

Aerosol Observability Workshop: Meeting Charge

or

“Why are we here???”



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Welcome (1)



- Thanks for coming to this first of hopefully several gatherings to discuss shared interests. I hope we make it worth your while.
- A second gathering on predictability (?) will likely be held by ECMWF in late summer.
- If you need **ANYTHING**, please let me or Linda Harasti know.



"That's why I never walk in front."



Welcome (2)



- This is the first time all of the developers for operational centers with global aerosol forecasting requirements are in one room (ECMWF, FNMOC, GMAO, JMA, NCEP, UKMO)
- We also have a wide array of near-real time remote sensing data providers for passive and active sensors (ESA, EUMETSAT, JAXA, NASA, NESDIS, NRL).
- There are clear synergistic benefits for collaboration between climate and operational communities.
- We need each other much more than many realize.
- Use this unique opportunity to acquaint yourself with other programs, and more importantly, your counterparts at other organizations.



BIG problems which bring us together today



- **Future aerosol products:** Terra/Aqua has been a good ride. What can we really get out of NPP, JPSS, EarthCARE, Decadal Survey, GOES-R etc...? We don't even have real uncertainties now...
- **Model needs:** Even with current aerosol products, most are not designed with model customers in mind (climate and operational). Error models and propagation of error are hardly ever addressed by developers.
- **Multi-sensor fusion:** You think working with one sensor is hard? Try 2, 3 or 4... How do we deal with the changing constellation of sensors and products with regards to initialization and data assimilation? Product versus radiance assimilation?
- **Competition:** Competitive products from the same data source is often seen as a bad thing by agencies. Actually, there is nothing farther from the truth-as long as they are available and supported.
- **The world is a complicated place:** It is difficult to understand the inner workings of other agencies and hence it is difficult to collaborate.



Four Reasons Which Push Towards Collaboration



- Satellite missions are becoming increasingly expensive, and **taxpayers are expecting larger value** for their R&D investment. Multiple use satellite sensors are attractive.
- We expect further **reductions in relative support** for product development. Individual developers which are responsible for “getting the job done” are much more cooperative than agencies.
- Operations and climate community need **similar levels of data coverage and efficacy**, even if many in official requirements roles don’t realize it.
- If you want the **best answer** and realistic probabilities, experience has shown that a consensus/multi-model ensemble of **4 independent deterministic models is more often better** than any one deterministic model or high number single model ensemble.



Three Issues Which Prohibit Collaboration



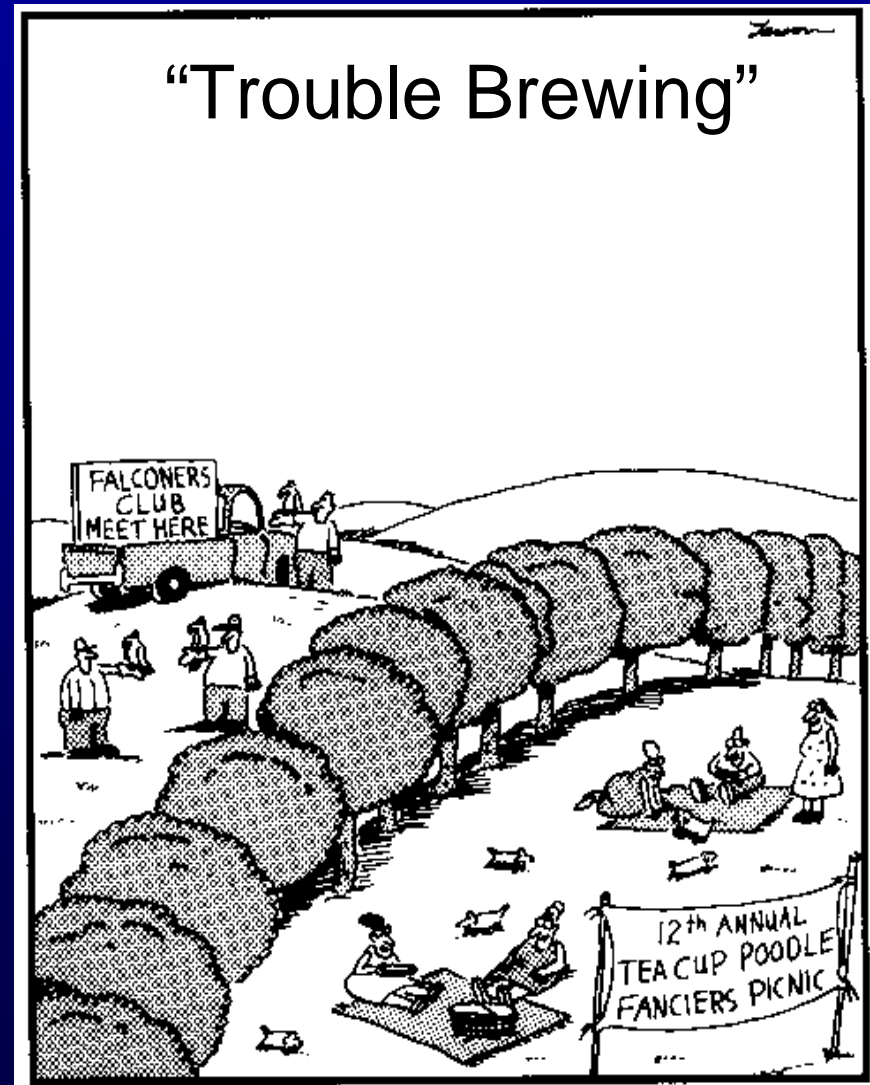
- **Funding Stress:** Contrary to good business practice, organizations under funding stress tend to become protective and insular. Most often, cooperative, far thinking, and outreach programs are the first elements to be shed.
- **Tribalism:** “Not invented here” mentality is pervasive in all agencies and centers. While there are engineering reasons to support in-house development or code generation, this is not true for “science.”
- **Scientists are Scientists:** Most conflict is personality driven.



