# Report of October 6, 2008 Climate Experts Roundtable

## **Discussion Highlights**

The Roundtable (RT) brought together people who have extensive experience with the climate change issue, including those with knowledge of the Climate Change Science Program (CCSP) and the longer-running U.S. Global Change Research Program (USGCRP). The participants were asked to reflect on their experiences with global change science, and the decisions underpinned by this science. They were encouraged to look to the future and provide ideas about how the program may address new challenges in the sciences and in the application of knowledge to solve climate change problems. Information gained from the RT discussion will be extremely helpful to effectively transition the Program to the next Administration, and to ensure that federally supported science is responsive to emerging scientific opportunities and societal needs. The main points raised by the group are the following (discussed in more detail in the text of the report):

- o Couple energy with climate
- o Improve foundation of observation and assimilation
- o Improve adaptive capacity
- o Develop a decision support initiative
- o Improve regional climate forecasts
- o Rebalance program to include managing consequences and risk
- o Focus on societal challenges, decision time scales, and regulatory requirements
- o Research to improve credibility of impact assessments
- o OSTP should play a strong role in climate science management
- o OSTP and OMP have a unified focus on the climate program
- o Establish a Stakeholder Advisory Group
- o Prioritization review needed
- o Continue interagency approach; entrain mission and resource management agencies
- o OMB to help set aside funds for new work

### The Roundtable Process

The discussion was guided by a short list of overarching questions:

What major grand climate challenges should the program consider?

What approaches should be adopted to facilitate fuller and more effective utilization of climate science information?

What principles or approaches can be employed now (or advocated now) by the current program to improve its effectiveness?

In order to leverage U.S. activities and to complement international efforts, what should the role of the program be internationally beyond the FCCC and IPCC?

What steps should people inside and outside the government take right now to help ensure an effective transition?

In addition to speaking to many of the above questions the RT participants, based on their professional experiences, offered independent views of strengths, weaknesses, accomplishments, problems, and opportunities of the 18-year USGCRP/CCSP programs.

The lively RT discussion focused on some of the questions more than others, and often focused on specific issues that should be considered by a forward looking climate program. Key scientific and societal challenges, transition issues, management and budget, and program framing were topics of considerable discussion. Accordingly, the narrative report is based on these and other topics where comments/suggestions/recommendations are synthesized without attribution.

The facilitator, Dr. Lynne Carter, guided RT discussion of these questions. Significant comments made during the RT form the basis of this report.

The RT participants were not asked to come to consensus on any issue. The views expressed in this report are a reflection of perspectives offered by individuals or collections of individuals.

### **Roundtable Introduction**

Dr Bill Brennan, the Executive Director of CCSP welcomed the participants, and thanked everyone for providing wide-ranging contributions over the course of the past few decades. He pointed out that as options for the future of climate change research and applications are considered, there will be strong interest in looking to build on the strengths of the program's experience over the past 18 years. At the same time we should engage in a healthy challenging of the program's assumptions and its approaches.

Dr Brennan commented that the program fully expects that the next Administration will require greater clarity about how CCSP plans to meet society's demand for information. There will be a need to think more clearly about strengthening and better linking basic physical science to applied science and to social science. Ensuring that resulting knowledge is usable and accessible wherever it is needed is likely to become a stronger requirement of the US climate change program in the future than it has been in the past. This applied focus does not automatically mean less attention to fundamental climate science questions; in fact, more science may be required to address long-standing and new questions.

He mentioned the program's approach of considering strategic options for the future, and stressed that the program is not now producing the next strategic plan. Instead, the program is defining and describing a variety of directions it could take. He noted that this approach would result in a clear set of options to address the increasing societal demand for information, as well as identify key scientific opportunities. This process is crucial for the upcoming transition.

Dr. Brennan reminded the roundtable that today's meeting is one of approximately a dozen "listening sessions" being convened around the country. But, unlike the typical "listening sessions" in which we attempt to better understand end-users' needs or the challenges confronting the scientific community, this session will focus on overarching issues that this group of experienced individuals is uniquely knowledgeable to address.

