



Interpreting Climate Change

Module 1 – Learning Companion

Introduction to Interpreting Climate Change

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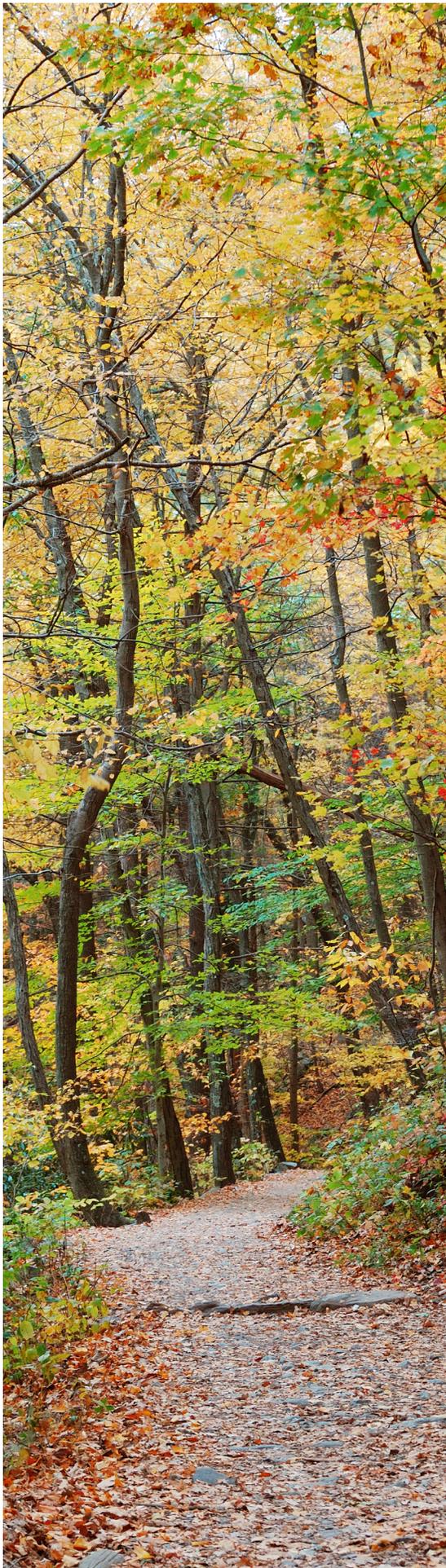


Climate Change and the National Park Service

Climate change is a critical resource issue that is already impacting the natural and cultural resources that the National Park Service (NPS) is mandated to protect and interpret. It is a complex and controversial issue that has generated much debate as well as misinformation. The NPS is actively responding to the issue and developing a dynamic strategy for addressing it into the future. NPS Director Jon Jarvis predicts that “the young employees I have met who are just starting in this wonderful organization will be dealing with climate change their entire career.” This topic is not a passing fad, but a permanent priority; we must fully engage in this issue now. In doing so interpreters will speed their learning process, shape agency direction, accelerate public understanding, and maximize protection of park resources.

As one of the largest informal education organizations in the world, the NPS is well positioned to engage the public about climate change. Though other agencies are communicating about climate change, the NPS has several advantages. First, parks provide tangible examples of how climate change is now affecting the landscape. Second, parks are living laboratories where citizens can engage in participatory science learning. Third, our visitors have a natural affinity for park landscapes and resources that provide a common ground to begin the conversation. Fourth, the NPS possesses a cadre of interpreters and education specialists who are trained, trusted sources of information, and the public is often willing to engage with park employees on this topic.

NPS leadership has made communicating with the public about climate change a top priority. This competency curriculum will help interpreters identify and acquire the knowledge, skills, abilities, and behaviors that are needed to effectively engage the public on this issue.



The NPS Climate Change Response Strategy

All NPS interpreters should be familiar with the agency's official position and course of action on climate change. Director Jarvis issued the *NPS Climate Change Response Strategy* in September 2010. This report describes the position of the agency and provides direction to staff in carrying out the bureau's mission within the context of climate change. As a service-wide call to action, the strategy makes it clear that the NPS must take climate change seriously. According to Director Jarvis, "... climate change is the greatest threat to the integrity of our national parks that we have ever experienced." NPS staff "should not be afraid to talk about climate change." In fact, staff are directed to not only discuss the topic but to also take action to understand, counter, and adapt to its consequences.

