

Review of NOAA Strategic Plan for a National Climate Service

Federal Panel Discussion

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Mission Interests Affected by Climate Change:

US Forest Service Mission

FS Mission:

Sustaining the health, diversity and productivity of the nation's forests and grasslands to meet the needs of present and future generations for forest products and services

- **Forests and ranges include national, state and private lands**
- **Products include timber, water supplies, wildlife, wild foods**
- **Services include carbon storage, clean air, recreation, biodiversity, and aesthetic and spiritual benefits**



Mission Interests Affected by Climate Change: Direct Effects Slow Growth, Eventually Killing Individual Trees and Age Classes

Climate Services
needed:

- Long-term seasonal climate predictions
- Downscaled or regional climate predictions



Mission Interests Affected by Climate Change: Black and White Spruce Dieback in Alaska

Climate Services
needed:

Short-term
growing season
temperature
predictions

Downscaled or
regional climate
predictions





Mission Interests Affected by Climate Change: **Increasing Hurricane Intensity**

Climate Services
needed:

Long-term hurricane
intensity and frequency
predictions

Predictions of
changing hurricane
regional distributions

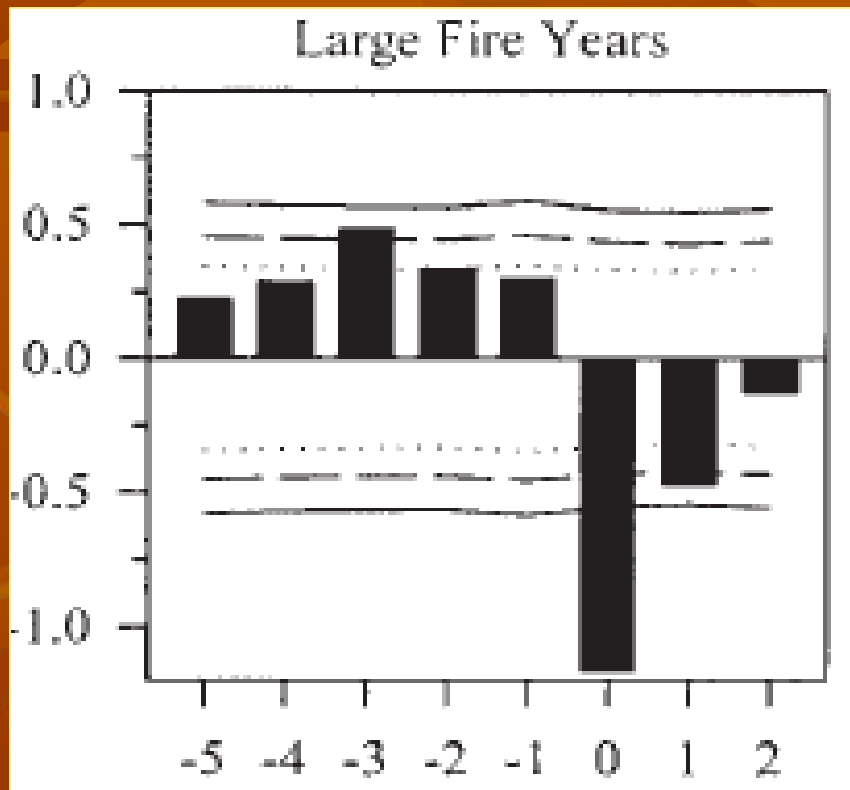


Mission Interests Affected by Climate Change: **Stand Replacing Wildfire Increases**