The RT discussions will be used to help inform the contents of a transition document that the program managers are preparing for the incoming Administration's transition team. That document will be well grounded in previous advice the program has received from the NRC and others, as well as the advice that has been offered to the new Administration and Congress by UCAR and the National Council for Science and the Environment (NCSE). Coupled with NRC and NCSE studies, the RT discussions will be used to help frame the program's early consideration of a more detailed set of options that will be provided to the incoming Administration in early 2009.

Dr Brennan's concluding remarks mentioned the dedicated team of career employees who are passionate about the development and utilization of sound climate science that will be here long after he has stepped down in January. It is this team that will be in a position to help the next Administration consider a range of options, including those that emerge from this discussion.

## **Summary of Comments from Participants**

The participants in this roundtable have had a great deal of experience in establishing a climate program including identifying critical issues for research and ensuring that the program functioned as well as was possible. Because of those experiences, they were able to provide insights on key science and societal challenges, new ways to frame the program, management and budget issues, human resource needs, program effectiveness, regional and sectoral perspectives, education and communication issues, and transition concerns, all suggestions to improve the effectiveness and relevance of any future climate science program.

The key science and societal challenges that the RT participants suggested need more attention now than in the past include societally relevant issues (in the response space): the issues around energy and climate, mitigation, adaptation, risk management issues (building resilience/reducing risk), tipping points, multiple stressors, and end-to-end strategies (a whole systems view) that consider all of the possible outcomes and consequences of any action prior to its implementation. While there is a critical need for this new decision related focus the participants also wanted an emphasis on the absolute necessity for continued, high quality scientific research, monitoring and observations. They identified some framing issues for a future climate program and suggested including an understanding of the causes of climate variability and change as an underpinning but also a more balanced inclusion of information on managing consequences and risks specifically around what decision makers want to know (a problem rather than a science focus).

On management and budget issues the participants suggested that the CCSP structure needs changing to be able to address the emerging societal challenges and to maintain a successful and focused scientific research program. To accomplish these goals they discussed a number of possibilities, some options could be realized with the present tools and some would require major

restructuring. An important point here, and equally important for the human resources aspects of this program, is that the right people in the right places with supportive agendas and appropriate authority is considered critical to a successful program. In terms of program effectiveness, the participants suggested that improving effectiveness without the ability to reward good behavior is a struggle.

On regional and sectoral communication efforts the RT participants suggested that the CCSP needed to develop a more effective way of interacting with climate stakeholders. They identified a need for more strategic and regular approaches for conveying information to and from user communities. The need for regionally and sectorally specific and applicable information is critical to supporting local and regional decisions and is in high demand. A major communication effort around climate change is needed. The credibility of the climate change science program is critical and could be enhanced with a stakeholder review committee as well as reviews by such as the NAS. On education, there are gaps emerging that a new focus on supporting engagement of science with decision makers by agencies through university programs and rewards could begin to address. The participants ended their discussion with the critical things they thought important to convey to a new Administration about the climate science program: budget, leadership, and management needs.

### **Roundtable Discussion**

### **Key Science and Societal Challenges**

On the general topic of science and societal challenges associated with climate change, the RT participants immediately focused on the need to couple energy and climate. They felt that work around alternate energy sources needed to include a focus on the unexpected impacts. For mitigation actions they wanted a focus to be sure to include the unintended consequences: such as wind farms affecting atmospheric circulation, and extensive biofuel production doubling the arable land needed for crop production and the resulting impacts on water, possible impacts on forests and savannahs, and other unknown consequences that have to be considered in comprehensive system analyses. If a geo-engineering option is a response strategy to climate change, research emphasis should shift from the greenhouse gas focus to radiative forcing and changes in land use and land cover and their impacts. Understanding variability of atmospheric properties and climate change feedbacks over time is crucial. The alternative perspective needs to be addressed as well and that includes the impacts of climate on the renewable resources in question. Different types of impacts will require additional research and a systems perspective is critical. Better understanding of the role of technological developments in climate change response strategies is important over time. There are also non-linearity problems related to exponential growth where processes and fundamental drivers of sustainability are not understood. A major point here is that there needs to be a system view around these issues.

