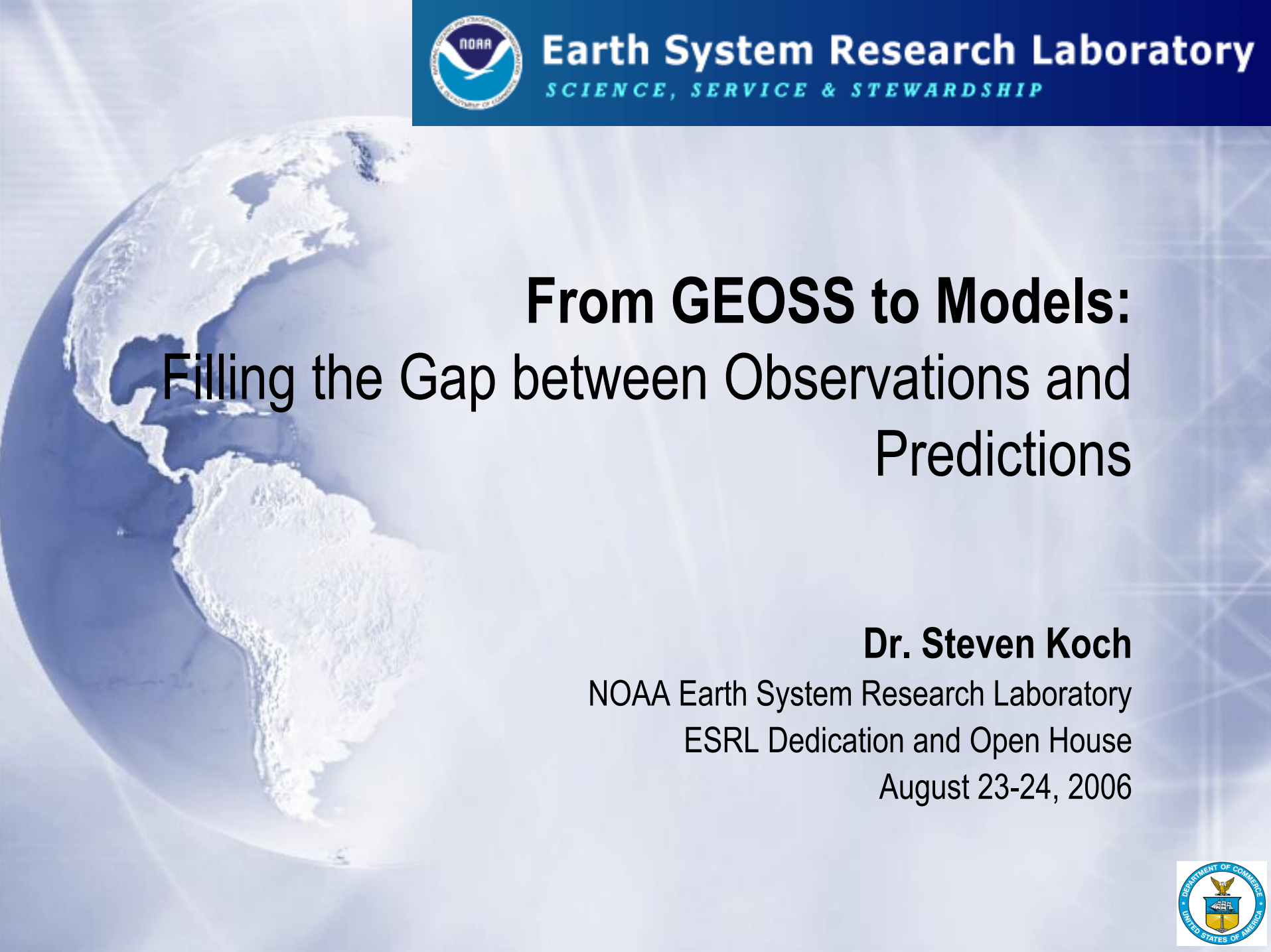