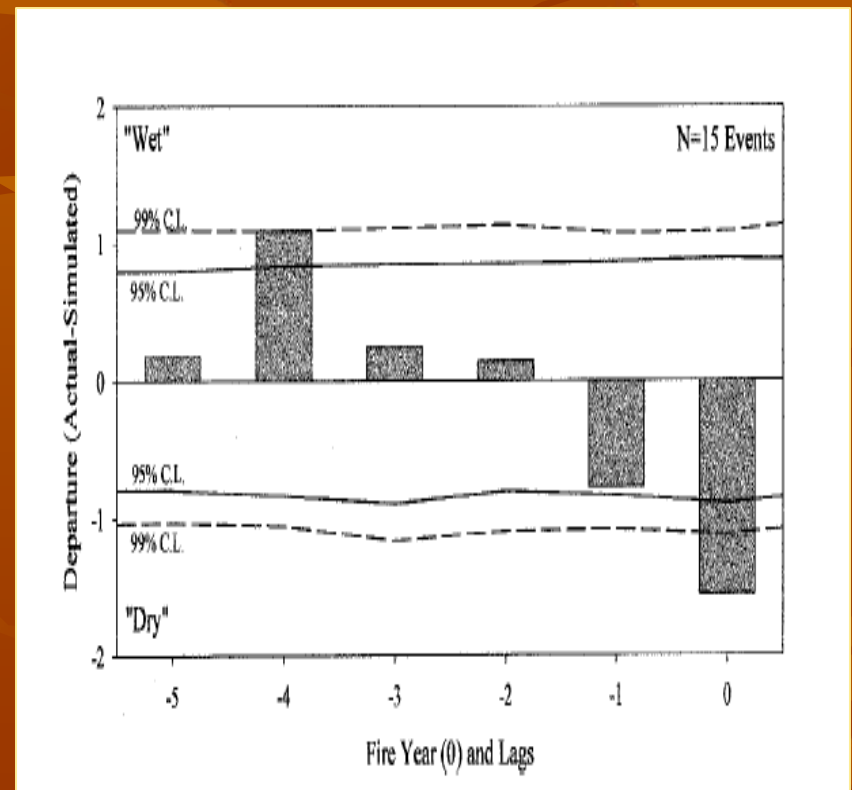
- Climate Services needed:
- Short and mid-term temperature and drought predictions
- Downscaled or regional climate predictions



Mission Interests Affected by Climate Change: Wildfire depends on Drought Conditions in Previous Years

