

Preliminary Minutes: 22nd NOAA Science Advisory Board Meeting

National Geographic Society, Washington, DC
March 22-23, 2005

(See <http://www.sab.noaa.gov/Meetings/2005/2005March22-23Agenda.htm> for accompanying PowerPoint presentations.)

Tuesday March 22, 2005

1. Dr. Michael Uhart, Executive Director of the NOAA Science Advisory Board, officially called the meeting to order. The SAB Chair, Dr. Len Pietrafesa, made an opening statement. SAB members present were introduced: Dr. Leonard J. Pietrafesa (Chair), Mr. David Blaskovich, Dr. Susan Hanna, Mr. Michael Keebaugh, Dr. Jake Rice, Mr. William D. Ruckelshaus, and Dr. John T. Snow.

2. **VADM (Ret.) Conrad Lautenbacher, Under Secretary of Commerce for Oceans and Atmosphere welcomed the Board and public to the meeting.** He discussed NOAA's commitment to attaining the goals set out by the Research Review Team report, the basis of the NOAA budget on the NOAA Strategic Plan, and the support that the new Secretary of Commerce, Mr. Carlos Gutierrez, demonstrates for NOAA and its programs. Turning to NOAA's weather activities, VADM Lautenbacher commented that in recent years NOAA's hurricane forecasts have shown steady improvement. Forecasts of hurricane intensity, however, still have significant room for improvement. Following the December 2004 tsunami in the Indian Ocean, Congress approved a \$37.5 Million supplemental over the coming two years. Part of the supplemental will be used to provide a tsunami warning system for the Atlantic for the first time; the Pacific and Atlantic tsunami warning systems will be a major contribution to the global earth observing system. In late December 2004, the President's US Ocean Action Plan was published. Over 60 nations have agreed to contribute to the Global Earth Observing System effort; the World Meteorological Organization in Geneva, Switzerland has agreed to host the secretariat.

3. **Dr. James R. Mahoney, Assistant Secretary of Commerce for Oceans and Atmosphere, presented an Overview of NOAA Response to SAB/Research Review Team Report.** He focused his remarks on how NOAA will progress toward implementing the review's recommendations. NOAA developed a 20-year vision and a five-year plan, which will be updated periodically so as to reflect scientific and technological advances. The RRT report recommended an oversight position for NOAA research; the NOAA Executive Council appointed the NOAA Deputy Administrator as the senior management official for research and the NOAA Executive Council to fulfill oversight functions for research in the agency. The RRT also recommended that NOAA examine ecosystem research; an external team is being formed for this review. NOAA needs to address the transparency of its extramural research. Efforts to do so include an assessment of NOAA cooperative institutes. With respect to reimbursable research, NOAA has to be certain the work will help the NOAA mission. The RRT made recommendations for consolidation and enhancement of the Boulder laboratories. NOAA is examining how to strengthen the management rather than make changes solely for cost

reduction. **ACTION: NOAA will request the SAB to conduct a review of the progress in implementing the Research Review Team's recommendations in the summer of 2005.**