The Response Strategy demands a scientific approach to climate change issues, and NPS staff are directed to always base management decisions on the best available science. At the same time, where uncertainty remains about specific climate change impacts, staff are not to be driven to inaction, for "... inaction may be the riskiest decision of all because climate change is a long-term problem that carries a huge procrastination penalty." Instead, the agency must begin now to develop the long-term plans and strategies required to protect NPS resources into the future.

To ensure success, the Response Strategy calls upon the NPS to develop strong collaborations with partners, to identify and monitor climate change effects in parks, and to apply accurate and relevant science to management and policy decisions. Because the future will be characterized by climatic and seasonal patterns for which we have no modern or historical reference points, and comparisons to traditional baseline condition assessments are no longer sufficient, a more flexible approach to decision making that allows the incorporation of new and relevant science is required. Scenario planning and other flexible decision-support efforts are necessary to manage park resources in the novel ecological and social conditions created by climate change.

To face these new challenges, the NPS Climate Change Response Program (CCRP) was established to work across directorates and with programs, regions, parks, and partners to develop an interdisciplinary approach to dealing with climate change. The NPS climate change response is being implemented in a manner consistent with NPS policy and DOI guidelines set forth in **Secretarial Order 3289**, Addressing the Impacts of Climate Change on America's Water, and, Other Natural and Cultural Resources, issued in September 2009. This order calls upon all DOI bureaus to take part in meeting the climate change challenge.

The NPS Climate Change Response Strategy is built around four integrated components: science, adaptation, mitigation, and communication. These four self-study modules are part of the communication component of this strategy. The NPS is working collaboratively with other agencies and organizations from local to national levels to implement the components described on the following page:

1. **SCIENCE.** NPS climate change science is multidisciplinary and directly focused on stewardship of NPS cultural and natural resources. Stewardship science views national parks as part of larger, surrounding geographic areas; focuses on landscape and regional scales; and recognizes the integration of the human-ecological system. The NPS Climate Change Response Strategy directs the NPS to expand its scientific capacity to fulfill the following four goals:
 - Goal 1. Use the best available scientific data and knowledge to inform decision-making about climate change.
 - Goal 2. Collaborate with partners to develop, test, and appropriately apply climate change models to NPS activities.
 - Goal 3. Inventory and monitor key attributes of the natural systems, cultural resources, and visitor experiences likely to be affected by climate change.
 - Goal 4. Use best available science to evaluate and manage greenhouse gas storage and emissions in national parks.
2. **ADAPTATION.** In this context, adaptation refers to an adjustment in natural or human systems that will moderate harmful effects of climate change or take advantage of beneficial opportunities. This is the critical realm in which science is applied and action taken in anticipation of climate change effects. The NPS Climate Change Response Strategy focuses on the following four adaptation goals:
 - Goal 5. Incorporate climate change considerations and responses in all levels of NPS planning.
 - Goal 6. Implement adaptation strategies that promote ecosystem resilience and enhance restoration, conservation, and preservation of park resources.
 - Goal 7. Develop, prioritize, and implement management strategies to preserve climate-sensitive cultural resources.
 - Goal 8. Enhance the sustainable design, construction, and maintenance of park infrastructure.
3. **MITIGATION.** Responding to climate change begins with reducing the carbon footprint of NPS operations. In the *NPS Call to Action*, the Service commits to “Go Green” by reducing its carbon footprint before the NPS Centennial in 2016. *A Green Parks Plan* outlines a sustainability vision and sets goals that will make the NPS a worldwide leader in sustainability. All NPS staff are empowered to be agents of change in this effort that is vital to demonstrating the NPS commitment to leading by example to our park visitors, partners, and communities. NPS mitigation efforts include the following goals:
 - Goal 9. Substantially reduce the National Park System’s carbon footprint from 2008 levels by 2016 through aggressive commitment to environmentally preferable operations.
 - Goal 10. Integrate climate change mitigation into NPS business practices.
 - Goal 11. Promote biological carbon sequestration as a function of healthy ecosystems.
4. **COMMUNICATION.** The NPS is a liked and trusted source of information that is uniquely positioned to raise public awareness about the effects of climate change on our parks and the world as a whole. The ever-increasing volume of new, diverse, and technically complex climate change information requires NPS staff to conduct a coordinated effort to make the most important information accessible to all employees, volunteers, partners, and communities. NPS staff should facilitate dialogue about possible climate change scenarios, encourage sustainable practices, and provide programs that enable individuals to achieve solutions.
 - Goal 12. Coordinate and distribute climate change information throughout the NPS.
 - Goal 13. Increase climate change knowledge and understanding within the NPS.
 - Goal 14. Provide external communications about the implications of climate change and the NPS response.
 - Goal 15. Model and communicate sustainable practices that lead by example.