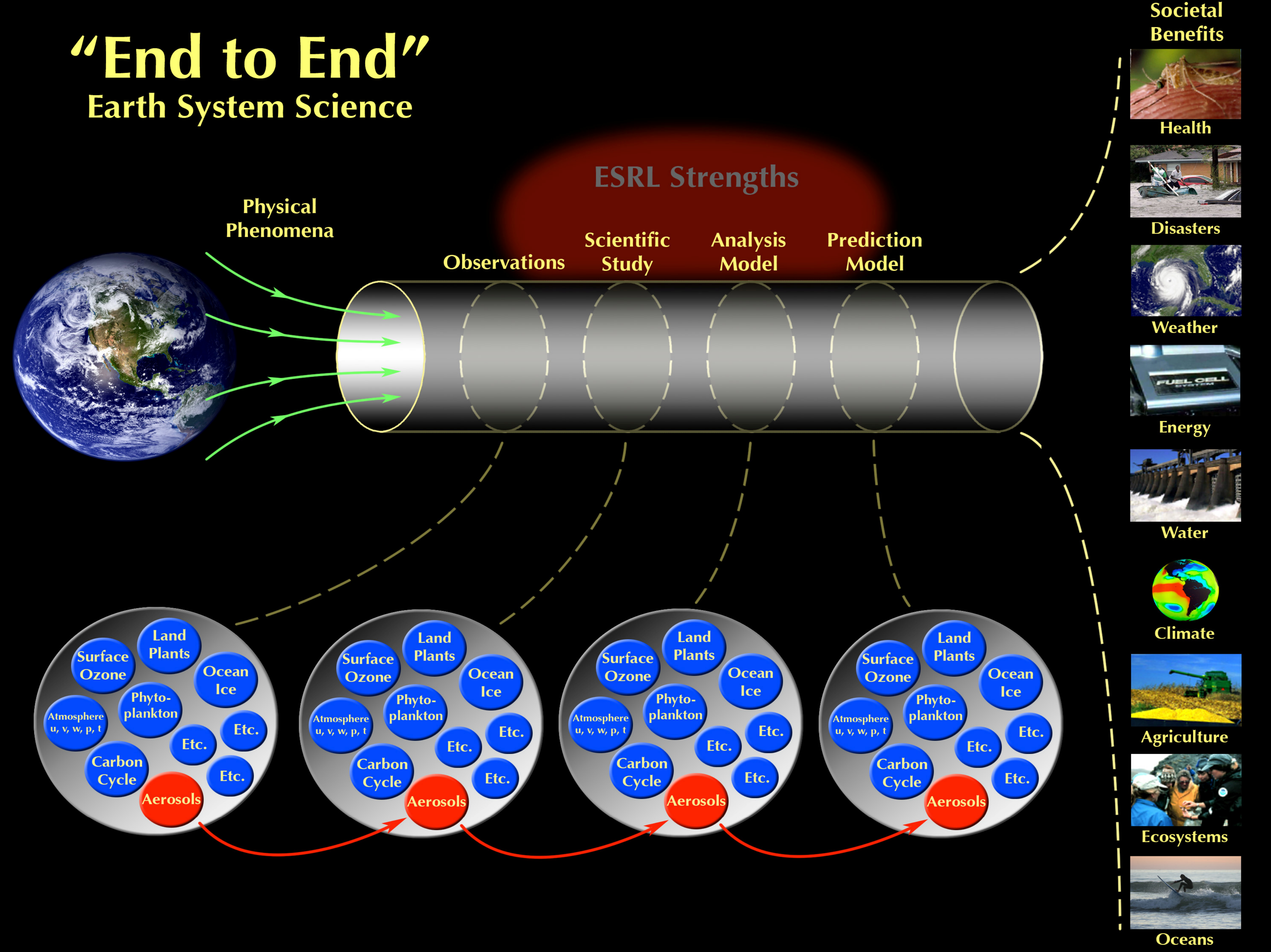