4. Mary Glackin, Assistant Administrator for Program Planning and Integration presented a Review NOAA's Draft Policy to Formalize the Transition of Research to Operations and Information Services. Based on the Research Review Team's recommendations, NOAA has appointed a senior person in each line office responsible for bringing the research and operational requirements together. The effort has been integrated at the goal and program level. All NOAA research is reviewed annually through the Planning, Programming, Budgeting and Execution System (PPBES). Management of the transition from research to operations is conducted at the project level. A transition Board with membership from all the Line Offices coordinates the process. Dr. Snow noted that many lessons could be learned from the transition to the Doppler radar network, as this was a multi-agency effort that produced notable results. Ms. Glackin said NOAA is looking at the air quality effort to see what can be done in a similar way. Someone questioned what NOAA is doing in the planning process to take advantage of unforeseen developments. Ms. Glackin responded that that subject has been brought up internally and a procedure will be put in place to capitalize on those situations. Dr. Rice asked how NOAA would incorporate newly acquired science into its regulatory framework, a challenge that differs from the transition from operations to research. Ms. Glackin referenced a NOAA fisheries management improvement plan that deals with such introductions of new science, and that NOAA will leverage that effort and apply the principles to other regulatory areas. Dr. Sissenwine noted that the transition board's challenge is to harmonize the research push with the operations pull across NOAA. Responding to a question by Mr. Ruckelshaus, Ms. Glackin explained the structure of research investment: the 5-year plan and strategic plan form a foundation for all of the planning done in NOAA. Discussion turned to how NOAA optimizes its investment in research, compared to and in coordination with other agencies. NOAA's methodology for this, centers on a systematic approach through the PPBES process. Goal teams, in looking across a broad range of issues and working within the NOAA Strategic Plan, will ease the task of the transition teams.

5. VADM Lautenbacher presented on Earth Observations: A Global, National, and NOAA Perspective. VADM Lautenbacher began with an explanation of how the rise in tsunami awareness and funding has contributed to the US efforts on the Global Earth Observation System of Systems (GEOSS). GEOSS represents coordination at the international level as well as the US national level, between different organizations. Such coordination includes the agreement by the World Meteorological Organization to host the secretariat. Agreement must be made on the exact governance mechanisms, including how to transition to a 10-year plan. At the national level, management is based in the Interagency Working Group on the Global Observing System. The driver for the program, at the national and global level, is societal impacts, such as disaster warnings, rather than research science. Dr. Pietrafesa highlighted the inadequacy of the national system's road observing network and coastal buoy network coverage. VADM Lautenbacher responded that NOAA is working with the Department of Transportation on the road observing system, and the coastal observation network has been significantly growing lately but still needs to be strengthened. Dr. Snow commented that there are a lot of data from the private sector that is not now being integrated into the NOAA data sets; although integration is problematic, it is cheaper than building the observing networks from scratch. VADM Lautenbacher agreed that

NOAA needs to get a better return on investment through both the private and public observing systems. Dr. Rice noted that although the US is often criticized for its international actions, there is strong international consensus that the US leadership in GEOSS is well appreciated.

6. Brig. GEN David L. Johnson (Ret.), Assistant Administrator of the National Weather Service gave a briefing on the Integrated Surface Observing System (ISOS) Working Group. General Johnson pointed out that there are three components to the integrated earth observing system: ocean, surface, and upper air. An FY 2007 Decision Memorandum specified that NOAA should develop a detailed plan for an integrated surface observing system (ISOS). Climate observing networks are a primary backbone to ISOS. There is the need to build the “weather enterprise” with partnerships which includes the use of private sector data. Issues of policy, sustainability, and data utility need to be addressed, however, in using this data. The SAB was asked to give its opinion on the direction for the ISOS and opportunities for growth. The SAB was asked to consider establishing an ISOS working group. Dr. Snow endorsed the action. VADM further acknowledged the benefit of the SAB’s guidance in how ISOS is designed. He explained his encouragement of NOAA program managers to look broadly at all that is influencing the development of sensing technology rather than at solely at their system. If there are redundancies in the observing program, they should be resolved before the capability is built to collect and process the information. **ACTION: NOAA will request the SAB establish an ISOS Working Group.**