Going forward, a significantly improved foundation of observations of climate variables and their assimilation into models, with continuously improving accuracy, for monthly analysis of the climate system is considered vitally important. Both *in situ* and remote observations are needed for improving models and developing regionally specific climate projections/predictions.

Fundamental to that effort are observations at high spatial and temporal resolution and even as the program focuses more on decision support and service, the absolute necessity for continued, quality observations must be highlighted. Because sustained observations, ongoing predictions, and periodic model based climate analyses are operational tasks, it is clear that planning for research under the CCSP must proceed in careful conjunction with planning for operational climate services: each depends on the other in essential and inseparable ways. The RT participants offered a number of suggestions for CCSP focus changes including: regional imperatives, understanding multiple stressors and their complexity, likely changes in incidence of hazards, and attention to "tipping point" issues.

The participants identified adaptive capacity as an important issue that has many embedded questions of potential significance, e.g., where in the social and economic systems can or should adaptive capacity be assessed or strengthened? At what scale? What portions of society need what sorts of assistance? Where will we need new approaches and what would they be to address multiple stressors and multiple solutions? The participants suggested the critical need for new research in the response space rather than in the problem space and to ask what science is related to societal questions? It is important to understand the decisions that people are making related to climate change—why, what, how, what influences those decisions, etc. At present there is inadequate mitigation and adaptation research and modeling.

Better understanding of impacts and possible adaptation options is required at different scales to provide decision makers (i.e., mayors, governors, and resource managers) with capabilities to integrate climate information into specific decision-making contexts and considerations. Local decision makers are already working with, among others, their local universities to consider multiple stresses, better understanding of adaptive capacity, and the integration of climate and other information into regional assessments. Regionally accurate information is critical to decision makers. In addition to the need for more work on adaptation, mitigation as a scientific pursuit has also been inadequately addressed.

The science community is being called on to be more responsive and in order to be responsive the science community needs to know what decision makers want to know about climate change. The information around incidence of hazards and how they are likely to change is of importance to decision makers. How do they make public policy decisions using probabilities rather than yes/no something will happen or it won't in an area? They are asking about what actions can they take to reduce climate risks and build resilience: this type of useful, scale-appropriate information needs to be developed and placed into the hands of those who need to make decisions.

Development of a decision support initiative is needed across the nation at regional and local scales. This requires a much closer collaboration between the science and decision-making communities where a "monster chasm" now exists. Stronger partnerships between these communities should help to remove a sense of scientific elitism that some decision-makers may perceive, leading to an important culture of "knowledge partnerships." The development of close relationships and knowledge partnerships will help address criticisms about credibility, transparency, and these could aid in public acceptance of the information and lead to better

utilization of knowledge from decision and climate science. All of this could even result in motivating funding for core research.

Another major comment around grand challenges includes that the models presently available are not regionally specific enough and there need to be efforts to ensure that global models can provide regionally accurate information – e.g. work on downscaling. In addition, another possibility included focusing less attention on the actual information and more on the institutions that would create the information. The participants expressed the need for more serious interaction between generators and users of information and the idea that new research would point to the paths to be followed. They also suggested that scientists interacting with the general public could prompt a new model for conducting science with a specific and regular space for societal interactions and identification of new research directions.

### **Program Framing**

The framing for CCSP now needs to evolve from its focus on understanding the causes of climate variability and change (beyond just a science program) to an enhanced inclusion of information on managing consequences and risks. The strong base of research developed to date in the program now allows it to enhance its focus on and be more aggressive around what decision makers want to know (see Challenges section). The CCSP and USGCRP goals can now be more focused and more easily implementable. Moreover, research is needed on risks and decisions that people face, and getting information into decision maker's hands in a timely fashion. Bringing together the scientific community with the decision-making community should be the goal – to make the science research plan responsive to developing answers to questions that decision makers have about climate changes.

