

Overview of Geophysical Statistics Project and NCAR

Douglas Nychka

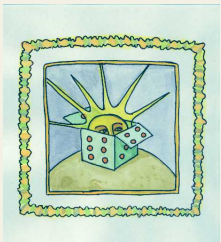
Geophysical Statistics Project

Institute for Mathematics Applied to Geosciences

National Center for Atmospheric Research

Outline

- NCAR, IMAGE,
- GSP
- Schedule for visit



National Center for Atmospheric Research



≈ 1000 people total, several hundred Ph. D. scientists

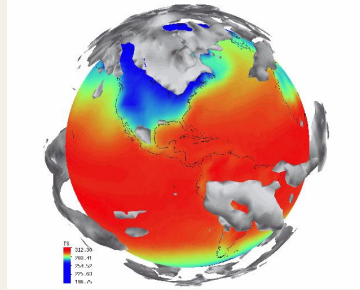
Three main research campuses (Mesa, Foothills & Center Green)

Half the budget (≈ 60M) is a single grant from NSF-ATM.

Governance is by a consortium of universities (UCAR).

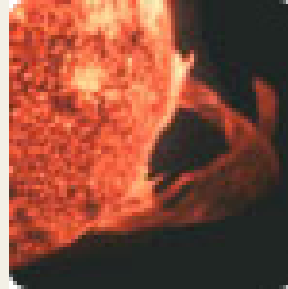
Research on nearly every aspect related to the atmosphere

Climate,

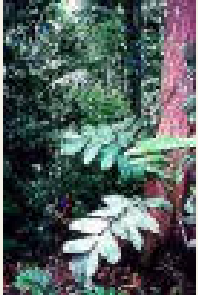


Weather,

the Sun,



Ocean-atmosphere interactions,



Ecosystems, Economic impacts,



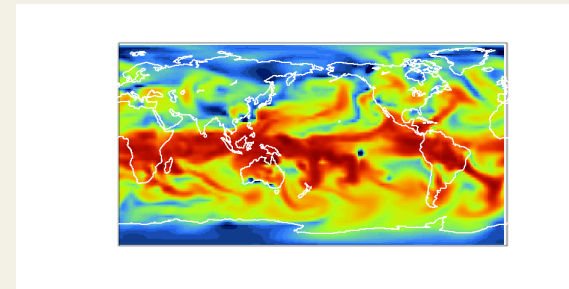
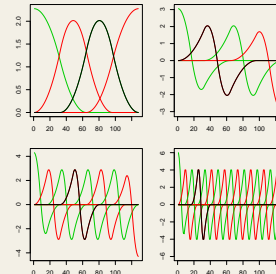
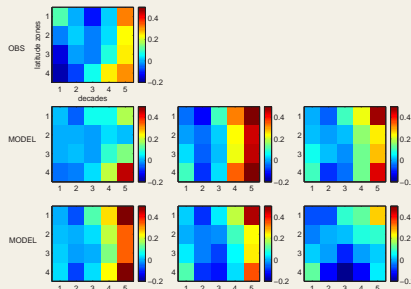
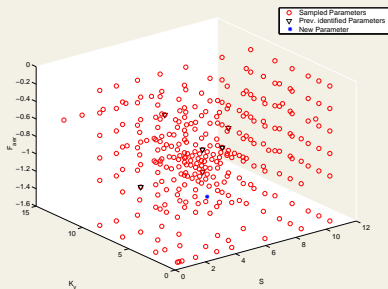
Air quality,