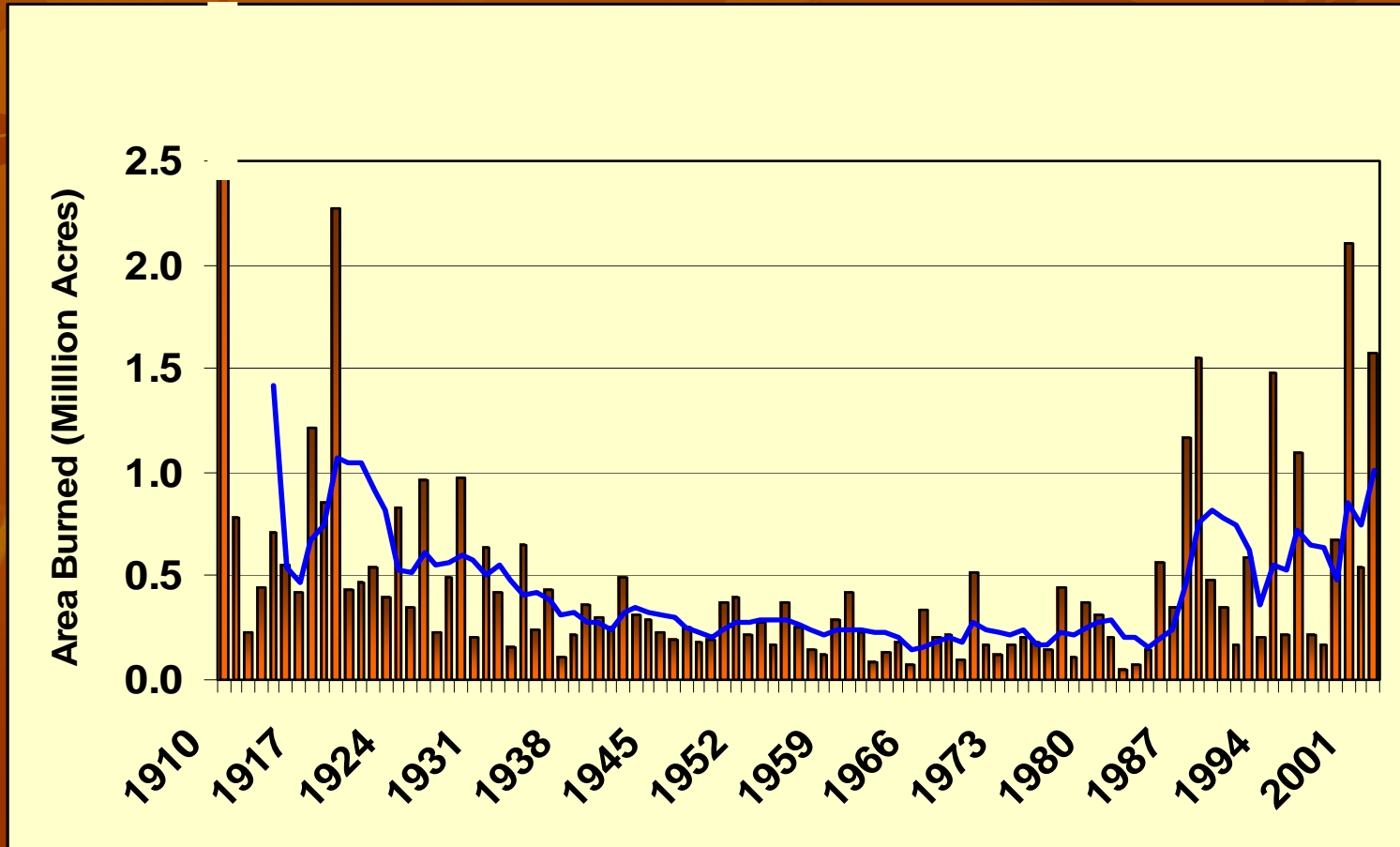


PDSI vs years before fires, Sierra Nevada, CA, Swetnam and Baisan, 2003

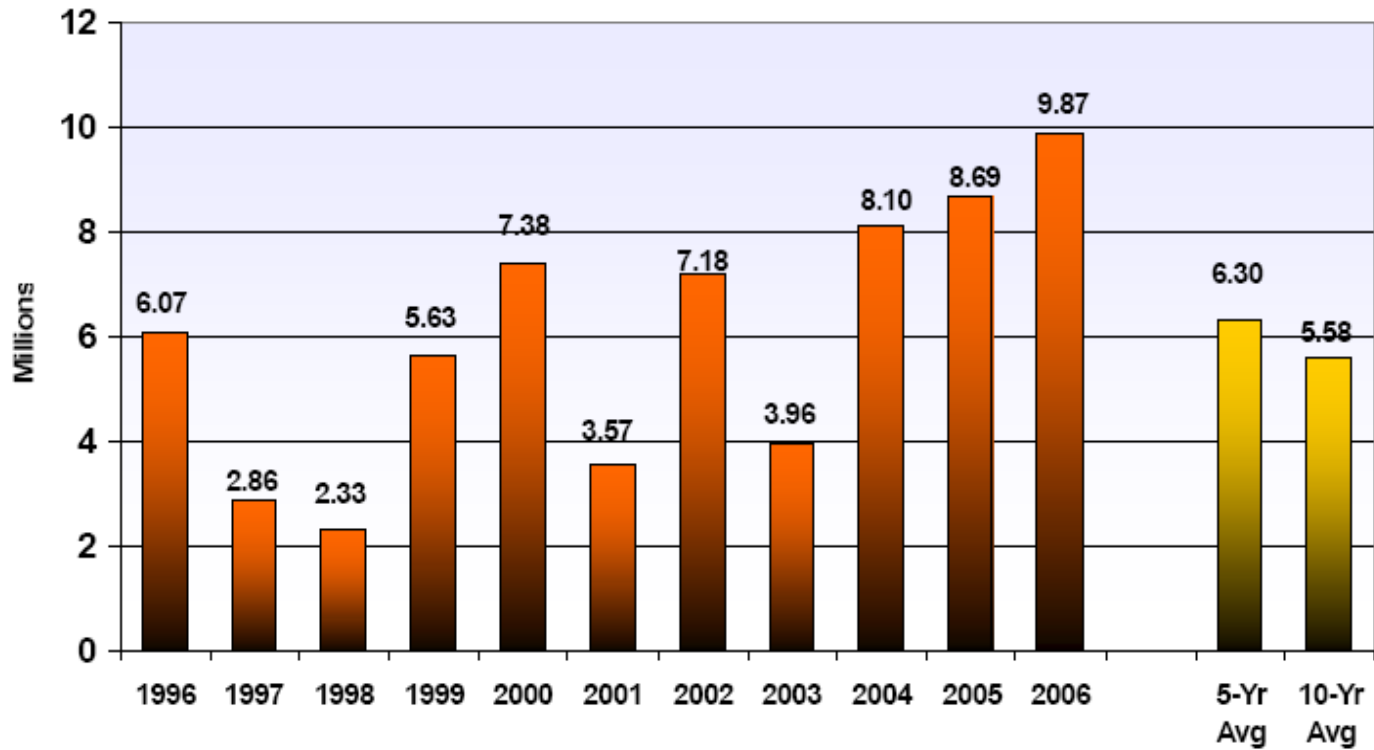


PDSI vs years before fires, Bitterroot Mountains, Idaho, Kipfmuller and Swetnam, 2000

National Forest Acres Burned by Year 1910-2005



Annual Number of Acres Nationally



