Friday breakout summary panel 2024-08-09
Ben Bond-Lamberty comments

It's been an interesting, productive, fun week, and I've been fascinated to see how the dominant themes from Tuesday's Biogeochemistry breakout have been reinforced, qualified, and modified in science presentations and discussions throughout the meeting.

These themes included:

- **Make better use of disturbance experiments and observations.** The Biogeochemistry breakout noted that we need to better leverage perturbation experiments, both controlled (planned and executed by the scientific community) and unplanned (the "fresh horrors in the biosphere" such as drought, fire, and heat waves). This week's presentations emphasized, however, the urgency of improving our scientific understanding and predictability of these events because of the U.S. and global communities in harm's way. That is, in addition to scientific knowledge (which is good) there is an enormous and growing need to apply our understanding at high temporal and spatial scales.
- **Stronger links between and across disciplines.** In the breakout, we discussed the importance of leveraging cross-disciplinary language, while also noting difficulties (language, practices, insularity). The week's EESM scientific presentations and discussions have emphasized to me what a potential strong point this is for DOE, which can take a longer and directed time horizon that emphasizes strategic investments, coordination between programs, and the cultivation of both programs and people.
- **Awareness of the opportunity costs of model development.** This is interesting, because in the breakout we repeatedly noted that there's a huge need for 'ready-to-use', well documented model frameworks, even if not the latest and greatest. Cutting-edge modelers frequently underestimate the value of low-resolution configurations, simple climate models, etc., that are easily applied by the broader community. But on the flip side, many presentations this week emphasized the qualitative, shockingly realistic potential for very high resolution models running on DOE supercomputers—very large ensembles, kilometer-scale global cloud models, etc. These competing priorities will require a careful and considered balance by researchers, DOE EESM, and the broader scientific community.

BIOGEOCHEMISTRY BREAKOUT SESSION

REPORT OUT

2024-08-06

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- NEED A COHERENT S
- THESE DATA EXIST!
- EVERY YEAR RELEASE
- BUILD PERTURBATION
- (BUT MANY MODELIN

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BIOGEOCHEMISTRY BREAKOUT

STRONGER LINKS BETWEEN AND ACROSS DISCIPLINES

LONG TERM CHALLENGE

- WE HAD ATMOSPHERIC, BGC, OCEAN, HUMAN SYSTEMS SCIENTISTS
- THIS IS A POTENTIAL DOE STRONG POINT: PLANNING, LONG TERM INVESTMENT, COORDINATION BETWEEN PROGRAMS
- E.G. STRENGTHEN LINKS BETWEEN LAND BGC COMMUNITY AND ATMOSPHERIC CHEMISTRY

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BI

AWAR COSTS

- HUGE VALUE TO AN 'LATEST AND GREATE
- LOW-RES CONFIGUR ITERATE/EVOLVE RAP
- MODELS AND ROCK

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