7. General Johnson & Dr. Eddie Bernard (Director, NOAA Pacific Marine Environmental Laboratory) gave a briefing on Tsunamis, Research, and Observations. Dr. Bernard began with a simplified explanation of tsunami events. NOAA’s research program has developed a viable tsunami forecast capability. The DART (Deep Ocean Assessment and Reporting of tsunami) buoy technology has been transferred to operational use, and the transfer of forecast modeling technology is underway from the Pacific Marine Environmental Laboratory to the warning centers. Gen. Johnson explained that the current tsunami system relies on DART buoys and tide gages. However an end-to-end system from data to public action and awareness is needed to have an effective system; part of such a system would be the integration of other observing systems, such as satellites, into a greatly improved forecast and warning system. Gen. Johnson summarized that NOAA is fielding an improved tsunami forecast and warning system, has a leading role in tsunami research, and is integrating the observing capabilities into the GEOSS system of systems. Dr. Hanna asked about the adequacy of the US infrastructure to transmit tsunami warnings from the warning centers to the general public. Gens. Johnson and Kelly explained the importance of the division of responsibility between the local jurisdictions and NOAA’s monitoring, and that due to the very short decision-making time-frame, preparedness of the communities is key. Comments then centered on the importance of an investment strategy for the education of these communities. Education is essential to make certain that the public understands the continuing threat after the first wave has hit. VADM Lautenbacher noted the central role that NOAA has in tsunami forecasts, warning, and research, pointing to the need of a centralizing organization such as NOAA. Gen. Kelly pointed out the need for standards in observing, analysis, forecasts, and warnings and the question of whether to have a large number of national warning and forecast centers or a few around the world. Dr. Hanna asked how the nation will deal with tsunamis when they fall back into the category of a rare event, particularly when it becomes a local budgeting and preparedness issue; the answer

has to lie in continuing education.

8. Dr. Richard Spinrad, Assistant Administrator of the National Ocean Service gave a briefing on the Administration Response to Ocean Commission Report. An administration-wide effort is underway to develop an Ocean Research Priorities Plan and Implementation Strategy, in response to the US Commission on Ocean Policy (USCOP) report. The plan is due by December 31, 2006. Dr. Spinrad guided the SAB through the key parts of the President's Action Plan and NOAA's central role in the Plan. Mr. Ruckelshaus said that, as a member of the USCOP, he felt NOAA's role was crucial in creating the Action Plan; if NOAA does not continue to play a lead role, the actions may not be implemented. Discussion then focused on the importance of the local and regional level in the effective implementation of the ecosystem approach. Support by local constituencies is key, and the federal government has to take the lead in stimulating coordination of the local and state governments. Promoting of the concept of the ecosystem approach was voiced, since experience has found that people often react to the concept with concern that they will lose a level of responsibility through its implementation. NOAA's role in leading the transition to the ecosystem approach must extend past procedural aspects, Dr. Rice explained. Dr. Spinrad concluded with comments on the societal impacts aspect of the ecosystem approach, explaining that research priorities must still be developed so as to understand is needed to obtain the societal benefits. **ACTION: Over the next 1 to 1.5 years, NOAA will request the SAB to provide advice on NOAA priorities for the Ocean Research Priorities Plan and Implementation Strategy.**

9. General Johnson provided an Overview of Predictions/Monitoring of 2004 Hurricanes. General Johnson gave a summary of the CY 2004 hurricane season and an overview of what NOAA believes can be done to improve the forecast and warning program. Improvements are needed in the intensity forecasts, communicating uncertainty in the forecasts to the public and decision makers, and in applying multi-mode ensembles. Drs. Snow and Pietrafesa commented on the importance of heavy rain late in the lifetime of the systems over land, and then the potential for landslides, and how these needed improved forecasting; Gen. Johnson agreed and noted that this was the source of the heavy inland flooding that can cause deaths. VADM Lautenbacher confirmed that NOAA needs to look at how it forecasts intensity. NOAA has put money into quick fixes and incremental improvements in understanding, rather than in the more basic research. Dr. Snow said there are still some very fundamental questions on how a hurricane operates and that NSF would likely be interested in exploring these processes. VADM Lautenbacher asked the SAB to look at these factors when it reviews NOAA's hurricane intensity research. General Kelly noted the potential capabilities of unmanned vehicles as observing platforms for hurricanes.