In recent years, the area burned by wildfire in the US has been increasing. The years 2004-2006 have all broken long-term records.



Mission Interests Affected by Climate Change:
**Reforestation must follow disturbance but what species
to plant for maturity 50 yrs into the future?**



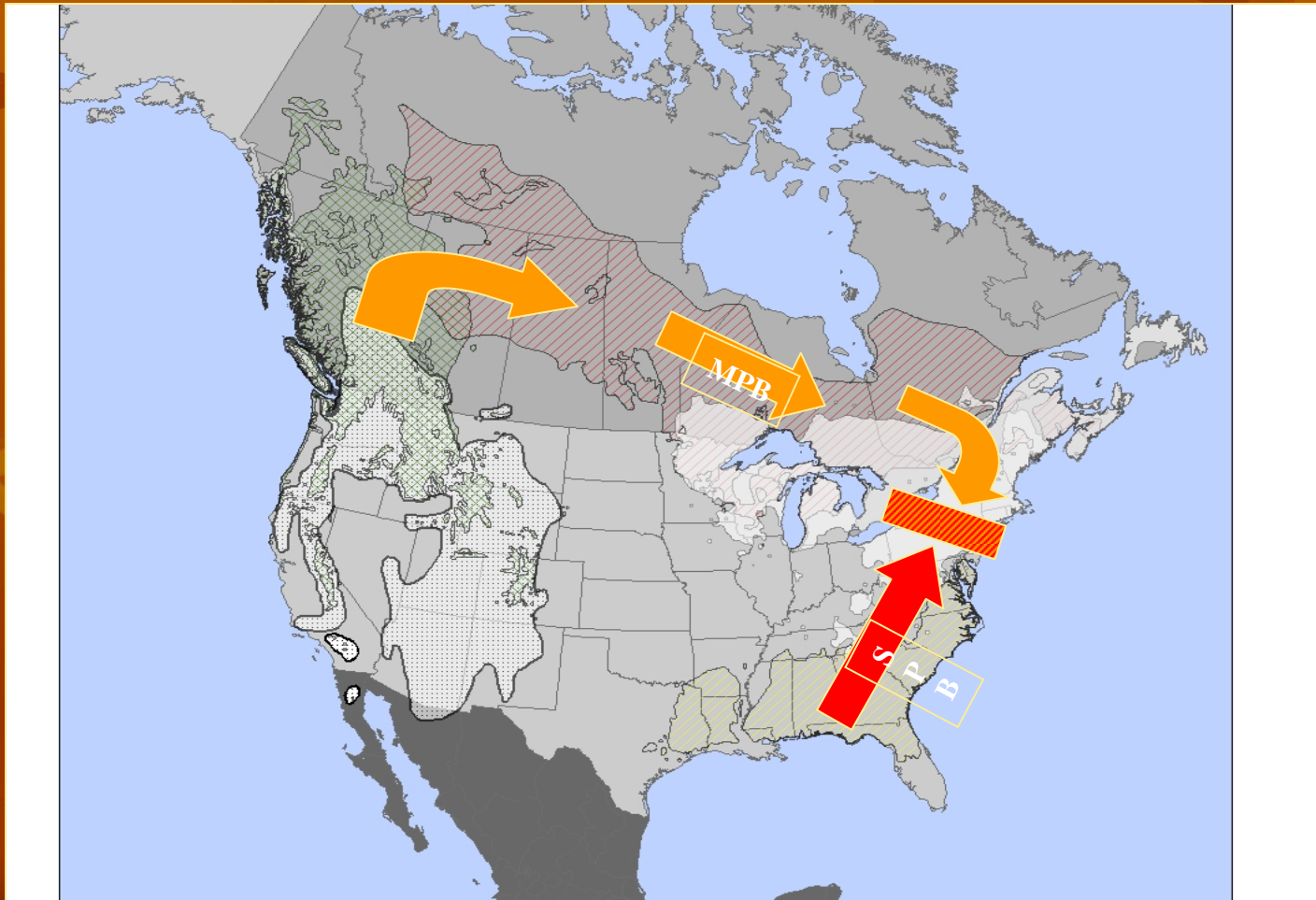
Mission Interests Affected by Climate Change:
Insect Infestations Increasing Frequency and Intensity