Harvesting Research



- Quality/efficacy schism may be forming between rank and file and center level work.
- Everyone wants their work to be useful, but most don't know what is needed.
- Much work is on “one-ups” or hand analyses which are difficult to apply.
- In a world of limiting resources, how do we harness this workforce?
- No one want to turn the crank, but that is largely what is needed.





We have done something like this before: Biomass Burning CO-OP.



- Every year developers from EPA, NASA, NPS, NRL, NOAA, & USFS get together to share current ideas and program information on biomass burning monitoring and emissions.
- But there are a few issues that inhibit true ‘collaboration’
 - Everyone is already red-lined with regards to work.
 - Often can’t get “planets to align” in two organizations to actually get projects started.
 - Agencies leaders are hesitant to sign on to any recommendation, even if the recommendation is universally agreed upon. Reasons: Cost, obligation/precedent, standing, accountability etc....
 - Developers often would rather reverse engineer a process than directly adopt code from another party. Reasons: Engineering requirements, supportability/security, mistrust, NIH
- Even so, communication has to start somewhere and participants all agree this is a good idea.



By the end of this meeting



- You should know who is doing what in different agencies with global aerosol remote sensing and modeling mandates. Hopefully climate and operations understand each other a little better.
- We can (as developers) should all agree on a paper that presents broad recommendations for the widest distribution of data in the fastest reasonable time (e.g., all data for everybody).
- Developers should also request specific data products and error characterizations. Identify key research areas and broad efficacy requirements for the next generation of products.
- Plan for future workshops, meeting sessions etc...

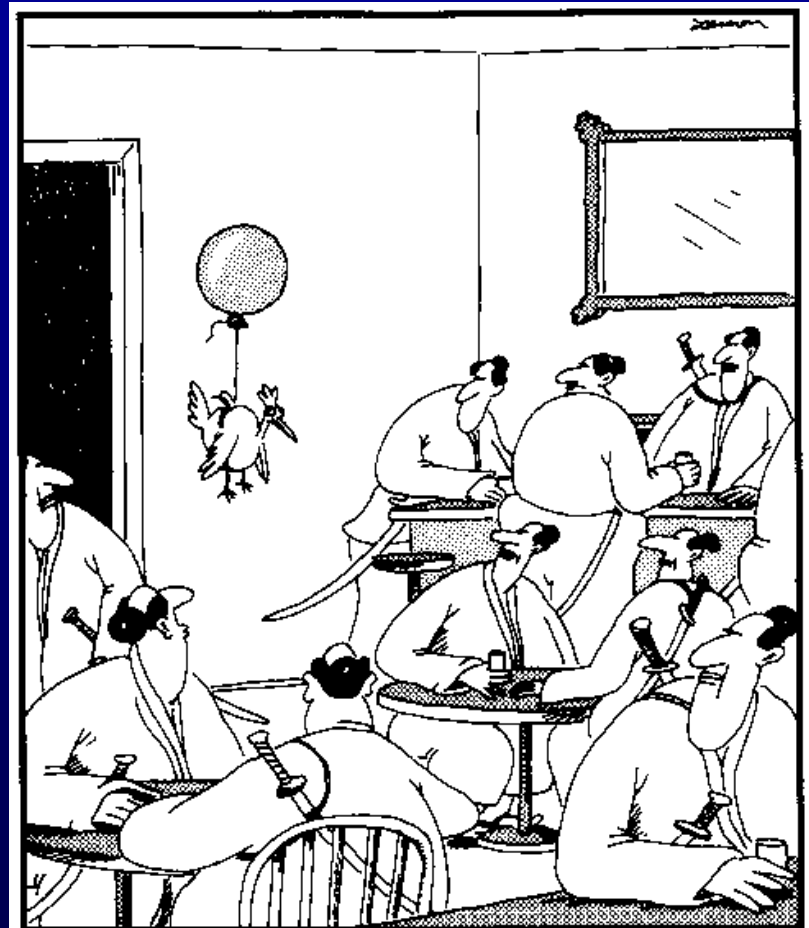
Bottom line: Don't ask, don't get. But also don't be whiny.....



Meeting Rules



- Don't be afraid to ask what you think are dumb questions or make suggestions! There is much confusion as to the points of view of different agencies.
- Open discussion is encouraged. Be honest and to the point, but respect each others point of view.
- Don't go into acronym land. Speak in plain simple language.
- Have lunch/after meeting beer with someone different each day.



In what was destined to be a short-lived spectacle, a chicken, suspended by a balloon, floated through the Samurai bar's doorway.