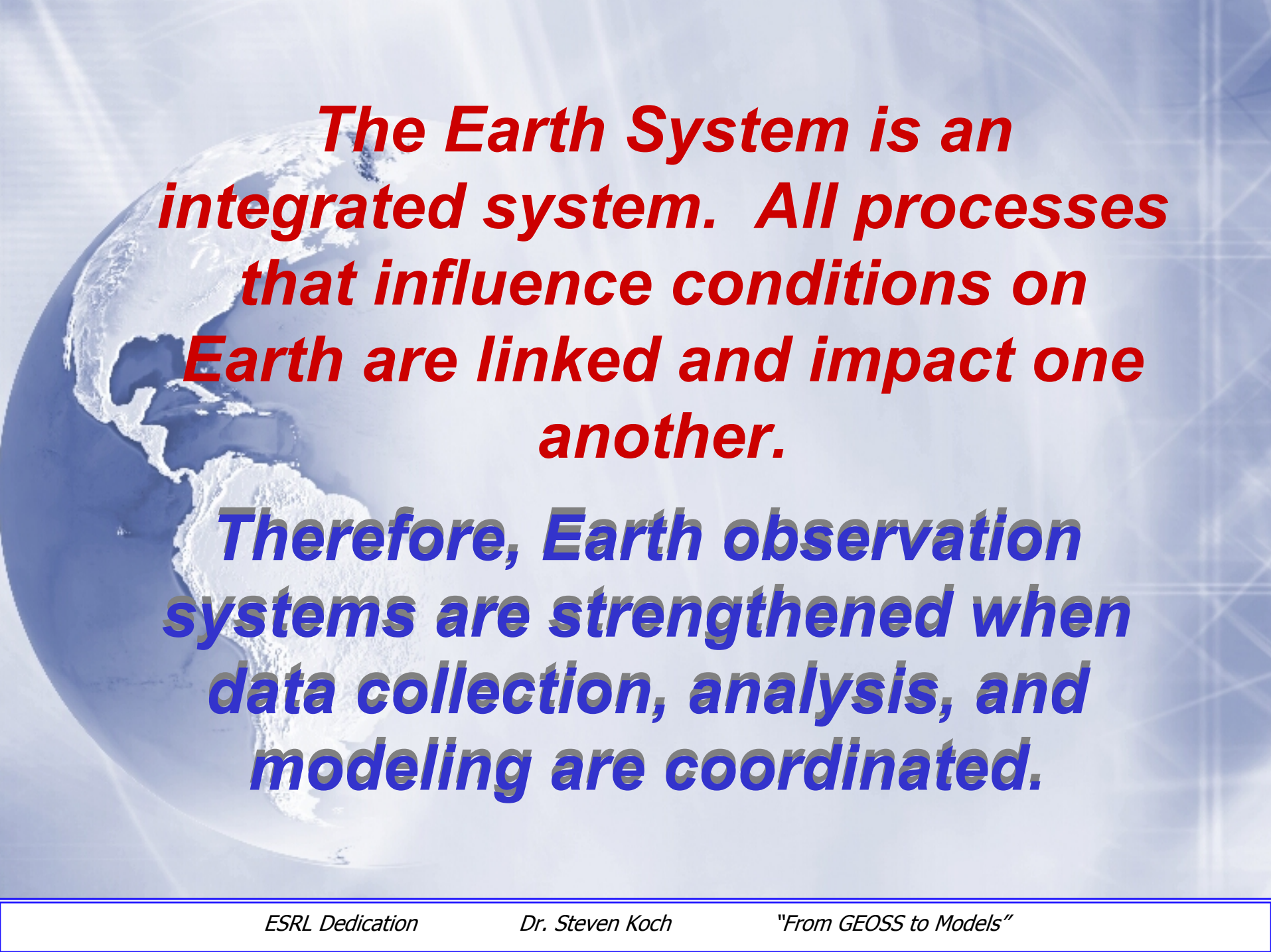
From GEOSS to Models:
Filling the Gap between Observations and Predictions