- Climate Services needed:
- Short and mid-term drought predictions
- Downscaled or regional climate predictions





Mission Interests Affected by Climate Change: Tipping Point for widespread pest immigration





Climate Activities across Government: **Forest Service Global Change Products**

Research products mandated by Congress

- RPA Forest Assessments: Renewable Resources Planning Act (RPA) of 1974, including climate impacts (1990)
- Research on Carbon Cycle, Water Cycle, Ecosystems, Land Use and Cover: US Global Change Research Act of 1990
- US Greenhouse Gas Assessment: UN Framework Convention on Climate Change, 1992
- Voluntary Reporting of Greenhouse Gas Emissions: Section 1605b of the Energy Policy Act of 1992

FS Products for A Climate Services Partnership:
Experiments combined with field measures in determining carbon cycle properties

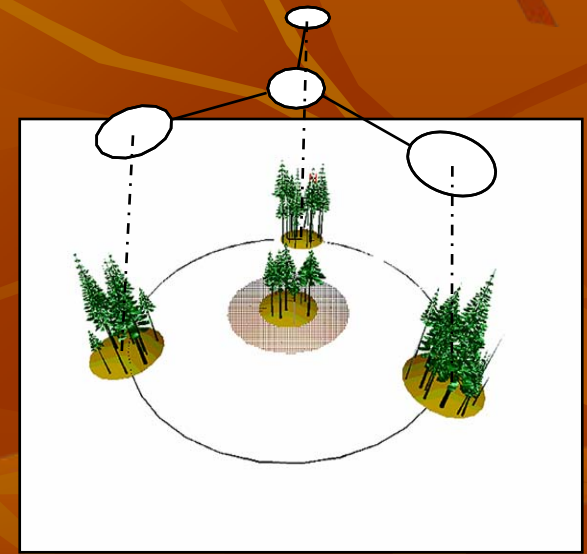
- Experimental research facilities
- Participation in NACP, AmeriFlux, other interagency efforts
- Use of FIA data on forest inventory in analysis of the global carbon cycle



