Social Science and Decision Support in Carbon Cycle Science Planning

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Outline

- Motivation and justification
- Social science research vs. decision support
- Opportunities for the carbon cycle science community
- 'Brave New World'– questions of boundaries, roles, evolution and continuity

Carbon science already has a clear mandate

- Science plans explicitly call for "coordinated rigorous, interdisciplinary research that is strategically prioritized to address societal needs" (Sarmiento and Wofsy 1999)
- Organized under USGCRP which seeks to "produce information readily usable by policy makers attempting to formulate effective strategies for preventing, mitigating, and adapting to the effects of climate change" (GCRA 1990)
- Confirmed by CCSP which seeks to "best support improved public debate and decision making in the near term" (CCSP 2003)

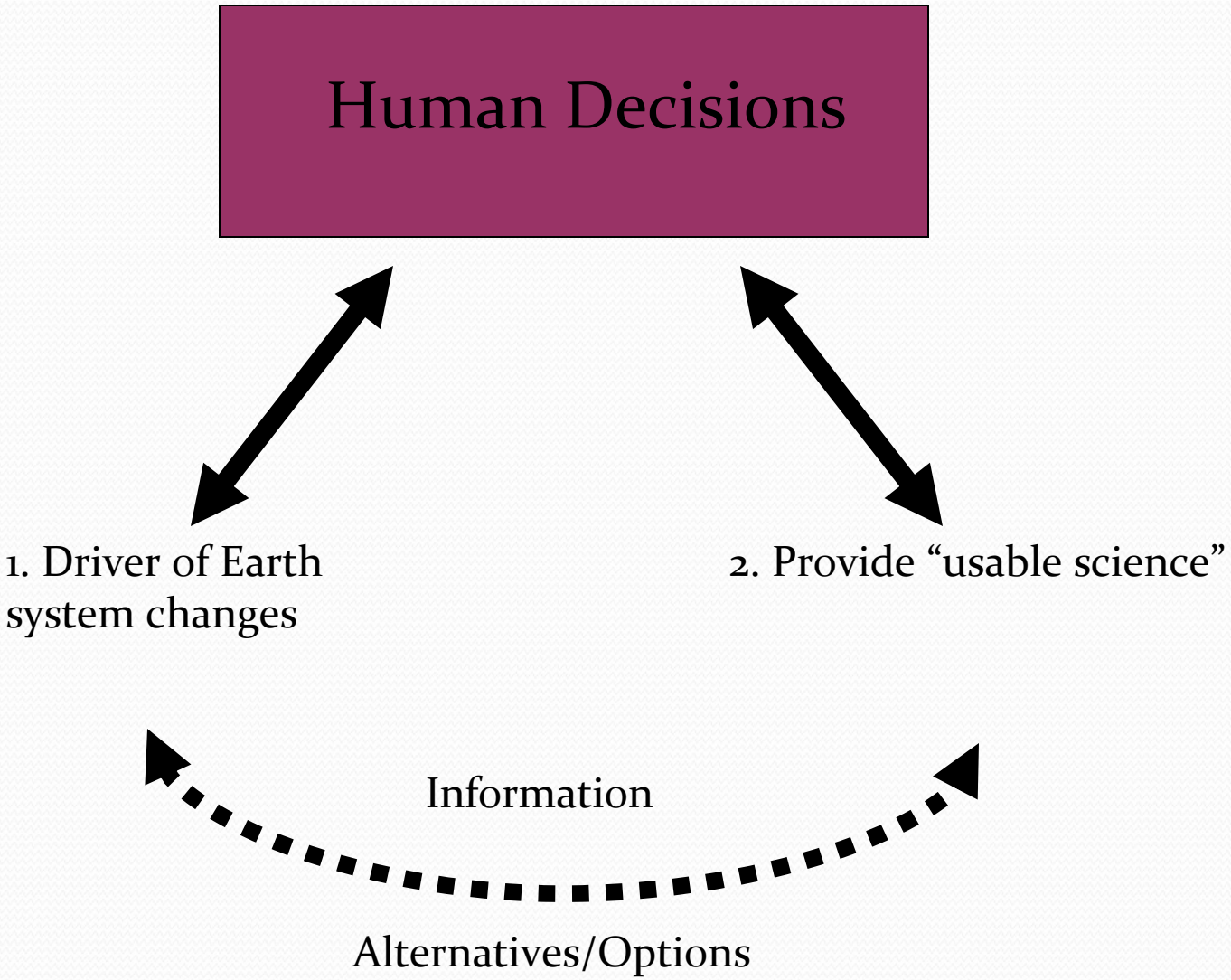
Two different aspects..