Dr. Steven Koch
NOAA Earth System Research Laboratory
ESRL Dedication and Open House
August 23-24, 2006

VADM Conrad C. Lautenbacher, Jr.
Under Secretary of Commerce for Oceans and Atmosphere and NOAA Administrator

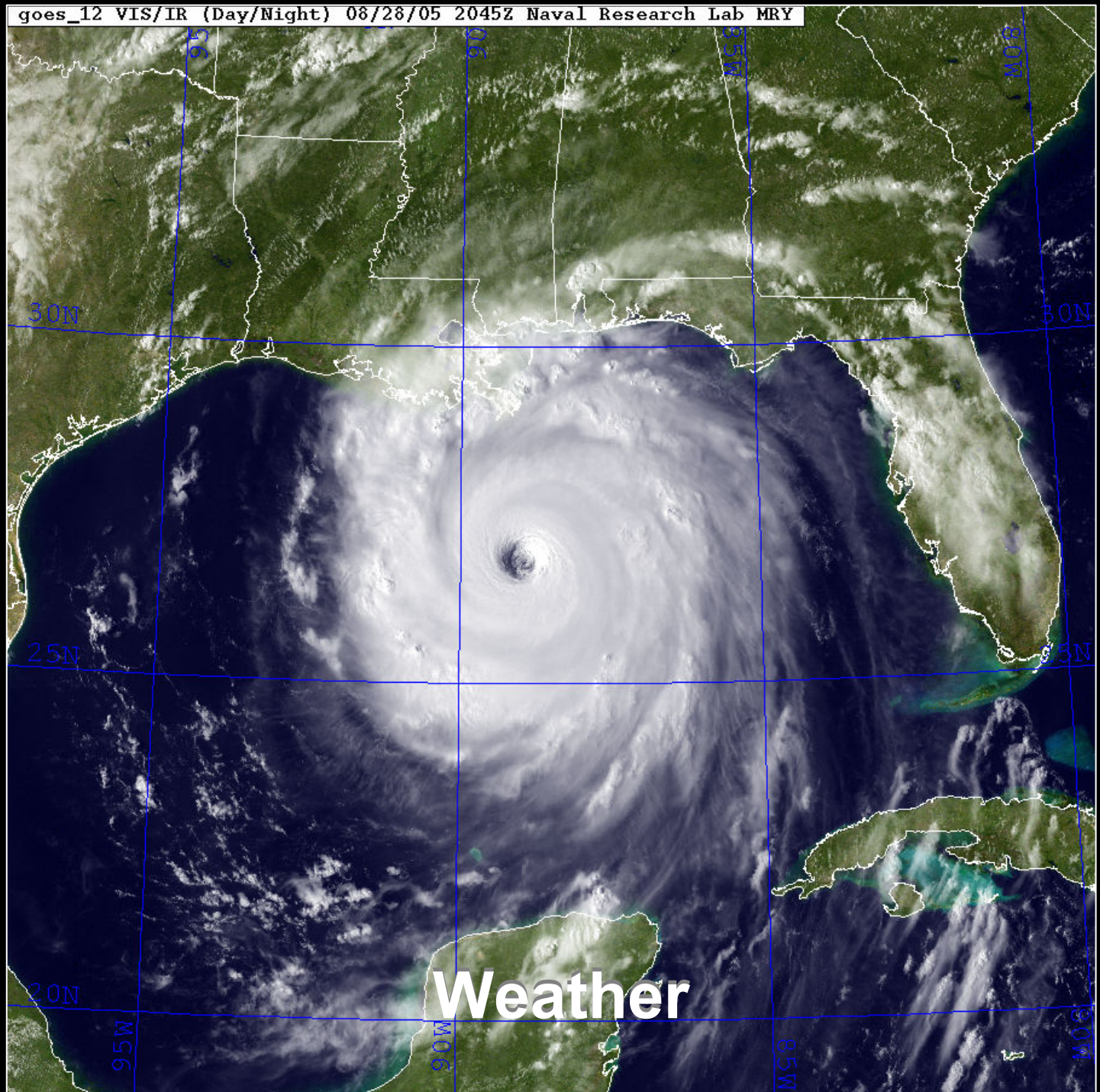

"End to End"
Earth System Science
ESRL Strengths
Physical Phenomena
Observations
Scientific Study
Analysis Model
Prediction Model
Societal Benefits
Health
Disasters
Weather
Energy
FUEL CELL
Water
Climate
Agriculture
Ecosystems
Oceans
Land Plants
Surface Ozone
Ocean Ice
Phyto-plankton
Atmosphere u, v, w, p, t
Etc.
Carbon Cycle
Aerosols