Instrumentation, Scientific computing

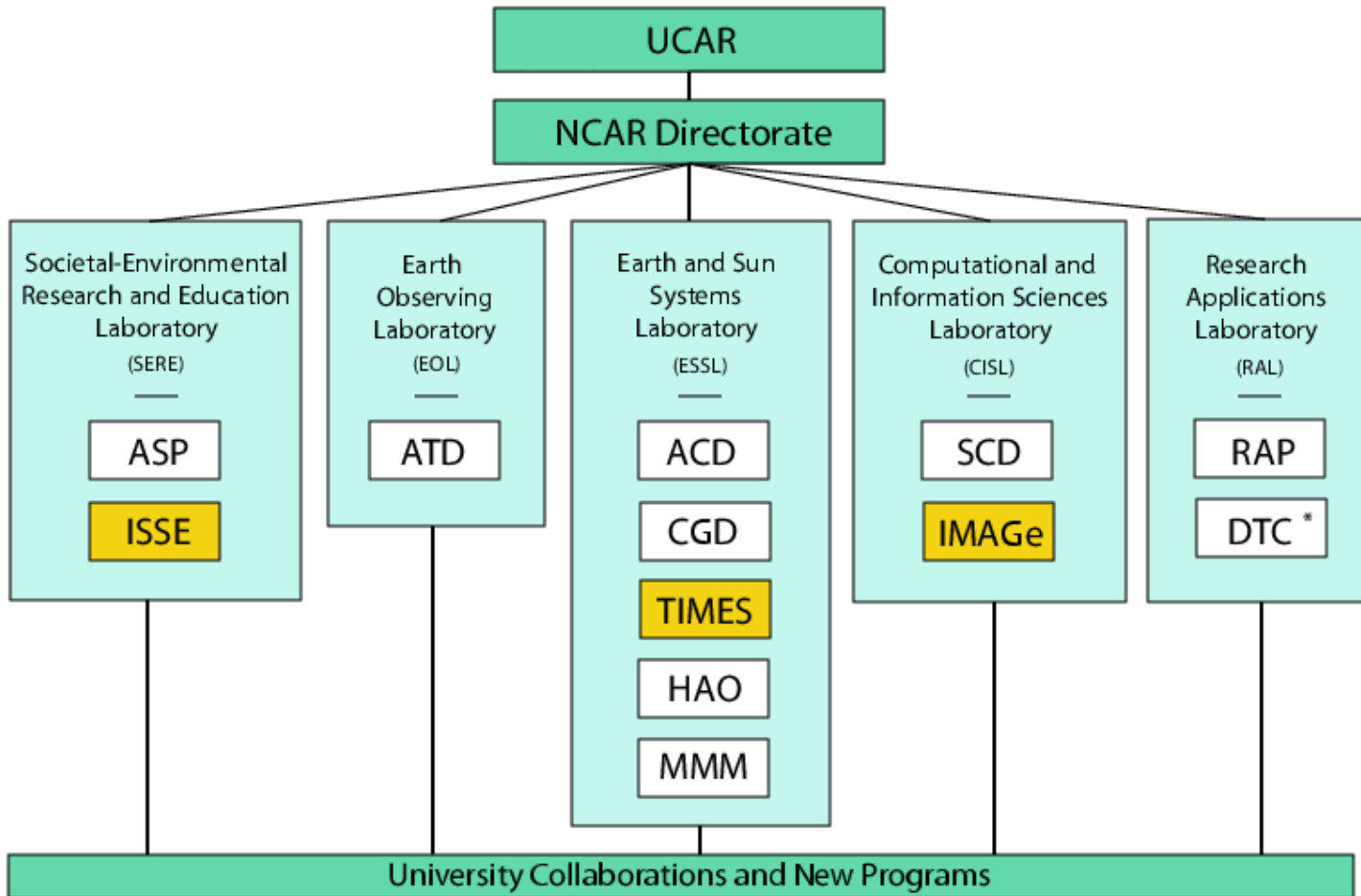


and ...

Statistics with a focus on the geosciences.



University Corporation for Atmospheric Research (UCAR)



New Institutes

ISSE - Institute for the Study of Society and Environment

TIMES - The Institute for Multidisciplinary Earth Studies

IMAGE - Institute for Math in Geosciences

* DTC - Developmental Testbed Center

Legend for some major NCAR groups

- Atmospheric Chemistry (ACD)
- Atmospheric Technology (ATD)
- Advanced Study Program (ASP)
- Climate and Global Dynamics (CGD)
- Environmental and Societal Impacts Group (ISSE)
- High Altitude Observatory (HAO)
- Institute for Mathematics Applied to Geosciences (IMAGe)
- Mesoscale and Microscale Meteorology (MMM)
- Research Applications Laboratory (RAL)
- Scientific Computing (SCD)

What is IMAGE?

IMAGE is a *nexus* for the mathematical sciences at NCAR.