Among RT participants, there was strong consensus that the current structure and focus is not appropriate for moving forward. The Global Change Research Act (GCRA) calls for both understanding and responding to global change, but the main focus of the program has so far remained with understanding. Program restructuring is needed to represent responses via mission agencies. Exemplars from other areas where knowledge creation and use have been achieved should be explored.

Other things to consider include problem instead of scientific focus, decision time scales (i.e., one-year calendar of interest of decision makers), and regulatory requirements. It is critical to remember that both scientific and societal aspects need additional attention so don't throw out everything that the program has achieved. The carbon system is not completely understood, while at the same time mitigation/adaptation research related to societal questions needs attention. A reconfigured program should address consequences of mitigation actions in economic terms, and impacts on resource management, i.e., the things that people care about. Building resilience is crucial, and should not be overlooked. The issue is the need for an encompassing vision that can take the good from the past program and add the new perspectives that are now so critically needed.

The RT participants seemed to favor an inter-agency approach that would retain major science agencies, but additionally entrain mission and resource management agencies. They also suggested that the program might consider inclusion of non-profit groups and academic consortia of trusted information brokers in the social science arenas. No specific Program architecture was recommended, although research investments should be structured to yield both short- and long-term returns.

A way to make even small gains in changing the focus of the CCSP program work from old (strictly science) to new (more social aspects) might include this metric: change 6% of the work each year to focus on the new priority. Get OMB to give the choice of the new 6% work to CCSP rather than to an agency. After 5 years there would be 30% more work being done on the new focus.

The RT participants cautioned that mission creep of a research program to a national climate service should be avoided, as well as competition between them by planning for both as two essential parts of a national climate effort. Defining complementary roles is important even though the nature of a future national climate service is still open for discussion. Also, it was cautioned to not let the latest draft of legislation constrain Program vision.

Future framing options should assure Program credibility that aids public acceptance of analyses. Research is needed to increase credibility of impact assessments (including treatment of causes and sensitivity), and credibility of options and/or response strategies (including technical fixes). Part of the credibility issue is related to stakeholder input and participation as well as involving trusted information sources in the climate research work.

## Management and Budget

The participants suggested that the CCSP structure needs changing to be able to address the emerging societal challenges and to maintain a successful and focused research program. They discussed a number of possibilities, briefly described below in no particular order that include things that could be done with the present tools as well as things that would require major restructuring to accomplish. The question is how far to go in redesigning CCSP? An important point here is that the right people in the right places with appropriate authority is considered critical to a successful program.

The current approach for CCSP integration is weak because agency priorities often are above interagency priorities. This will likely continue as long as strategic decision-making is decoupled from agency budgetary tactics or while CCSP has no budgetary authority. Management could be improved if strategic decisions made by National Science and Technology Council (NSTC) made their way into agency GPRA objectives, but this has never been fully implemented. One approach that enjoyed success was when the Office of Management and Budget (OMB) collectively reviewed interagency priorities prior to addressing agency priorities, and budget decisions favored the interagency priorities. This approach is no longer employed, however, there needs to be a "carrot" (e.g., flexible budget pool) and "stick" (e.g., penalty for not developing approaches for addressing interagency priorities) to enhance interagency program

coordination and Agency implementation of coordination plans and priorities. The challenge is to restructure the research agenda and not the agencies that have multiple priorities. Also, agencies need incentive to buy into collective climate change research.

The interagency program director must have greater authority to ensure that objectives agreed upon by the program are met. One recommendation is for the leader of the climate program to become the Climate Advisor and sit on the President's cabinet, at the same level as the Security Advisor and hold budget authority that is tightly coupled to overall management. There is also an important role for OMB, and OMB examiners must be engaged in the process to understand how the interagency program budget relates to individual agency budgets. OMB examiners do not currently have the authority to place interagency activities at a high priority level; it is believed that the current OMB leaders would not sanction this because the OMB leaders, in turn, are dependent on Presidential leadership.