ESRL Mission: To observe and understand the Earth **system** and to develop products through a commitment to research that will advance NOAA's environmental information and service on **global-to-local scales.**

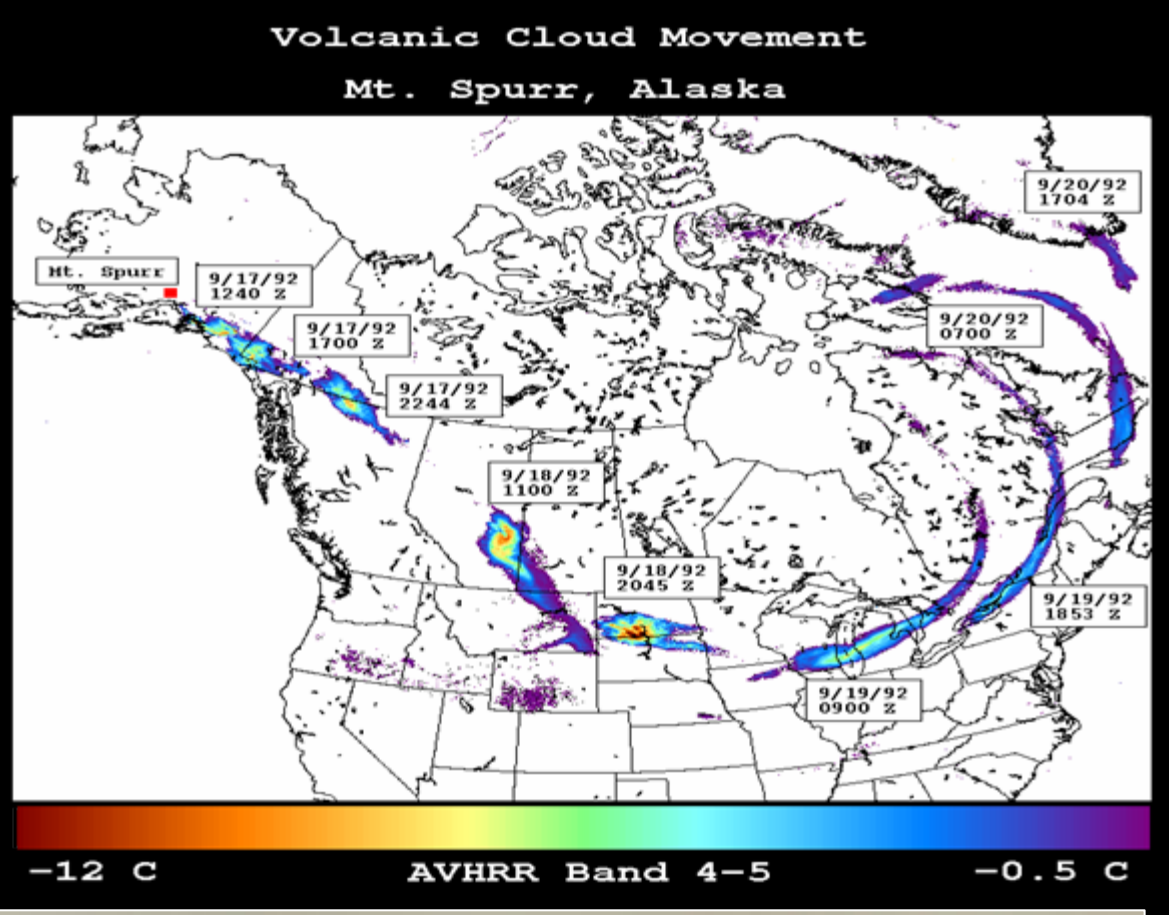


The Earth System is an integrated system. All processes that influence conditions on Earth are linked and impact one another.