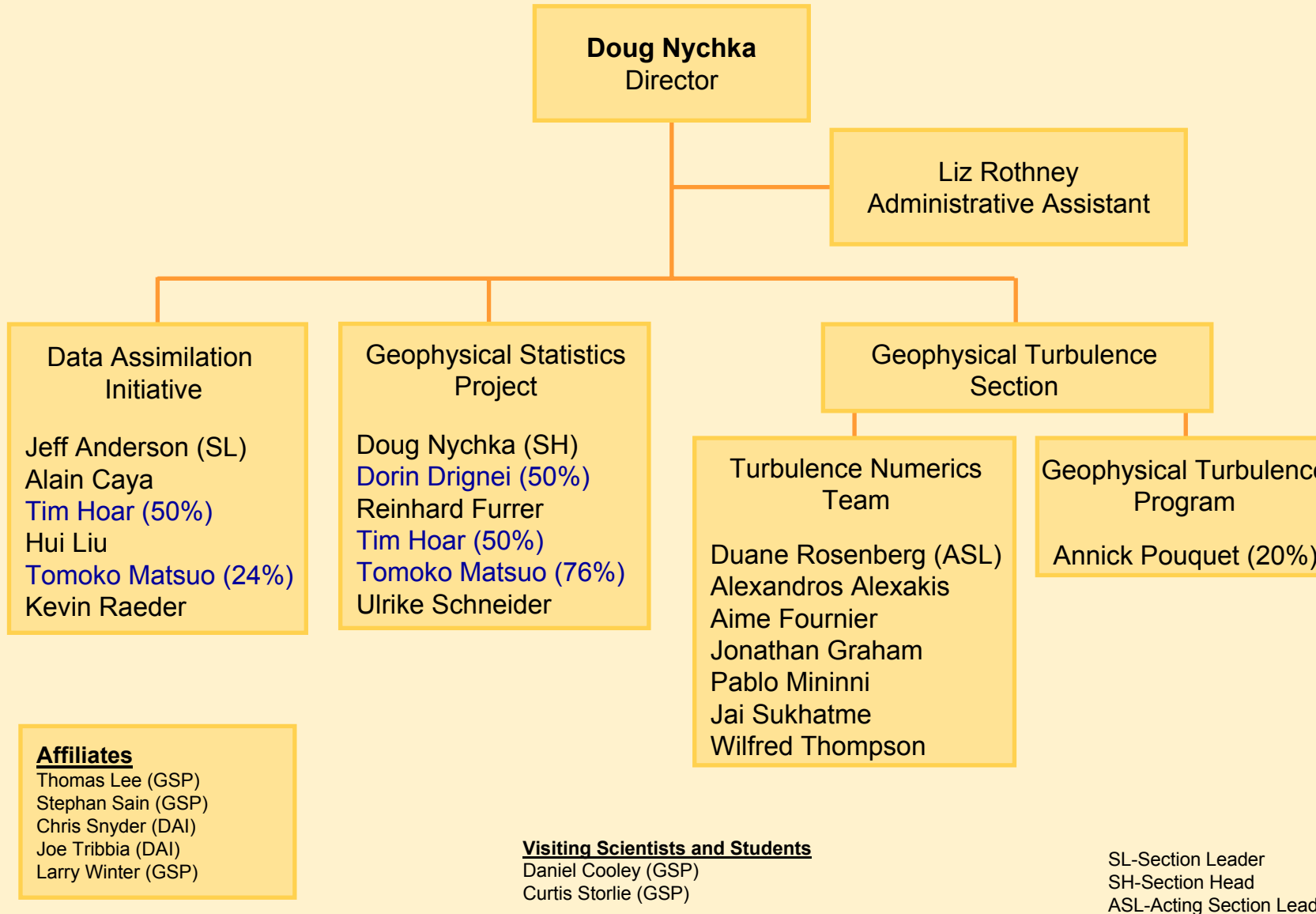
IMAGE is about external collaborative research, building tools and training scientists.

IMAGE represents a persistent focus for mathematical scientists on geophysical problems.

Vision

IMAGE will coordinate the application of mathematics and statistics to the geosciences and to motivate new research in the mathematical sciences based on grand challenge problems from geophysics and related environmental sciences.

Institute for Mathematics Applied to Geosciences



Mission of GSP

The Geophysical Statistics Project pursues the innovative application and development of statistical methodology to address problems faced in the Earth sciences. A complementary activity is to generalize specific problems in the geophysical sciences to broad based statistical research.

GSP overview

PI's: Rol Madden (CGD)* Rick Katz (ISSE), Joe Tribbia (CGD), Doug Nychka (GSP), Jeff Anderson** (DAI)

Base Funding: NSF-DMS probability and statistics

Original* 7/1993 - 6/1999 4M

Renewal 7/1999- 6/2004 3M

Second Renewal** 7/2004 - 6/2007 500K, 450K, 450K

Permanent Staff Project leader, Associate Scientist III (Tim Hoar at 50%), Administrative Assistant (Liz Rothney at 50%).

Postdocs 4-6 recent Statistics PhD's on two year terms

Visitors: Senior and junior statistical scientists, local statistics faculty, shorter term visitors, Ph D graduate students.

Oversight and guidance: External advisory panel of statistical researchers and atmospheric scientists. Internal panel of NCAR scientists.

GSP Accomplishments

- Statistical research with application to the geosciences
- Statistics postdoctoral training
- Impact on NCAR and the geosciences
- Enrichments to statistics community

Members currently supported by NSF statistics grant

- Post docs: Dorin Drignei (60 %), Tomoko Matsuo (75 %) Reinhard Furrer (100 %), Uli Schneider (on leave)
- Graduate students: Curtis Storlie, Dan Coolie and three summer intern students.
- Local statistics faculty: Steve Sain (2 months), Thomas Lee (2 months).