Developed within the Climate Change Response Strategy are four key messages that serve as a foundation for communication efforts across all divisions within the NPS. They simply and concisely relay the NPS position on climate change. They can serve as the starting point to engage with staff and visitors alike on climate change discussions, and can be used by any NPS employee no matter what their role is within the agency.

Four Key Messages:

- Human activities are changing Earth’s climate
- Climate change affects national parks and the treasures they protect
- The National Park Service is addressing climate change
- The choices you make today do make a difference

Climate Change and Controversy

Climate change not only affects our environment but also poses risks and consequences for people socially, politically, economically, and ideologically. The issue is controversial in part because policies intended to address its underlying causes and mitigate its impact may limit what people can or are willing to do. There is some perception that addressing climate change in public policy and regulation will have a detrimental effect on jobs and our economy, as well as our nation’s energy infrastructure. Regulations and policy mandates could also be perceived as infringing upon our freedoms.

Climate change is also controversial because of the political nature of the national discourse on the issue. Mass media and cable news outlets tend to distort the scientific debate about climate change and often enlist the opinions of so-called “experts” to provide dubious counter-arguments whenever the issue is discussed in detail. This can create the perception of tremendous uncertainty about the issue and its causes among scientists, even though very little uncertainty exists. Additionally, the pervasiveness of common climate change myths (see Knowledge of the Resource section), coupled with the incredible complexity of climate science and a widespread lack of science literacy in America, make it difficult for many people to find relevance and understanding about the issue. Instead, many people gravitate toward political talking points that conform to their own particular ideology or disengage from the issue altogether.

All of these things combined make climate change one of the most controversial and misunderstood issues in modern America. However, by embracing this controversy and harnessing the passion and energy that result, NPS interpreters have an opportunity to engage the public in an experiential way that can help make climate change personally relevant. Additionally, understanding this controversy can enable interpreters to move beyond the barriers and biases that traditionally prevent us from effectively interpreting critical resource issues.



Overcoming Barriers

Being able to identify the barriers that prevent the effective interpretation of an issue is a key step in overcoming those barriers. Some common barriers for interpreting climate change – along with appropriate proactive responses to be considered -- include the following:

Politics/media: Both politicians and the media thrive on conflict, and as a result tend to paint issues as black and white, with two equal and opposing sides. For climate change, this politicization and media influence inhibits public understanding and acceptance of the issue and fosters arguments, conflict, and the spread of misinformation. This becomes a barrier when people learn from these sources that the “correct” way to “discuss” this issue is to argue, regurgitating sound bites without listening or respecting different viewpoints.

Response: *Interpreters can learn how to disengage from these types of conversations and provide opportunities that encourage visitors to engage in a more productive dialogue.*

Scientific Literacy: There is a basic misunderstanding among the American public about what science is and what it is not, and the role it plays in our everyday lives. People who are not science literate can sometimes become distrustful of science and scientists. A lack of understanding about the scientific process also makes people more susceptible to “pseudoscience” and more likely to accept erroneous information or opinions when masked as science or truth. Skepticism, when applied to the scientific process, is what makes science such a powerful tool for understanding the world around us. However, when skepticism is a result of a lack of science literacy, it can inhibit a person’s willingness or ability to understand and accept scientific evidence.

Response: *It is critical for interpreters to develop the ability to recognize when the climate change skepticism presented by a visitor is a result of a general lack of understanding of basic scientific principles. In this situation, interpreters must be able to step back from the conversation and help lead the visitor to a greater awareness of science in general. Skepticism is often viewed by interpreters as disagreement, and it is all too easy to fall into the mindset of having to “set the record straight” or change the minds of those who disagree with us. But skepticism can be viewed as an opportunity to provoke or inspire a visitor to think about things in a way they may not have considered before. A skilled interpreter who has a strong knowledge of science (as well as climate science) can help visitors reach an understanding of healthy scientific skepticism and enable a visitor to leave with a stronger scientific literacy.*

Complexity: Climate change is an incredibly complex and global issue. There are still many unanswered questions about what may or may not happen as a result of our warming planet. For interpreters, this complexity can be so intimidating that it prevents them from even attempting to engage in the issue. There are ways, however, to make understanding the issue more manageable and less intimidating.