FACE Experiment



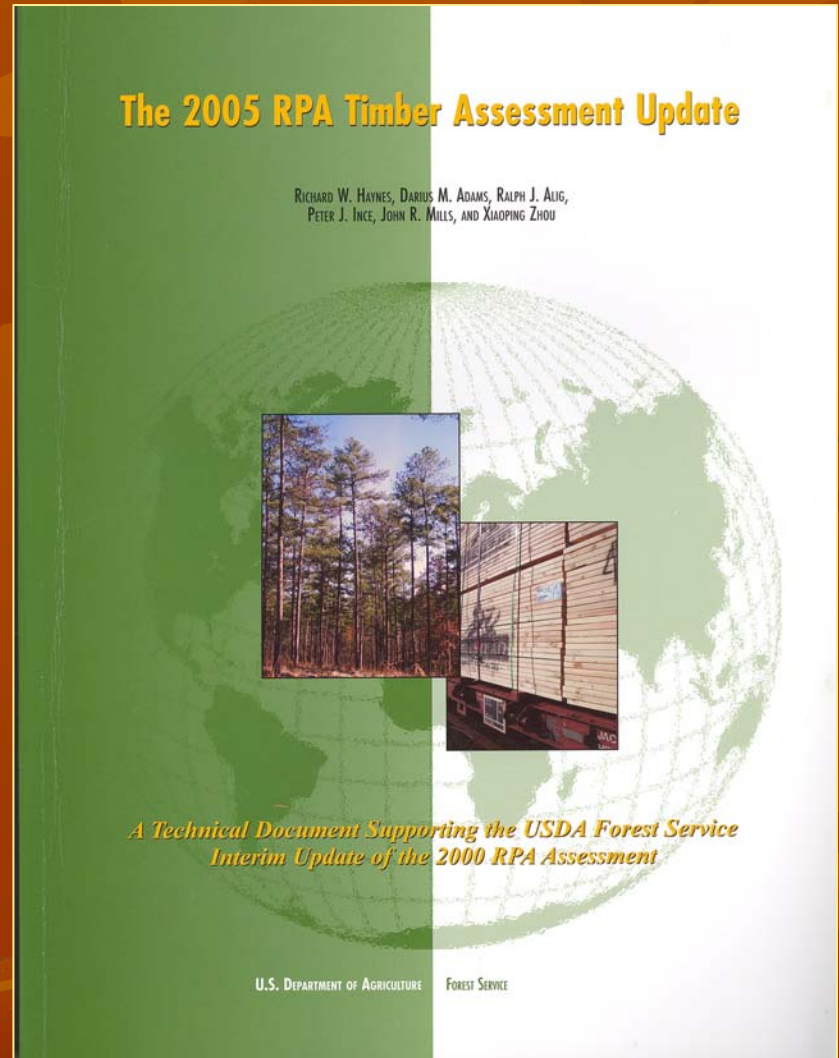
Flux Tower



Inventory Plot

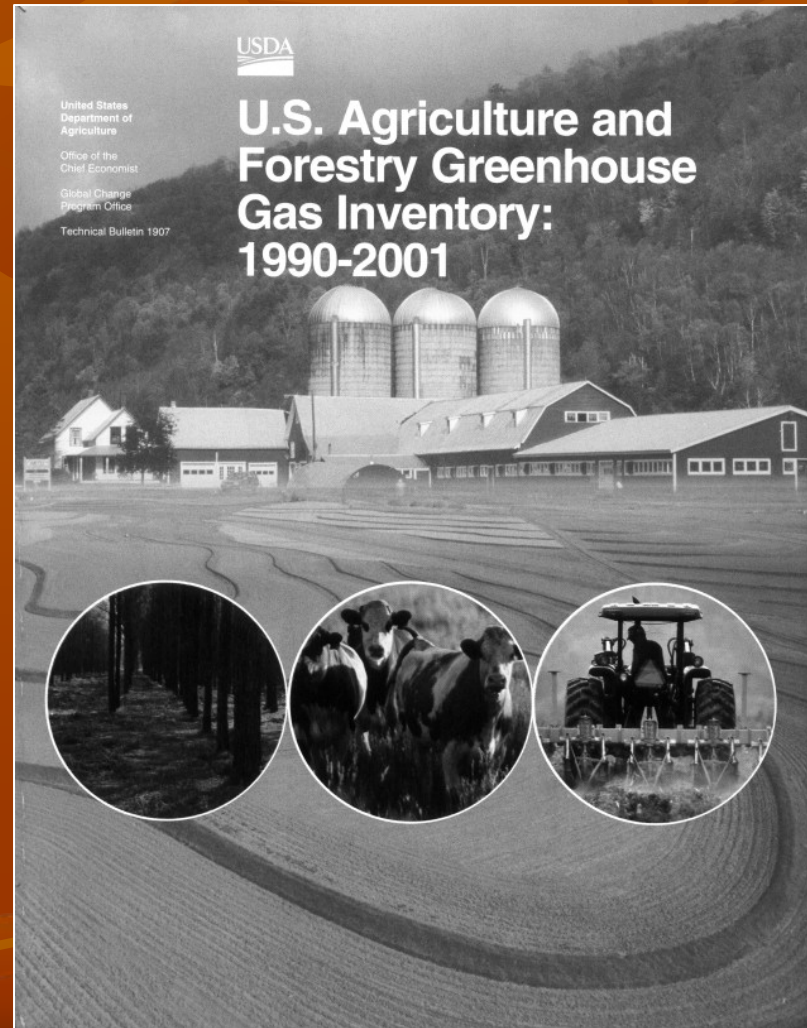
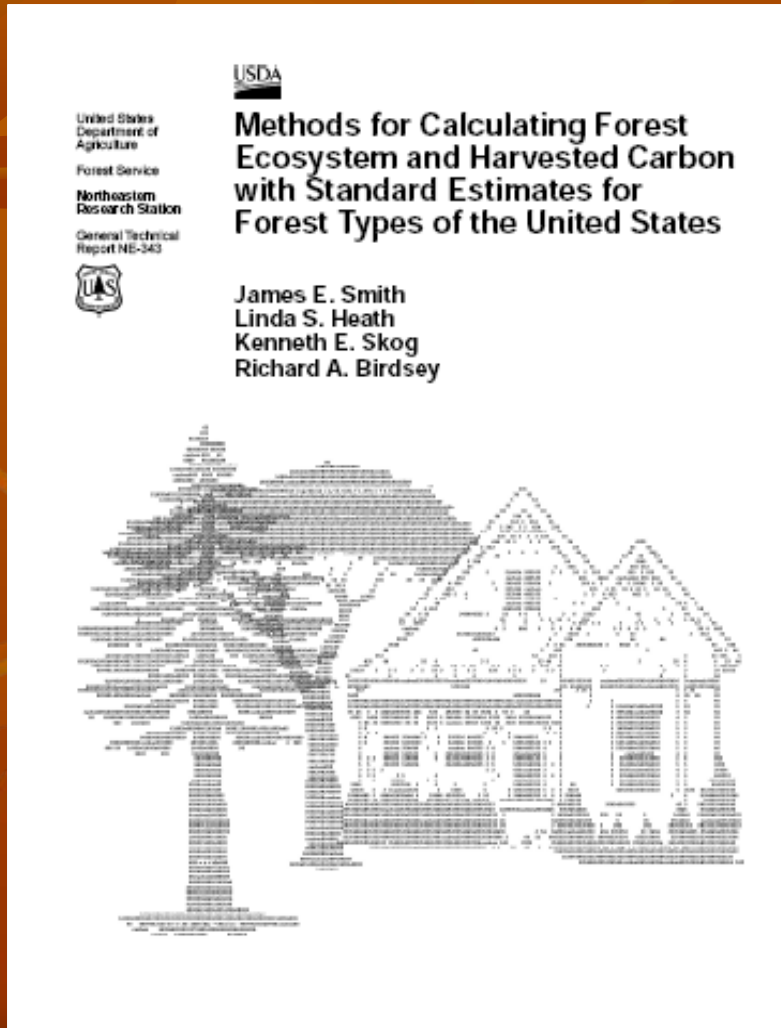
FS Products for A Climate Services Partnership: **RPA Climate Change Assessment**

- Reviews State-of-the-Art in Modeling Climate Change Impacts, including:
 - Forest productivity
 - Vegetation change
 - Supply and demand
 - Carbon accounting
 - Management activities for carbon sequestration

