NOAA Climate Monitoring Summit

Oct 19-20, 2010
Earth System Science Interdisciplinary Center
University of Maryland Research Park (M-Square)
5825 University Research Court, College Park, MD

As we move forward with the NOAA Climate Service, we seek input from key scientists from our facilities to develop a path for enhancing climate monitoring across the agency. As a first step, the NOAA Climate Service Corporate Team is organizing a workshop on this subject to be held in College Park, MD on Oct 19-20, 2010. Participants will be charged to develop a common understanding of current NOAA climate monitoring activities, identify key climate monitoring challenges and opportunities, and define a process for enhancing climate monitoring. This path should be consistent with the new NOAA NGSP and should engage our customers and partners.

Workshop Objectives:

1. Given a working definition of climate monitoring for NOAA, determine areas of overlap and gaps in NOAAs climate monitoring enterprise as a first step towards helping users know what to use and believe.
2. Identify how indices currently being monitored are related, coordinated, updated and explained to users.
3. Identify how climate monitoring products should be disseminated (e.g. via the NOAA Climate Portal) and communicated.
4. Develop recommendations to help facilitate use of NOAAs working definition of climate monitoring, and identify major users of NOAA monitoring products and potential partners who should be consulted as we enhance climate monitoring activities.

While the global climate observing system enables climate monitoring, the summit will not address challenges with the observing system, which are viewed as another important task.

Workshop Format: This two-day meeting will consist of brief presentations related to the 4 objectives stated above and working group discussions that will lead to the development of a set of recommendations for coordinating monitoring across NOAA, including mechanisms (e.g. climate monitoring board) that would need to be in place to ensure improvements.

Anticipated Outcomes: A "Climate Monitoring Report" that summarizes challenges and opportunities, with recommendations for enhancing climate monitoring across NOAA, will be delivered to NOAA Leadership following the Summit. Concepts such as the role of research in climate monitoring, links between monitoring and attribution, and needs for improved quality control and analysis methods will be discussed. The Report is intended to define a path forward for a coordinated suite of monitoring products and services within NOAA that responds to user needs. While the CMS is a first step in the process, we anticipate future activities focused on external engagement to ensure that NOAA climate monitoring activities meet user needs

Intended Participants: Representatives from NOAA line offices and programs that currently have climate monitoring efforts underway. The workshop will be limited ~30-40 participants.
For more information, contact the summit organizers:
Wayne Higgins– Wayne.Higgins@noaa.gov; Mike Halpert–Mike.Halpert@noaa.gov;
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DRAFT Working Definition of Climate Monitoring

Enabled by global observations, climate monitoring analyzes, documents, and provides data and information on the changing state of the climate and its impacts. Monitoring activities include analysis, interpretation, and placement into historical perspective of these data and are supported by ingest, storage and quality control. Climate monitoring enhances attribution, assessment, modeling, and predictive understanding.

Background:

The CMS Technical Team provided this DRAFT Working Definition of Climate Monitoring for use at the CMS. The Team recommends that workshop participants develop recommendations to help facilitate its use as part of the Breakout 4 discussion. Recommendations might include (i) Organizing and Charging a Tiger Team to refine the definition; (ii) Scheduling Stakeholder meetings; (iii) NOAA State of the Science Fact Sheet on Climate Monitoring; (iv) Publish Climate Monitoring definition and examples (e.g. NOAA webpage; AMS Bulletin, etc.); (v) Education and Outreach activities to engage stakeholders.

Key Questions for Breakout Groups

1. Breakout 1

- What are the areas of overlap and where are the gaps in NOAAs climate monitoring enterprise?
- Should inventories be modified based on NOAAs definition of climate monitoring?
- Since there are multiple monitoring activities and products (e.g. for precipitation and temperature, how do users know what to use and believe?
- What mechanisms should NOAA put in place to avoid duplication and address gaps in climate monitoring activities?
- How far back in time should we be monitoring?

2. Breakout 2

- What are the key indices, the successful monitoring of which (over the next 20 years), will make a profound difference to our understanding of climate variability and change. Some candidates:
  - Land and ocean surface temperatures
  - Energy balance at the top of the atmosphere
  - Ocean heat content, circulation
  - Sea level and deep ocean
  - Mass balances of the polar ice sheets
  - Carbon sources and sinks
- What technology should NOAA invest in to monitor these?
- What is the role of research in defining and developing key indices and how should the hand-off between research and operations be prioritized and facilitated?
- What should be the relationship between a core monitoring activity and attribution?
- How should we address the need for improved data QC and development of analysis methods, documentation, and access tools to make monitoring products more useful?
- There are numerous indices being monitored. How are these related, coordinated, updated, and explained to users?

3. Breakout 3

- Where should users go to find climate monitoring information?
- Should NOAA have a central location (e.g. Climate Portal) that aggregates monitoring information with explanations and references and linkages back to the original data? How comprehensive?
- Can we develop an improved user requirements process (to avoid the tendency to develop products without knowing who is going to use them)?
- How should NOAA communicate climate monitoring information (e.g. Science on a Sphere, Climate Portal, Ocean Kiosk, Webinars)? What is the role of climate monitoring in promoting science literacy?