10. Dr. Michael Sissenwine, Director of Scientific Programs & Chief Science Advisor to the National Marine Fisheries Service provided a Progress Reports on NOAA's External Ecosystem Task Team. (*Power point presentation not used; refer to the Review's Terms of Reference.*) The creation of the External Ecosystem Task Team was undertaken in response to the Research Review Team's recommendation that there should be and external review of the ecosystem efforts within NOAA. The review has a fundamental focus on organizational issues and covers the broad subject of the ecosystems enterprise within NOAA, which includes research as well as the observations. At what point is the review process? The framework for the review

was approved on January 15, 2005. The SAB now needs to select, in consultation with NOAA, the panel members from an excellent list of 94 nominees. That was to have been done in early March, but the panel has not yet been selected. Within the next few weeks the panel will have been selected and will meet with the internal team to set the process by which the review will be conducted. Data gathering will be done over the coming few months. Comments were made regarding the ambitiousness of the schedule set for the review team. Admiral Lautenbacher noted that NOAA, over the past few months and years, has been doing work in the ecosystem management area. There will be a period of transition to the concept of an ecosystem approach. The transition will not be abrupt, but will evolve over time. It is important to get people committed to the concept.

11. Dr. Alexander MacDonald, Director of the NOAA Research Forecast Systems Laboratory, provided a Progress Report on the Physical and Social Science Research Task Team. The purpose of the report is to give the status of the work of the PSTT and to ask if the team is heading in the right direction. The membership has been defined, the terms of reference adopted, and a schedule of meetings has begun. An interim report to the SAB is scheduled for July, and a NOAA briefing on their response to the report is scheduled for November 2005. The agreed plan is to be implemented with the FY 2008 budget process. The plan is to develop criteria for where research should be located within NOAA. Then, those criteria will be applied to research activities, and opportunities for migration will be identified. At this time it is important that the SAB understands and agrees with the process and the objectives of the PSTT. Discussion began about the timing of the PSTT and Ecosystem Task Team. The short time-frames were a concern for the reviews, as this could impact their quality. The VADM agreed that it is not necessary to comply to an artificial deadline, however the study needs to be timely. The composition of the review team was then clarified: all of the team members were looking at the societal issues, not only the one designated as a social science expert.

Adjourned for the day.

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12. Dr. Michael Uhart officially called the meeting to order.

13. Dr. John Cortinas, Program Manager for the NOAA Research Cooperative Institutes, presented on the Draft NOAA Cooperative Institute Policy. The briefing's purpose was to update the SAB on the progress toward developing a NOAA-wide policy on the Cooperative Institutes, and to make the request for any comments by the Board. The proposed policy is being developed in response to the Research Review recommendations. The NOAA-wide approach is intended to align the establishment and maintenance of the CIs with NOAA mission goals. It is also intended to expand the opportunities for extramural research through competition. The current CIs will transition to the competitive program. NOAA is currently evaluating all current CIs and preparing for a transition to the proposed NOAA process for establishing CIs competitively. Given the existing personnel and the impact on current collaborative research activities on an immediate competition, it is not possible to complete a new competition for the 13 CIs due to be evaluated before the end of their current cooperative agreements. Therefore, the existing CIs will be transitioned to the competitive program as soon as possible. Dr. Snow

commented that the report should be restructured. The first part, for example, contains a report of the status of the current cooperative institute program; that material will become dated quickly. The report needs to make clear that the degree programs will be in the host institution and not in the CI. If there are problems with the work of the CI, the discussions need to be with the host institution. Dr. Cortinas said that the document was sent out with both the draft policy sections and the background information needed to evaluate the process. Once the review has been completed, the background information can be eliminated. When asked about the variation of CI annual funding, he pointed out that the funding levels in the past have remained relatively constant and increased in some cases. Dr. Mahoney noted that, under the new policy, NOAA has included a review process that links future funding with performance. Dr. Pietrafesa noted that there would be ample time for public comments on the proposed process and asked for these to be circulated among the SAB members.

