

# *Some Reflections*

*Management Operations Working Group (MOWG)  
Carbon Cycle & Ecosystems Focus Area*

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# Some Personal Reflections

*Names Have Been Changed to  
Protect the Innocent...*

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# Management Operations Working Group (MOWG)

- what is it?
  - *liaison between NASA HQ and science community*
  - *“sounding board” for various issues*
  - *generate informal “findings”, not formal recommendations*
- represent carbon cycle & ecosystems focus area
  - *process open to community*
- long-term goals
  - *provide community perspective to NASA*
  - *help with planning exercises*



# Who Are We, Anyway?

- Terrestrial Ecology and Biogeochemistry
  - *Greg Asner, Carnegie Institution*
  - *Jon Foley, University of Wisconsin (co-chair)*
  - *Ramakrishna Nemani, NASA Ames Research Center*
- Land Cover and Land Use Change
  - *Lisa Curran, Yale University*
  - *Ruth DeFries, University of Maryland*
  - *David Skole, Michigan State University*
- Biodiversity
  - *Richard Barber, Duke University*
  - *Michael Behrenfeld, Oregon State University (co-chair)*
  - *Marc Steininger, Conservation International*
- Ocean Biology and Biogeochemistry
  - *Paul DiGiacomo, Jet Propulsion Laboratory*
  - *Heidi Sosik, Woods Hole Oceanographic Institution*
  - *Jim Yoder, Woods Hole Oceanographic Institution*
- Applied Sciences
  - *Carlos Del Castillo, Johns Hopkins University*
  - *Jeff Masek, NASA Goddard Space Flight Center*
  - *Randy Wynne, Virginia Tech*
- Also on NASA Earth Science Subcommittee
  - *Jon Foley, University of Wisconsin*
  - *Lisa Curran, Yale University*
- Also on NRC Decadal Survey Committee
  - *Ruth DeFries, University of Maryland*



# Work Ahead

- within next ~18 months, develop suggestions for future FA *program content* and *research directions*
  - *update science questions*
  - *clearly state research priorities*
  - *highlight opportunities*
- *engage community* in process
- *reflect outcomes* of broader planning activities
  - *NRC decadal survey*
  - *other, internal NASA strategic planning activities*



# Big Challenges



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Image: NASA

# Folks are Depressed

- Earth Science R&A budget cut by ~20%
- “*To Understand and Protect the Home Planet...*” removed from mission statement
- Earth Science community is not rallying as it could
  - *Space Science community seems to do this better...*

WASHINGTON, WE HAVE A  
PROBLEM...



# Critical Science Concerns

- continuity of *critical observations*
  - *Landsat continuity*
  - *transitions from MODIS to VIIRS*
- prospects for *future missions* relevant to the CC&E focal area?

WASHINGTON, WE HAVE A  
PROBLEM...



# Great Opportunities



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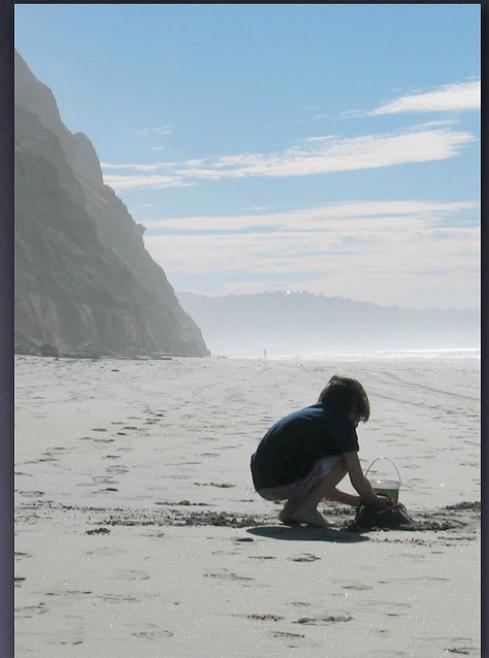
# It's Not *All* Bad News

- challenges are *short-term*
  - *problems with shuttle / space station are temporary*
  - *long-term priorities will probably change again post-2008*
  - *data gaps – not data abandonment*
- opportunities are *long-term*



# Look Down the Road

- this community has done a *great job*
  - *compare 1986, 1996 and 2006...*
  - *our community has been instrumental in revolutionizing global change science!*
- our science is *badly needed*
- but, we to be a *much more compelling case for our science*
  - *its exciting!*
  - *its important!*
  - *it has payback to society!*





# 4 Steps Forward?



# (I) Focus on Core Competency

- what is *unique* about NASA program?
- well, *satellite remote sensing*, obviously!
- but it's *more* than that, much more
  - *planetary perspective: biosphere as a whole*
  - *scales of relevance: local to global*
  - *integrative science*
  - *basic & applied aspects*
  - *most “wall to wall” program in government*



## (2) Take Stock of *Key Resources*

- what *key resources* do we have?
- well, *satellites and instruments*, obviously!
- but it's *more than that*, much more
  - *planetary perspective*
  - *unique observational capacity*
  - *unique modeling frameworks*
  - *unique synthesis and integration abilities*
  - *most important! unique community*



# (3) Renew Our Science Questions

- the basics are the same
  - *how does the biosphere work?*
  - *what is its role within the larger earth system?*
  - *how can we better manage the human relationship to the biosphere, and sustain it for future generations?*
- but *specific* questions are dusty
  - *basically determined in mid-1990*
- *dream a bit!*



# (4) Articulate a *Compelling Vision*

- framing and communicating our *core message*
  - *what is the challenge?*
  - *what is the solution?*
  - *why should people care?*
  - *how will people benefit?*
- who are the key *audiences?*
- ultimately, how can we *inspire others* with our vision of a living planet?



# The Message?

- This is the only *living* planet we know.
  - *life in the universe appears to be rare*
  - *this community knows more about it than anyone*
- Our well-being, health and security -- ultimately, our *survival* -- depends on understanding it better.
  - *Mars is cool, but Earth is hot!*
- *How to get this across?*



# A Living Planet



*“Viewed from the distance of the moon, the astonishing thing about the earth, catching the breath, is that it is alive. The photographs show the dry, pounded surface of the moon in the foreground, dead as an old bone. Aloft, floating free beneath the moist, gleaming membrane of bright blue sky, is the rising earth, the only exuberant thing in this part of the cosmos. If you could look long enough, you would see the swirling of the great drifts of cloud, covering and uncovering the half-hidden masses of land. If you had been looking a very long, geologic time, you could have seen the continents themselves in motion, drifting apart on their crustal plates, held aloft by the fire beneath. It has the organized, self-contained look of a live creature, full of information, marvelously skilled in handling the sun.”*

*– Lewis Thomas, Lives of a Cell*



got earth?