4. Breakout 4

- What steps should NOAA take to facilitate use of this definition in responding to user services (e.g. internal and external stakeholder meetings; NEP/NEC meetings; education and outreach activities)?
- Who are the major users of climate monitoring information?
- What is the role of partnerships in achieving NOAA climate monitoring goals?
- Are there partnering mechanisms not currently taken advantage of? Partnering opportunities missed?
- When should NOAA do things ourselves – vs- seeking partners

NOAA Climate Monitoring Summit (Draft July 28, 2010)

Participant List *(as of 26 APR 2010):*

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NOAA Climate Monitoring Summit

Agenda

Day 1
0800-0830 Registration, coffee and informal discussions
0830-0845 Introduction to Workshop: Wayne Higgins and Tony Busalacchi
0845-0930 Keynote Presentation – Dr. Tom Karl-Q/A and discussion (intro by W. Higgins)
0930-0945 Break
0945-1130 Climate Monitoring Panel Presentations

- **Obj 1: Higgins and Hausmann**
- **Obj 2: Butler and Fox**
- **Obj 3: Gregg and Webb**
- **Obj 4: Horsfall and Smith**

1130-1200 Discussion and Instructions for breakouts
1200-1300 Lunch
1300-1400 Breakout Session 1
1400-1500 Breakout Session 2
1500-1515 Break
1515-1615 Breakout Session 3
1615-1715 Breakout Session 4
1715 Adjourn

Day 2
0800-0830 Coffee
0830-0915 Objective 1 Report and Plenary Discussion
0915-1000 Objective 2 Report and Plenary Discussion
1000 Break
1015-1100 Objective 3 Report and Plenary Discussion
1100-1145 Objective 4 Report and Plenary Discussion
1145-1300 Lunch
1300-1500 General Plenary Discussion (Higgins)
1500 Adjourn Summit

Breakout Session Matrix

Breakout Session Time	Room W (Objective 1)	Room X (Objective 2)	Room Y (Objective 3)	Room Z (Objective 4)
1300-1400	Group 1	Group 2	Group 3	Group 4
1400-1500	Group 2	Group 3	Group 4	Group 1
1515-1615	Group 3	Group 4	Group 1	Group 2
1615-1715	Group 4	Group 1	Group 2	Group 3

NOAA Climate Monitoring Summit

Agenda (with Notes)

Day 1
0800-0830 Registration, coffee and informal discussions

0830-0845 Introduction to Workshop: Wayne Higgins and Tony Busalacchi
-Welcome
-Motivation
-Quick run through Agenda
-Logistical Issues

0845-0930 Keynote Presentation – Dr. Tom Karl-Q/A and discussion (intro by W. Higgins)
-Setting the context
-Grand Challenges for Climate Monitoring in NOAA
-Needs for coordination (e.g. How do we integrate what we are currently doing on different scales to improve monitoring across the agency?)
-Opportunities

0930-0945 Break

0945-1130 Climate Monitoring Panel Presentations

- **Obj 1: Higgins and Hausmann**
  - ***NOAA Working Definition of Climate Monitoring***
  - ***Climate Monitoring Inventory***
    - ***Put all files in a common format – 1 document***
    - ***Examples of overlaps and gaps***
  - ***Statement of objective 1***
  - ***Key questions for breakout 1***
    -
- **Obj 2: Butler and Fox**
- **Obj 3: Gregg and Webb**
- **Obj 4: Horsfall and Smith**

(Note: Had a Telecon in July with Panel above to motivate plenary talks. Suggest that plenary talks also consider questions for breakouts)

1130-1200 Discussion and Instructions for breakouts
Approach 1: 4 Breakouts. Facilitators and Scribes assigned to each one, and they will stay put. Summit participants are assigned a group number, and will rotate through all 4 breakout rooms (i.e. have input on all 4 objectives). Group Lead leads discussion, with focus on breakout session questions, while recorder records on laptop. After

breakouts are finished, the Group Lead and Rapporteur synthesizes input into draft recommendations and prepares powerpoint for discussion in plenary on Day 2.

1200-1300 Lunch
1300-1400 Breakout Session 1
1400-1500 Breakout Session 2
1500-1515 Break
1515-1615 Breakout Session 3
1615-1715 Breakout Session 4
1715 Adjourn

Day 2
0800-0830 Coffee
0830-0915 Objective 1 Report and Plenary Discussion
0915-1000 Objective 2 Report and Plenary Discussion
1000 Break
1015-1100 Objective 3 Report and Plenary Discussion
1100-1145 Objective 4 Report and Plenary Discussion
1145-1300 Lunch
1300-1500 General Plenary Discussion (Higgins)
-Summit Summary – have we captured the meat
-Draft List of recommendations
-White Paper and Timeline
-Options for a larger NOAA Monitoring Summit (e.g with external partners)
-Other
1500 Adjourn Summit