Response: *The first thing to realize is that you don’t need to be a climate change expert to engage the public on the issue. In fact, admitting to visitors that you do not have all the answers can help them empathize more with you and with the complexity of the issue. Most importantly, interpreting climate change does not mean that interpreters have to talk about the carbon cycle, or greenhouse gases, or sea level rising, or atmospheric CO₂, or melting glaciers, or carbon footprints, or fossil fuels, or . . . Rather, interpreting climate change means that interpreters must be contextually aware of how the issue relates to their parks’ resources and story. For instance, there is little reason to talk about melting glaciers at Thomas Edison National Historic Site. There is, however, every reason to talk about the innovation of scientific inquiry and the transformative effect it can have on a society (e.g., a renewable energy revolution vs. the industrial*

revolution). To move beyond the barrier of the complexity of this issue, interpreters must find the site-specific story that their parks can contribute to the conversation. Interpreters must also realize they are not alone in developing these stories. Good collaboration between resource staff, regional or national support staff, and park partners can help increase knowledge and understanding of how climate change is affecting their park and can help develop the site-specific story.

In addition, interpreters can focus on facilitating discussion, rather than being the expert, allowing them to worry less about their knowledge of the subject and to be more open to learn from their audience and the stories they may have to share.

“Here and Now” vs. “There and Later”: For some people, climate change is a distant phenomenon that has not personally affected them. They might even believe it may never affect them. This makes people less concerned about the issue and less likely to make changes in their lives to help solve the problem.

Response: National parks, however, provide a perfect place for people to experience the real impacts of climate change already occurring in places they care about. They provide a way to make the issue personally relevant to the visitors’ actual experiences in the park and, as a result, personally relevant to the visitors as they make the connection from the park to their backyards.

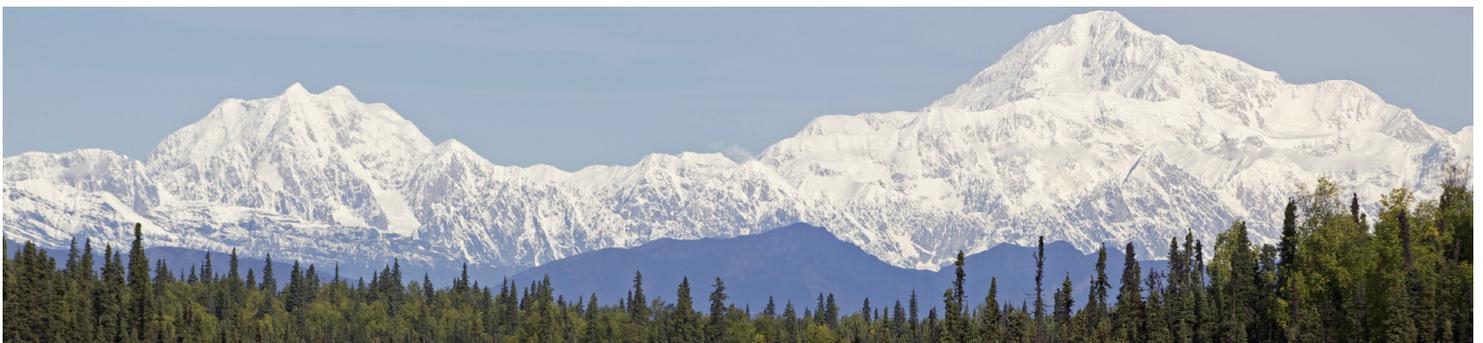
Personal Expectations: Personal expectations and measures of success can be another barrier for interpreters who engage the public on climate change. Expectations should be realistic and reflect the complexity of the issue, people’s perceptions of it, and their willingness and readiness to engage with us on it. As with any issue, NPS interpreters are expected to maintain the highest level of professionalism. Interpreters should always care about the success of the agency and the protection of park resources. They should provide an interpretive message that helps visitors form their own connections to the meanings of climate change as it pertains to park resources and each person’s park experience. Interpreters should tackle the climate change issue as they would tackle any other: professionally, interpretively, honestly, and using place-based messages.

Response: Interpreters should not expect that every visitor contact will result in increased resource stewardship, or a full understanding and acceptance of climate change science. It may be impossible to know if these things are ever achieved, but it is enough to know that it is possible. By openly sharing your individual park’s climate change stories and revealing the impacts to park landscapes, resources, ecosystems, and visitor experiences, you may connect with a visitor in a way that really makes them want to take action. This is where the NPS can be an expert in climate change and can make the most meaningful contributions towards raising public awareness of the issue and decreasing its effects.