Therefore, Earth observation systems are strengthened when data collection, analysis, and modeling are coordinated.


goes_12 VIS/IR (Day/Night) 08/28/05 2045Z Naval Research Lab MRY
30N
25N
20N
95W
90W
85W
80W
Weather

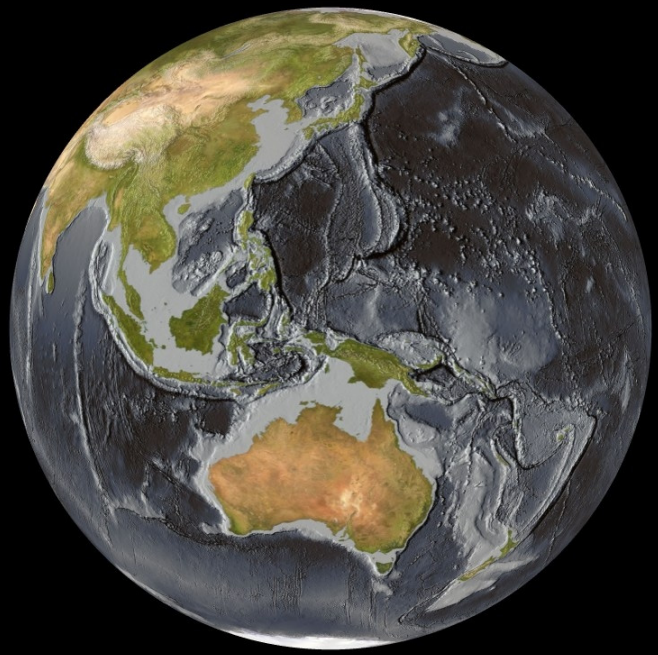

Oceans


Volcanic Cloud Movement
Mt. Spurr, Alaska
Mt. Spurr
9/17/92 1240 Z
9/17/92 1700 Z
9/17/92 2244 Z
9/18/92 1100 Z
9/18/92 2045 Z
9/19/92 0900 Z
9/19/92 1853 Z
9/20/92 0700 Z
9/20/92 1704 Z
-12 C
AVHRR Band 4-5
-0.5 C