An interesting point was made about an OMB perspective; OMB managers have said that the more they know about something, the harder it is to cut it; ergo, the less they want to know about it. For OMB to exercise the necessary management, they must have leadership direction to do so, and act in the interest of the nation, which may in some cases be beyond the mandate of individual agencies.

Another possibility mentioned was that climate science management should be undertaken from a reinvigorated Office of Science and Technology Policy (OSTP) that should be close to the President in both location (i.e. in the White House) and issue value. Along with that there needs to be effective and committed leaders throughout the participating science Agencies. The approach would employ NSTC to set objectives to guide Agency programs and budget, and OSTP/NSTC would coordinate overall budget development and review with OMB. It is critical that OMB and OSTP have a unified focus on the climate program. Management at the OSTP level could lead to an actionable strategic plan with priorities and in which high-level leaders are held accountable for success with the overall climate effort. This could be negotiated with Cabinet members, and tied to performance and accountability measures of individual agencies. An example is the Biomass for Energy (cellulosic) strategic plan that was considered actionable.

The option of creating a formal "Climate Advisor to the President" may not be needed if the OSTP Director has full cabinet status [an equivalent level to the OMB Director] and acts at the direct request of the President. This approach was employed with some success in the past. A high (political) level steering body must be actively engaged in implementing the program. The NSTC could play an important role; on other (non-climate) issues it has been very helpful in resolving inter-agency cooperation issues.

There was discussion of management and budget aspects of the UCAR transition report that called for doubling the climate change budget to support observations, modeling and other research needed to support decision making, particularly at the regional scale. This level would protect Agency base budgets, yet was considered needed, reasonable and supportable – if hard priorities could be set.

A question was posed whether CCSP needs a separate authorization and appropriation to protect the program.

Overall, it is critically important to get the right people in the right jobs; this is more important than organizational structure and in the past contributed a great deal to the success of the program.

#### **Human Resources**

Dedicated and committed people are critical to the success of the program. This quality extends from the Program Office to effective program managers deep within the ranks of the agencies. Participation by agency reps in the interagency program should be rewarded, and term appointments with CCSP of greater than a year could be a model to consider. The CCSP experience has served federal employees well.

Agency program managers are the foundation for implementing climate programs, and agency supervisors need to support this role. Agency program managers are the bottom-line difference, and are able to get things done. There are indications of low morale, and many of the current agency managers are ready to retire. It's unclear whether there is a cadre of people to step into those roles. Those jobs need to be made attractive, and those holding those positions need to be given opportunities to do interesting work. Agency leaders need to be advised of time and career commitments to make the process work, and provide time, tools, and rewards for participating in CCSP activities.

There are human resource capabilities and protocols that have been operational and somewhat successful for the past several Administrations. There are lessons that could be learned from these past successes.

#### **Effectiveness**

It is difficult to determine whether agency programs are meeting the goals of CCSP. Agencies need to create a program that speaks with one voice; one example is the medical community that bridges between NIH (National Institutes of Health) and Howard Hughes Institute in providing research grants and training. A coordinated program will be difficult if CCSP priorities have to compete with Agency priorities. It would be helpful if CCSP performance measures were translated into GPRA goals, and evaluated accordingly. Ultimately Cabinet officials have to be accountable. An inter-agency advisory committee could also help matters.

It was mentioned that if the program can't develop stronger internal connections between leadership and budgetary authority, the government might need to restructure its climate science program into a centralized Earth Science Agency that could gather together authority, law, and structure to manage a government-wide program. The biggest argument against a single agency is vulnerability i.e., a single point of budgetary failure. Alternatively, maybe a climate program that is outside of government could do things differently.

Improving effectiveness without the ability to reward good behavior is a struggle.