Fear: Probably the largest barrier for interpreters to overcome when deciding whether to engage visitors with the issue of climate change is fear. Fear of conflict. Fear of being contradicted. Fear of not knowing the right answer. Fear of saying something erroneous. Fear of not knowing enough about the issue.

Response: Fear is a powerful barrier, but by proactively addressing and overcoming the barriers listed above, it is possible to reduce that fear to a much more manageable level and move forward with confidence and enthusiasm. Interpreting climate change will likely take you out of your comfort zone when working with the public – this is an opportunity to experiment with new techniques and approaches, and if necessary, “fail forward” in learning and growing as an interpreter.

In the Appropriate Techniques section of this curriculum, we will explore interpretive skills for embracing controversy and interpreting climate change.



Overcoming Bias

National Park Service interpreters represent the agency and its mission, not their own positions or agendas. Understanding the NPS position on climate change and accurately representing that position are critical to their ability to be “honest brokers” of climate change information as it relates to national parks.

Emotions run high on the topic of climate change. Interpreters are not immune to these emotions and may bring them along with their own biases into their interpretive products.

Why Overcoming Bias Is Important

The NPS walks a fine line when addressing controversial resource issues. Staff have a duty to meet the NPS mission while being careful to ensure that they are not perceived as lobbyists with a certain agenda outside the scope of the agency mission. As NPS representatives, interpreters must maintain credibility and trust as two fundamental traits. Maintaining trust and credibility means that interpreters should:

1. accurately and transparently represent the position of the NPS and speak about the impacts climate change has on park resources (and carefully consider how to address topics where the NPS may not be the expert source of information—e.g., EPA regulations, green energy);
2. be aware of not interjecting personal beliefs about climate change impacts, mitigation efforts, policy; and
3. avoid the natural temptation to stereotype and be judgmental of people with other beliefs.

Credibility is dependent on a source’s expertise and trustworthiness in regards to a topic. People are more willing to be influenced by communicators that are trustworthy and know what they are talking about. NPS staff are a credible source of information about climate change effects in parks because they are experts at understanding park resources and how to manage them. The NPS is a trustworthy source for information because its mission focuses on protecting resources for the good of the nation and the world. Sharing park-specific examples of climate change and climate change mitigation efforts enhances trustworthiness: many parks can show the effects of climate change on the landscape, demonstrating that it is happening now and in a wide array of places. NPS staff can also share the actions that parks have taken to mitigate their carbon footprint and the successes and lessons learned from taking these actions. Our strength grows from connecting people to a resource and allowing them to find relevance in that resource, setting the stage for them to make their own decisions about stewardship, and empowering them to do so by sharing how the NPS is making changes to minimize its impact.

Self-Reflection

In order to overcome bias, it is necessary to start with self-reflection. Interpreters can take the following steps for the self-reflection process:

- Assess their own personal beliefs and perspectives about climate change, mitigation actions, and policy and then identify their own biases.
- Compare the NPS position and areas of expertise with their own beliefs and experience to determine what lies within their duties as representatives of the NPS and what does not.
- Reflect on how they feel about people who have different beliefs about climate change than they do and remember that respect is a critical element for interpreters.
- Recognize that each park visitor that chooses to engage in climate change communications has a right to hold and express their own beliefs and perspectives.

Climate Change and Interpretation

A Strategy for Public Engagement and Relevance

Communication theory and studies of public perceptions surrounding climate change all seem to indicate that the most effective strategies for climate change interpretation will involve both engagement and relevance. Due to the critical and potentially controversial nature of this topic, the interpretive strategies that will be most effective will be those in which audience autonomy is respected, and visitors are included as co-creators of their interpretive experiences, with opportunities to contribute, discuss, and participate. The role of the interpreter in this type of programming will rely more on facilitation skills than on traditional, one-way presentation skills, and the overarching goal will be interpretation with visitors rather than for them.

Parks should strategically and collaboratively plan to provide a variety of engagement opportunities related to climate change, ranging from opportunities for personal connection, reflection, and expression to opportunities for participation, action and partnership. It may not be appropriate or necessary to provide all of these opportunities to every visitor or audience, but park managers and interpreters should think broadly and inclusively, and provide a welcoming and compelling menu of engagement options. As illustrated in the following diagram, the opportunities can and do overlap, and understanding when and why it is appropriate to incorporate one or more of them is critical to the success of the park's climate change programming.