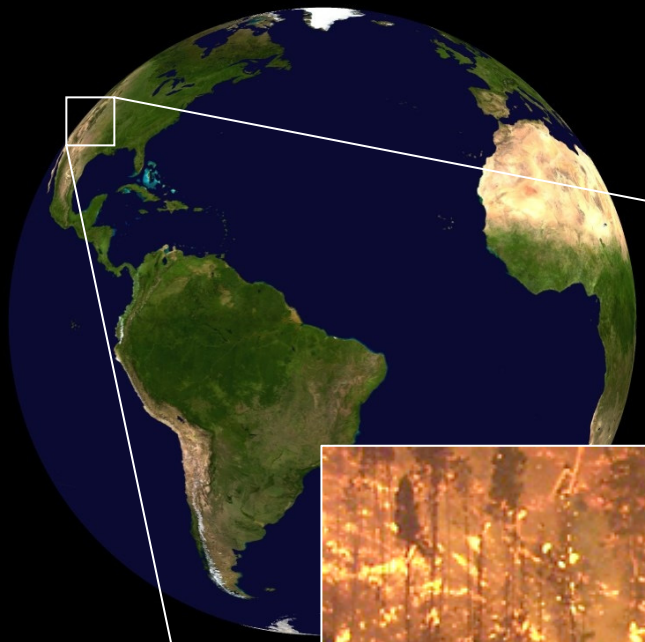

Atmosphere

Water

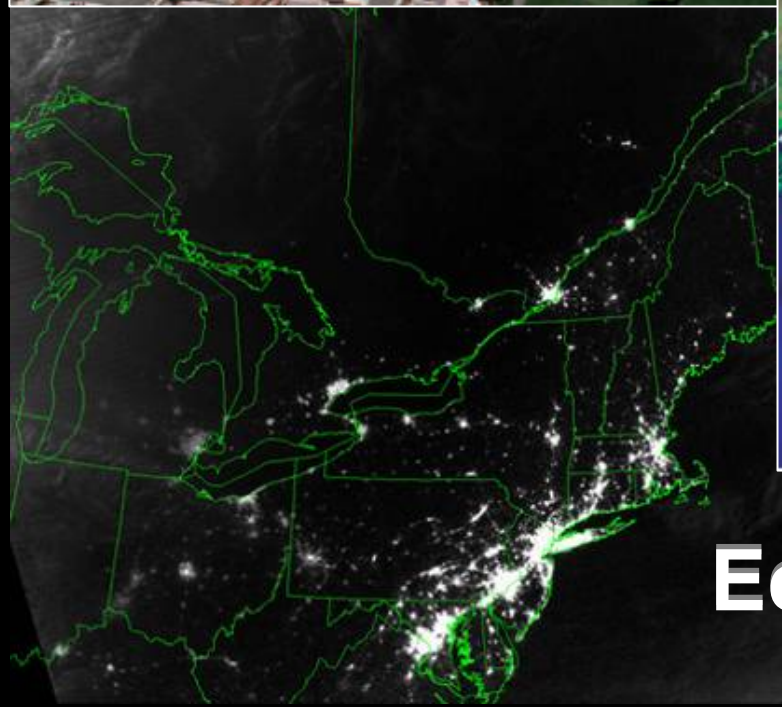

Button Bay
HUDSON BAY
C A N A D A
Manitoba
Land
18 Jul 1996



Geodynamics

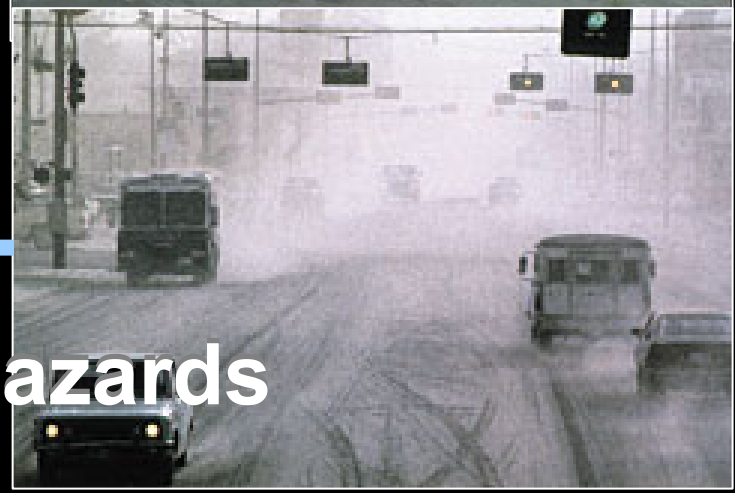


Natural Resources




Big Cypress National Preserve
Big Cypress Indian Res.
Florida
Atlantic Ocean
Miami
Gulf of Mexico
9 Jan 2002

Ecosystems



Natural hazards

Human-induced Hazards

GEOSS vision: to realize a future wherein decisions and actions for the benefit of humankind are informed by coordinated, comprehensive, and sustained Earth observations and information.

GEOSS purpose: to improve monitoring of the state of the Earth, increase understanding of Earth processes, and enhance prediction of the Earth system.

Presentations in Session 4

- Dr. Steven Koch: "GEOSS: Overview and Societal Benefits"
- Dr. Stephen Weygandt: "Assessing The Impact Of Current and Future Observing Systems on Environmental Predictions"
- Dr. F. Martin Ralph: "Testbeds: Bridging the Gap between Observing Systems and Predictions"
- Dr. Randall M. Dole: "Integrating Observations and Models to Improve Decision Support: Developing Early Warning Systems"