Evolving Partnerships for Integrating Climate and Forecast Information into Fire Management Planning

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Wildfire Management & Climate

- Wildfire risks driven by climate on regional scales
- Time scales: Hours to Days, Seasonal to interannual variability, decadal variability
- Complex institutional structure
- Multiple opportunities / applications

Role of CLIMAS Workshops

- Interaction with scientists and managers in workshops
  - Structured
    - Designed to elicit manager's views on forecast tools (skill, confidence, resolution, timing, etc)
  - Contact with diverse audience
    - USFS, NPS, BLM
    - Operations, Management/Planning, Science
    - Diverse levels of capacity, interest

Some Benefits

- Ideas for applications
- Establish relationships with multiple potential partners
  - Fire management (forecasting, operations and planning), Federal researchers, Academia

Taking the Initiative

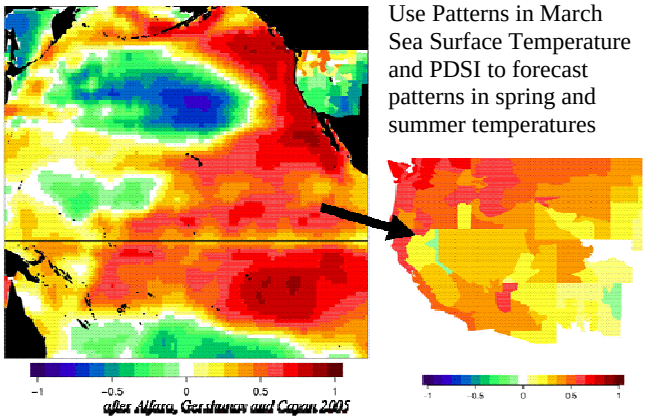
- Entrepreneurship
  - Us: we developed data sets, tested models, developed prototype forecasts
    - Price of entry - demonstrated value
  - Them: NIFC predictive services identified our work through conference proceedings abstracts, interaction in workshops and conferences

How do we get from research to operational applications?

- Resources
  - Shouldn't stakeholders contribute resources at some stage?
  - Challenge: (our) research-to-applications too applied for their research program, too esoteric for operations?
  - Not formally funded as transition project, but USFS is a big organization…
  - Predictive Services identified our research as being of value for specific applications
  - Encouraged collaborations from within
    - Resources
    - Partnerships

- Data
- Applications
- Competition?

– Unofficial imprimatur?
  - Gradual transfer of research and forecast technology to multiple Forest Service researchers (RMRS, SRS, Northwest GACC)
  - Eventually it wont be my product that they use
    - But elements of my research will be incorporated

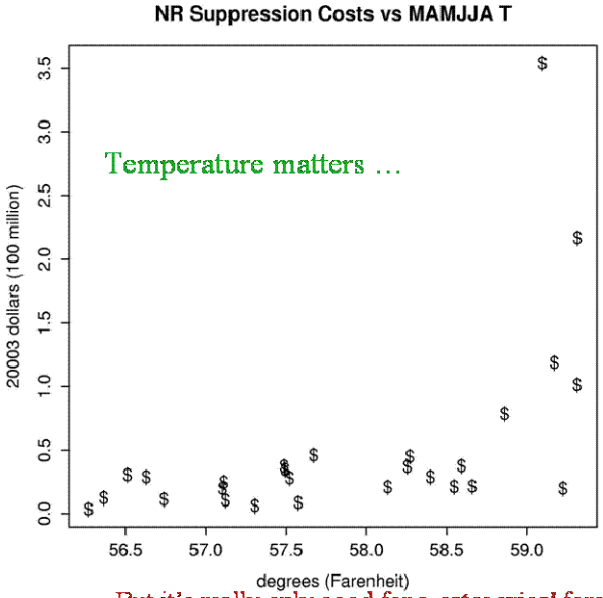


Use Patterns in March Sea Surface Temperature and PDSI to forecast patterns in spring and summer temperatures

It's a Two-way Street

- "They" are learning from us
  – Data sets
  – Forecast methods
  – Forecast limitations
- "We" are learning from them
  – Data sets
  – Applications
  – Forecast methods
  – Forecast limitations

Application: Forecasting for Forest Service Suppression Budget



… But it's really only good for a ***categorical*** forecast

Defining Characteristics

- Public Stakeholders are large Federal Agencies
- Diverse Resources and Capacities
- Lead Agency
  – USFS has considerable resources:
    - research bureaucracy
  – Cross-cutting, centralized.
    - NPS research infrastructure based in individual parks
- Multiple, overlapping (competing?) research collaborations
- Entrepreneurship
- Inter/Intra agency Coordination

Table : Northern Rockies Contingency Table: Observations versus Forecasts of Extreme Fire Years' Suppression Costs

	Forecast	
Observed	< $65 Million	> $65 Million
< $65 Million	21	1
> $65 Million	0	5

USFS Forecast Development & Assessment

- USDA Forest Service
- Budgeting
- 2yr Fiscal cycle
- Wanted: Longer lead times, custom area
- Reallocation across activities, regions
- Suppression budget variability dominated by temperature sensitive forest wildfire regimes
- T forecasts -> improved seasonal forecasts
- Challenge: A categorical forecast
- Challenge: Timing