### **Regional and Sectoral Information and Communications**

The CCSP program must develop a more effective way of interacting with climate stakeholders. There are some rather successful programs where lessons may be taken. For example: The RISA program is an effective way of dealing with stakeholders. Several elements from this approach would be key to the success of the future of the overall climate program. Another example is the UCAR Forum on adaptation and decision-making involving tools and partnerships with local and regional decision makers.

A role for CCSP might be to help facilitate interactions with stakeholders through local universities. It's important for scientists to give talks on the issues and also listen to stakeholders' questions to understand problems. However, there needs to be more strategic and regular national consideration of approaches for conveying information to and from user communities. The National Academies report on public participation in decision-making is now available in pre-publication form. Academy studies tend to offer a range of recommendations for action and how actions could be governed. CCSP might chose to undertake a limited number to begin with and do them well, i.e., show return on investment (ROI) on selected NRC items.

A stakeholder summit would be a good step in communicating around climate issues. This should include an examination of the entire CCSP program. The National Academies will host a summit (America's Climate Choices (http://americasclimatechoices.org/); summit scheduled for March 30-31 2009) and this discussion must connect to it.

A major communication effort on climate change is still needed. Assessments around available regional information should be undertaken to convey what we know and what we're uncertain about. An objective should be to better inform decisions at scales relevant to decision makers. Through greater connection to stakeholder groups, specific regional or local needs can be identified. Once those needs are identified then the best available information can be provided, or research or applications responses can be developed. Some of the information conveyed may be model driven, and some of it may be identifying vulnerability to a wide range of possible future states. A Stakeholder Advisory Group is critical to help maintain the connections between science and society and to increase credibility, transparency, and relevance of the research program.

The kinds of issues decision makers often deal with and are looking for information on are incidence of hazards, building resilience and reducing risk, and specific suggested actions that would reduce their communities' climate risks. Risk reduction also involves mitigation and adaptation, and decision makers want information about actions they might undertake and the likely consequences. There is interest in how climate might impact other decisions involving resource management. Also, how good are forecasts/projections? In the demand for information, users have had to settle for less than what would be optimally useful. There is a need to educate users about what is available and at what level of accuracy. CCSP needs to identify what robust information can be provided to decision makers.

The private sector and carbon markets are an important new consideration. Observations will be required for verification. Who will provide those verifications? Also, climate impacts determine how insurance companies consider risk and price policies.

### Credibility

The program must ensure the credibility of the information that is produced, including potential impacts, mitigation, and adaptation options. Credibility can be assured with attention to transparency. External advisory groups such as an Academy Review study and a Stakeholder Review Committee enhance the credibility of the program. Toning down rhetoric also improves credibility as does de-politicizing the climate change issue.

When a new strategic plan is prepared, the RT participants recommended full review by the NRC as well as review and feedback by the science community and other stakeholders. Experiences with the 2003 plan included considerable reviewer comment about questions and approaches. Pushback influenced subsequent revisions. Advisory groups would be helpful here as well.

An important point is that credibility of analysis aids public acceptance of information.

#### Education

Training the next generation is important. The RT participants suggested that there are critical education gaps emerging. One of those is providing more human resources around the country to respond to specific emerging climate-related problems. Another is developing K-12 capacity and a third may be a need for 'translators' – those who can inform policymakers about complex results and relationships.

The RT participants suggested that CCSP and agency leaders could help address education issues and gaps by the way programs are designed and funded in academia perhaps with innovative programs at universities that encourage people to engage with decision makers. Academic reward structures also need to change since public service often is not recognized for tenure advancement. They noted the next generation of climate scientists and modelers are not finding jobs in the strictly science climate sector.