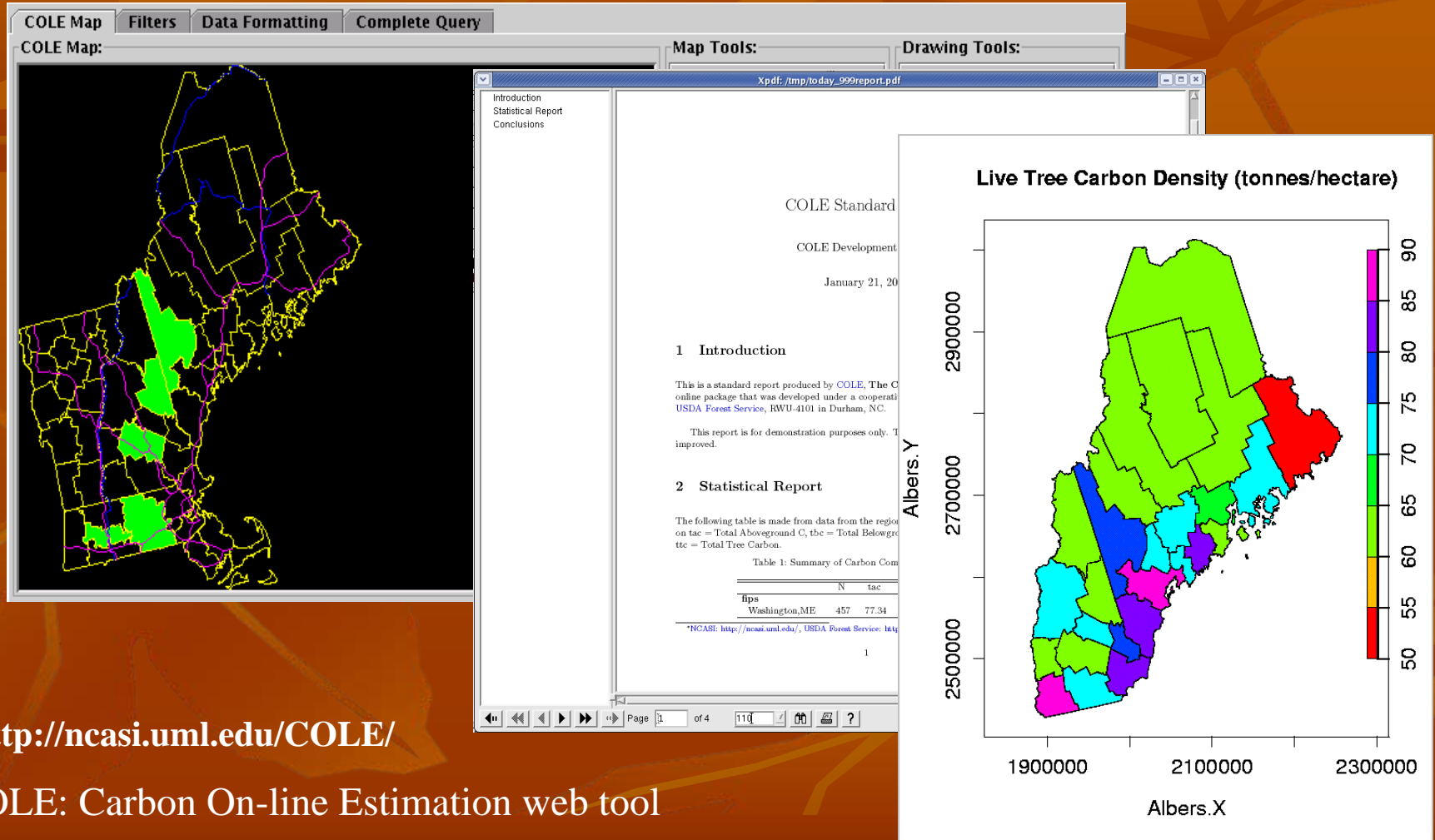




FS Products for A Climate Services Partnership: **Technical information for GHG accounting rules and guidelines**



FS Products for A Climate Services Partnership: Transferring research results to land managers, e.g. with new carbon accounting tools



<http://ncasi.uml.edu/COLE/>

COLE: Carbon On-line Estimation web tool

Views on NOAA Taking a Core Role in Climate Services

Role Depends on How Climate Services are Defined

- As direct products of climate research, measurement, modeling and analysis?
- As centrally planned integrated products from atmospheric, marine and terrestrial science into assessments for land planners?

Alternative Roles for NOAA

- Retention or Expansion of Current Role in CCSP as Lead Agency?
- Return to Previous Role as an Equal Partner in USGCRP, or in a new NSTC Umbrella, e.g., through CENR?