Opportunities for Audience Engagement



Together, the circles above represent the suite of experience options that should be made available to engage park visitors with this or any critical resource issue.

This range of experiences includes opportunities for visitors to:

1. **Connect**–The foundation of interpretation, providing opportunities for visitors to connect to resource meanings, including both resource significance and personal relevance.
2. **Reflect/Express**–The opportunity for visitors to both reflect upon their experience and express their opinions, beliefs, and values in a safe environment without fear of judgment or criticism. This is where alternative ways of thinking, knowing, or expressing can be offered and explored.
3. **Participate**–The opportunity to engage in activities within the park, with park rangers, scientists, other visitors, etc., in a way that is participatory, provides greater context and awareness of the issues, and fosters a stewardship ethic.
4. **Act**–Encourages visitors to engage in participatory activities beyond the interpretive encounter or their park experience, taking what they learn, see, do, experience home with them and engaging their friends and family.
5. **Partner**–Action on a deeper level that involves visitors joining us in the conservation effort; this may include building a relationship with the park, the park’s friends groups, or other partners, to foster public engagement, learning and stewardship.

There are many reasons to provide these types of engagement experiences when tackling a critical resource issue as potentially challenging and complex as climate change. For instance, they provide an increased ability to harness controversy, engage in collaborative dialogue, and empower the visitor to be part of the solution. We will explore the advanced skills interpreters need in order to facilitate these experiences later in this curriculum.

Collaborative Planning

Interpreting climate change presents an imperative and an opportunity for interpreters to collaborate. Collaboration in the planning and development of interpretive programming will allow greater ownership and encourage greater participation, engender respect, and facilitate the development of civic skills for all who engage. When identifying site-specific climate change stories and interpretive goals, interpreters can and should coordinate and collaborate with other interpreters, resource managers, scientists, historians, facility management staff, and the park management team. Consulting with a diversity of audience representatives is also crucial to identifying relevant stories, interpretive goals and possible venues. Then a collaborative plan can be created that identifies the best ways to discuss and share those stories, and to coordinate with existing interpretation, education and outreach efforts.

Interpretive Foundations

For any topic or issue, it is imperative for interpreters to build all of their communication efforts on a solid foundation of knowledge – **knowledge of the resource** (in this case, knowledge of the resource issue), **knowledge of the audience**, and **knowledge of appropriate techniques** – the elements of the Interpretive Equation. (See the free on-line course Foundations of Interpretation.) Acquiring this knowledge related to climate change will require interpreters to move beyond traditional research methods, seeking and sharing sources of learning across park divisions, beyond park boundaries, and highly inclusive of audience/stakeholder voices and perspectives. Building on this foundation, interpreters are positioned to select from an array of interpretive venues, strategies and techniques to engage diverse audiences and provide many opportunities for audience members to make their own intellectual and emotional connections to the meanings of climate change. The rest of this curriculum is structured upon these foundational areas of knowledge and application.

References and Resources

- *Who's Got Your Back? Empowerment through Leadership Support* PowerPoint
- DOI Climate Change Homepage: <http://www.doi.gov/whatwedo/climate/index.cfm>
- NPS Climate Change Homepage: <http://www.nps.gov/subjects/climatechange/>
- NPS Sustainable Operations Homepage: <http://www.nps.gov/sustainability/>
- **Foundations of Interpretation** – a free online tutorial developed by the NPS Interpretive Development Program in partnership with the Eppley Institute for Public Lands, 2003
- **Audubon Tools of Engagement**: A Toolkit for Engaging People in Conservation
- **Support for climate policy and societal action are linked to perceptions about scientific agreement.** This article examines the relationship with belief in scientific consensus on climate change and public support for government action.
- **Climate on Cable: The Nature and Impact of Global Warming Coverage on Fox News, CNN, and MSNBC.** As media audiences fragment, television networks cater to specific segments of the public. Based on this notion, this article looks at climate change coverage on the three major cable news channels (Fox News, CNN, and MSNBC) and explores the relationship between viewership of these channels and beliefs about global warming.
- NPS Climate Change Response Strategy: http://www.nps.gov/orgs/ccrp/upload/NPS_CCRS.pdf
- NPS Climate Change Action Plan: http://www.nps.gov/orgs/ccrp/upload/NPS_CCActionPlan.pdf
- Four Key Messages: <http://www.nps.gov/subjects/climatechange/upload/NPSKeyClimateChangeMessages.pdf>
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- NPS Green Parks Plan: <http://www.nps.gov/greenparksplan/>

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