Social Science Research

- A family of methods and questions that relate to studying how human systems "work"

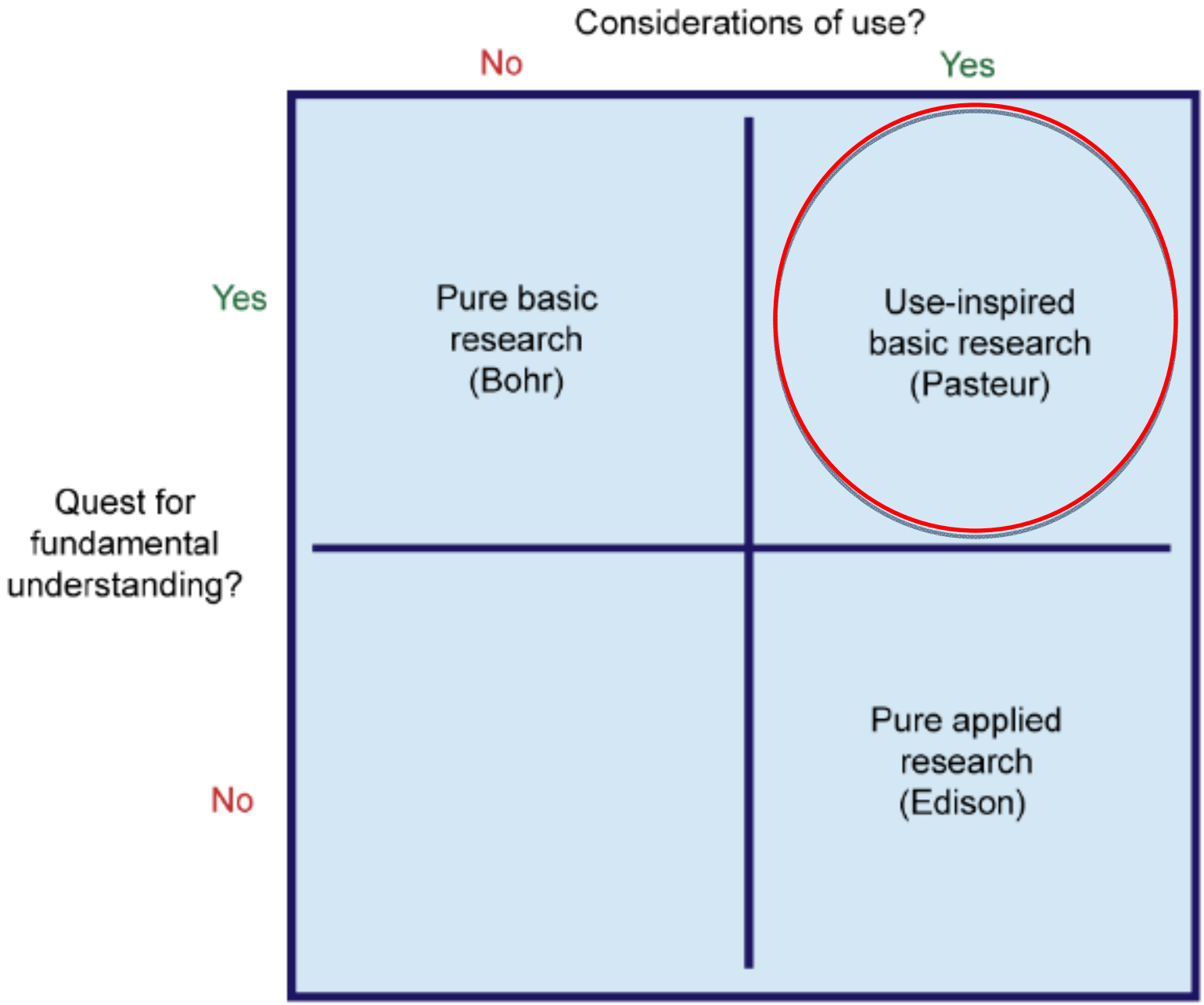
Decision Support

- Consists of processes, activities, products, and services that cause decision-relevant knowledge and information to be produced and to be considered in decision-making.
  - Timely
  - Relevant
  - Trustworthy


Human Decisions
1. Driver of Earth system changes
2. Provide "usable science"
Information
Alternatives/Options

“Use-inspired” Science

- Research that is inspired by both
  - the quest for fundamental understanding and
  - considerations of use by society.
- Research intended for use by society must create mechanisms by which user needs are identified and brought into the process.



Stokes, D. 1997. Pasteur's Quadrant.

Translating to CCS

- After a decade of the Carbon Cycle Science Plan v.1, looking at what might be added in the mix to v.2 to bring in research from social science and move a part of the program towards “use-inspired research”