#### **Transition Issues**

There are two times to influence an administration: in the beginning and at the end. The greatest impact with a new Administration is within the first three months. CCSP's transition process has to emphasize that it is being responsive to the incoming administration and explain that there is a process in place (identifying options), not a developed plan, that can facilitate their new vision. CCSP should summarize past values and identify future directions, but not get too deeply into the science. The critical things to convey to a new Administration are budget needs, leadership,

and management. If a review is to take place in a 3-month window, it should focus on challenges, principles and opportunities, lessons learned, and identify the best leverage at this stage of the enterprise. Summarize the past values and future directions, explain what has worked and not worked well, and what can be improved. Also, consider suggestions from the scientific community and other sources. Identify management issues, and suggest what adjustments are needed, with reference to what helps grow the economy, and what regional assistance is provided. The review should identify consistency of findings with other reports.

The University Corporation for Atmospheric Research's (UCAR) transition document is an example of focusing on key issues. It has clear recommendations for programs, budgets, leadership, and management and recommends more than doubling the current budget, with \$2B in new funding to better serve climate stakeholders (e.g., local and regional stakeholders). It is important for the budget request to ask for what is needed. But, if new funds are not available, prioritization becomes very important, i.e., identify highest and lowest priorities. In the priority setting process also state what falls off the table.

In preparing for transition, the RT participants suggested using the present National "budget crisis" as a rationale for ruthless budget review that would identify strengths and weaknesses and recommend only the highest priority and critical needs. They expressed that there was no reason not to refocus the present \$2 B to address some of the identified new challenges. CCSP should take a fresh look at the 2003 Strategic Plan, and determine if it still represents direction and priorities that should be included as options in the next program. It needs to be noted that the participants suggested that the 2003 Strategic plan is too vague to be easily implemented and to hold any Cabinet members accountable – an option suggested as a success strategy for the next climate science program. How realistic is it that CCSP could have the budget and the priorities ready for January 1<sup>st</sup>? It would require an assessment of where the program is now and feedback from the communities of interest. The participants suggested that while there needs to be specific and good planning it should not be a prepared plan as that would likely be dismissed by the new administration.

The RT participants commented on interactions with a new Administration that might include insights from campaign speeches, and how to interact with transition teams. Aspects of transitions involve early interaction with campaign staff where there is high-level interest in climate change issues, and the RT participants commented that there have been a few instances of campaign workers contacting climate experts. Another aspect involves transition team briefings by career professional staff, which is likely necessary around climate change details, and is the time to communicate program content and direction. General guidance for the briefings is to be specific and candid when conveying information, and seek to establish trust in contacts with a new Administration. The RT participants were unable to identify likely transition team membership from either party at the time of the meeting.

### **Roundtable Participants**

D. James Baker, Clinton Foundation, formerly of NOAA
Robert Corell, H. John Heinz III Center for Science, Economics and the Environment
Jack Fellows, University Corporation for Atmospheric Research
Chris Field (tel.), Stanford University
Joe Friday, National Research Council
Jack Gibbons, Resource Strategies
Bryan Hannegan, Electric Power Research Institute
Anthony Janetos, University of Maryland
Jim Mahoney, consultant, formerly of NOAA
Nancy Maynard, NASA
Jerry Melillo, Marine Biological Laboratory
Berrien Moore, Climate Central
Edward Sarachik, University of Washington
Daniel Sarewitz, Arizona State University
Stephen Schneider (tel.), Stanford University

#### **Facilitator**

Lynne Carter, Adaptation Network

#### **Observers**

Norman Barth, Dept. of State Bill Brennan, CCSP / NOAA Michael Clark, OMB Emily Cloyd, CCSP Office John Cortinas, CCSP Office Roger Dahlman, CCSP Office Chris Elfring, NRC Mary Glackin, NOAA Grace Hu, OMB Amy Kaminski, OMB Jack Kaye, NASA Fabien Laurier, CCSP Office Linda Lawson, DOT Chet Koblinsky, NOAA Anne Linn, NRC Tanya Maslak, CCSP Office Chad McNutt, NOAA Ryan Myer, ASU Peter Schultz, CCSP Office Pam Stephens, NSF Anne Waple, CCSP Office