14. Greg Withee, Assistant Administrator of NOAA Satellites and Information, gave a presentation on Transitioning to the Integrated Earth Observing System. The purpose of the presentation is to answer the question: "How do we put the observation pieces together to achieve a National Integrated Earth Observing System". A related question is what kinds of integration can be achieved, as the current systems have varying standards, observing capabilities, and data quality. The issues are organizational, technical, and fiscal. Some key milestones thus far are: the NOAA Observing Systems Council has been established, the strategic direction for NOAA's integrated observation and data management system was published in 2004, the requirements analysis and the gap analysis are both underway, and the technical director for Integrated Observations and data management was appointed in 2005. Mr. Blaskovich asked if NOAA has the critical observations needed to achieve the desired societal benefits. Mr. Withee responded that the goal teams for the requirements identification phase have been assembled. Once they do their work, the next step is to integrate the requirements to identify the gaps and overlaps. Several comments were made on the enormity of the issues that have to be addressed and that it does not seem that a holistic approach is being taken. NOAA has an integration strategy for implementation. NOAA has developed an inventory, and has published a strategic direction online. Mr. Ruckelhaus commented that this issue of how to integrate came up a number of times during the Ocean Commission deliberations. We were focusing on the integration of systems and not getting at the issue of managing ecosystems. Dr. Pietrafesa said that the surface observations, including the Great Lakes and the coastal areas, are nowhere near what are required by the models; substantial effort is needed to develop the mesoscale networks. **ACTION: NOAA will complete a prioritized list of observing systems; the SAB will be asked to review it (December time frame).**

15. Dr. Stephen Brandt, Director of the NOAA Great Lakes Environmental Research Laboratory, provided a presentation on the President's Executive Order for the Great Lakes. The Great Lakes region is now being managed under the ecosystem approach due to the President's Executive Order, so providing a model for other regions. The EO established a Cabinet-level Task Force, which adopted the 8 priorities, all directly related to those of NOAA for ecosystem-based management, but there is not a specific one-for-one match to the NOAA program Matrix structure. There is also an 11 Agency Regional Working Group that meets weekly to coordinate federal activities on the Great Lakes. An example was provided of how the 11 agencies worked successfully with the state to organize a rapid response to the discovery of a

new potential invader, the snakehead, which was discovered in Lake Michigan. Questions centered on the management's response to a variety of stresses and incidents, including water withdrawal and the introduction of exotic species to the Great Lakes. Dr. Brandt responded that the Task Force decided not to address water withdrawal, as there is already an extensive agreement and organized activity on the issue. With respect to the introduction and spread of an invasive species, Dr. Brandt explained that their rapid response plan contains expandable measures to meet those contingencies. For invasive species that have already become established, such as the zebra mussel, NOAA is actively involved in trying to prevent the further spread. Dr. Rice asked if NOAA loses any strategic advantage by having to bring along all of the other agencies before it can respond to what it feels is a concern. Dr. Brandt said that no agency has to obtain approval to move forward when it feels that it must, however interagency collaboration has been found to be often essential. The Board was very impressed with this update and concurred that this partnership model could well serve as a national model.

ACTION: Dr. Brandt will update the SAB periodically on the program; the summer and fall meeting could be used for such updates.

16. Dr. John Calder, Director of the NOAA Arctic Research Office presented on NOAA's plans for the International Polar Year (IPY). The purpose of the presentation was to present the status of plans for the IPY at both the international level and within NOAA, as well as to seek the views of the SAB on opportunities for demonstrating leadership and opportunities for external collaboration on IPY. The IPY is scheduled for March 2007 to March 2009. The Goals of the IPY are to understand the polar processes and their global linkages, explore new scientific frontiers, increase the ability to detect change in the polar regions, to attract the next generation of scientists, and to educate the public. The areas where projects have been proposed by NOAA include: exploration, observations, modeling and prediction, and data, outreach and decision support. Some of the programmatic issues for NOAA include: dealing with interagency and international issues most appropriately, determining which IPY projects will be funded by NOAA and by the international community, and coordinating these projects once the funding decisions have been made. NOAA has the opportunity to take a leading role in the IPY. In particular it brings an unbiased viewpoint in terms of the observational and modeling capabilities. Discussion centered on the focus of the IPY. Dr. Calder clarified that although the physical and chemical aspects have been prominent to this point in IPY preparations, societal aspects are being developed as well. It was asked whether the Antarctic was included, as the presentation had focused only on the Arctic. NOAA does have an effort in the Antarctic and is party to an Antarctic agreement, and there are large climate issues in the Antarctic; such as the ozone hole. **ACTION: Dr. Mahoney noted the Antarctic should be included, and that NOAA needs to correct the focus.**