- What types of knowledge might be useful in 2020?

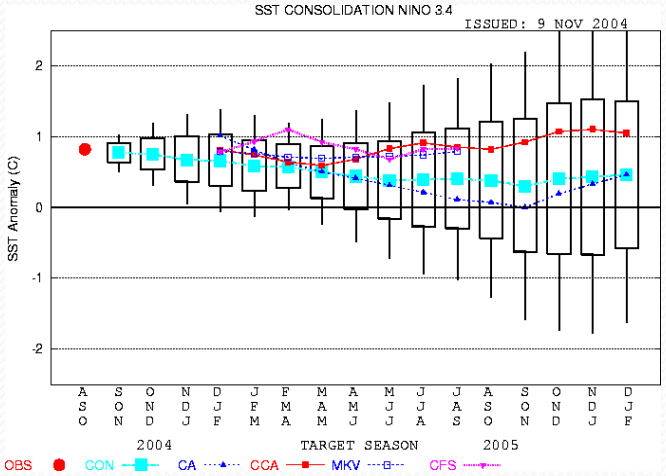
Some possibilities (from a science perspective..)

- Near real-time explanation of interannual variability in atmospheric CO_2 (requires integrated ocean, land, human system science)
- Verification of carbon policies
- Supporting carbon markets, trading
- Informing options for ocean fertilization
- OCB already very active in policy debate on ocean acidification

What we know from other fields on providing usable science

- Creating and supplying science that is useful in a particular context is not a “given”
- To be successful at providing useful information to decision-makers requires research and a deliberate approach

Providing "useful" information: The case of climate forecasts



Not as useful as expected to farmers, water managers and so on because of a variety of reasons:

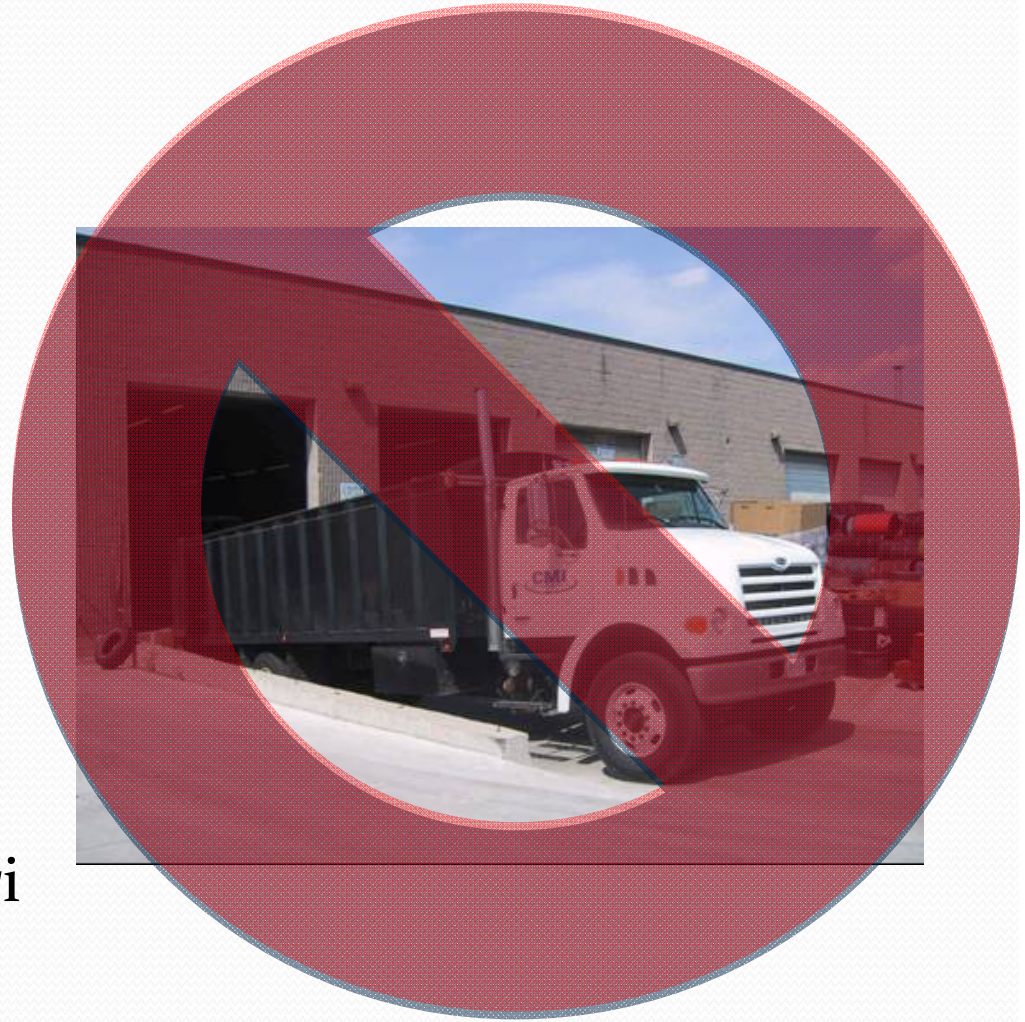
- Information provided often not what was most needed
- Lack of regional specificity, scale mismatch
- Inaccessible presentation, poor communication
- Not presented with accompanying info. more important to decision-maker, such as market and policy information
- Decision-makers incapable of responding to information--institutional constraints
- Lack of trust in information
- Uneven delivery to affected constituents

..... And so on

(Pagano et al. 2002, Eakin and Conley 2002, Pulwarty and Redmond 1997, Letson et al. 2001, Pielke Jr. and Conant 2003, Lemos et al. 2002, etc.)

What does it take for science to be used in decision making?

- Relevant to a decision context/Makes a difference
- There are viable options
- Compatible with existing values, norms and practices
- Accessible, Credible, Trustworthy
- Reliable/accurate/appropriate scale and timing



Reviewed in Dilling and Lemos in prep

Some common questions

- Doesn't this make science more politicized?
- Does everyone have to do this type of science?
- Does basic research disappear?

NO..but…

- It does take effort to create
- It is not always rewarded by our current incentive structure
- Care must be taken to preserve boundaries, credibility, ensure transparency

Benefits to science and users

- Allows basic research to truly be basic
- Allows exploration of new paradigm of use-inspired basic research
- Fulfills mission of program
- Provides more options for decision making

Thank you!

- Questions
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