)
- ✿ Data Base Consistency (same supporting data, ...)
- ✿ Uncertainties in Data
- ✿ Use of Other Techniques (inverse modeling, satellite data,..)
- ✿ Need for more dynamic inventories to better address issues
- ✿ Historical Emissions and Projections (energy use, land use,...)

Example of Multiple Modeling Scales and Domains




 Environment Canada North American
Polarstereographic Grid

 National Acid Precipitation
Assessment Program (NAPAP)

 Canadian Acid Deposition
and Oxidants Model (ADOM)

 EMEP

 LOTOS Grid

New Initiatives (2001 & Beyond)*

- * Interact more closely with modelers and broader climate change, air quality and innovative emissions communities**
- * Expand emissions information provided by GEIA**

*GEIA began seeking to increase the awareness, development and exchange of versatile, dynamic data systems and plans in order to provide more useful information for studies of Global change and related issues such as air quality.

GEIA is beginning to provide:

- ✦ **References to non-GEIA data with descriptive comments**
- ✦ **Underlying data sets & algorithms used to derive emissions**
- ✦ **Clear definitions of emissions data and starting points for modeling**
- ✦ **Long term historical and future trends of emissions**
- ✦ **Information on seasonality of emissions**
- ✦ **References to key scenarios for future emissions**



GEIA is enhancing collaboration through

- ✿ Joint meetings and/or workshop planning
- ✿ State of global emission science summaries
- ✿ Strategies for improving emissions data
- ✿ GEIA and non-GEIA data differences summaries
- ✿ Flux analysis planning

Global Emission Reviews

(Available at <http://geiacenter.org/>)



- Ammonia
- CFC, HCFC, HFC/PFC/SF6
- Dimethylsulfide
- Heavy Metals
- Nitrous Oxide
- Organochlorides
- Primary Particles
- Radionuclides
- Volatile Organic Compounds
- Biomass Burning
- International Shipping
- Nitrogen Oxides in Soils
- Population
- Cropland & Pesticides
- Dry Deposition



Recently Updated <http://geiacenter.org/>

- **Encourages more interaction globally**
- **Introduces New GEIA**
- **Provides traditional GEIA inventories**
- **Gives outreach materials**
- **Presents news for emission developers**

IGBP & New GEIA

IGBP (International Geosphere-Biosphere Programme) Structure



Individual media (Atmosphere, Ocean, Land) Programs

Flux (between 2 media) Programs

Integrative (Modeling, Integration, Analysis) Programs

New GEIA within IGBP

Currently GEIA is part of IGAC

(International Global Atmospheric Chemistry Program)

New, more prominent location for GEIA in IGBP structure being discussed.

Desire for GEIA to be more integrative across media and issues.

New GEIA

Will Provide Information and/or Links For These Activities



GEIA -- Moving Forward -- New Roles & Responsibilities

***Currently GEIA provides data, reviews and other information dealing primarily with “present” emissions.**



Elements of New GEIA

- More integrative across air-land-ocean
- Past, present and future emissions
- More access to underlying data & processors
- Enhanced reviews of data & state of knowledge
- More information on models, evaluations & needs
- Enhanced GEIA web site as a portal to new functions
- New data center to provide expanded detailed data analysis
- Priority projects to advance science & understanding
- Management & scientific review team
- A new name to reflect the expanded activities ???

A world map is centered on the slide, showing the continents of North America, South America, Europe, Africa, Asia, and Australia. The map is rendered in a light blue color against a darker blue background.

Getting Together

GEIA Transition planning is underway
Draft due for IGBP review in early 2004

Comments, questions, & ideas for collaboration are most welcome

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A world map with a light blue background and dark blue landmasses. The map is centered on the Atlantic Ocean, showing the Americas on the left, Europe and Africa in the center, and Asia and Australia on the right. The text is overlaid on the map.

New GEIA

**Working together with researchers
Around the world to develop
Improved assessments of
Global Change and
Related Concerns**