17. Ms. Mary Glackin presented on NOAA's 2006-2011 Strategic Planning. The purposes of the presentation was to provide an overview of the NOAA FY 2008 planning process and to promote discussion on enhanced SAB involvement in the NOAA planning process in general. The FY 2008 process will begin with an update of the Strategic Plan and end with the publication of the Annual Guidance Memorandum. No wholesale changes are planned for the FY 2008-2011 Strategic Plan. Updates will include alignment of NOAA's ecosystem goal to the US Ocean Action Plan, inclusion of references to public health benefits and improved presentation of NOAA's Critical Support Goal. The Annual Guidance Memorandum will be

published at the end of August 2005 for the FY 2008 budget process. Ecosystem management is a primary focus for the coming budget cycle. NOAA will seek to build on the successful approach of the SAB Climate Working Group. The Annual Guidance Memorandum draft document will be posted to the NOAA web site for general comment. **ACTION: NOAA will provide the SAB draft material for the Annual Guidance Memorandum on June 20 and would like SAB feedback by July 1.**

18. Closing Statements and a discussion among SAB members followed. Dr. Mahoney asked the Board if the presentations held the correct amount of material and focused on the right issues. Dr. Snow noted that the first day's session was too long, and that the presentations should have ended at 4pm to allow the Board to discuss issues amongst themselves. Dr. Hanna recommended to allow for more time at future meetings for the executive session. Some of these presentations, Dr. Pietrafesa noted, were only updates, and so could have been instead posted online. If the SAB then had questions or wanted elaboration, that could be taken care of during the meeting. The presentations that contained information for decisions of the Board should be of the highest priority. Mr. Ruckelshaus requested that when advice is required from the Board on specific issues, all of the background material is be provided in advance, although some balance is needed because the Board could be overwhelmed with material. It was also suggested that a summary of the actions and decisions of the Board was needed. The SAB secretariat will disseminate such a summary, once prepared. Dr. Snow highlighted that NOAA needs to be able to anticipate certain episodic crises, such as hurricanes, and have material available for dissemination or have programs defined that could be presented to the president and Congress on short notice. During the discussion Mr. Kudrna made the point that NOAA has been concentrating on process and "plumbing", and it was now time to think strategically. NOAA should be able to define what could be done if it were not resource limited. One way to deal with this is to work this into the 20-year plan. **ACTION: NOAA will respond to the SAB with comments on possibilities for NOAA strategic disaster planning (e.g. tornadoes).** Dr. Mahoney noted that NOAA could brief the SAB on options to issues and not just the issue. In addition, NOAA will improve on its efforts to involve the SAB in actually providing advice. Suggestions for the July/August SAB meeting topics were made: Blaskovich, (1) climate variability and change; Pietrafesa, (2) weather research; Pietrafesa, (3) how the PPBES process affects research and research to operations; Hanna, (3) aquaculture and multi-species management; and Ruckelshaus (4) Pacific Northwest salmon research/recovery.

19. Two Public Statements were presented. Dr. Uhart read a public statement that had been received by email. Mr. Jim Giraytys then read his own statement with respect to an earmark in the FY 2005 NWS budget for an air quality program in the Shenandoah Valley.

20. The chair adjourned the meeting.