

Climate Change *and* Indigenous Knowledge

by Richard Simonelli

Climate change and global warming are not a new story any more. But when climate change scientists and an auditorium full of indigenous people and other interested thinkers put their heads and hearts together to take on climate change problems, it certainly is new.

“We have opportunities today to work together to bring the best of climate science and the best of indigenous knowledge forward to solve some of the incredible and perplexing problems we face,” said UCAR’S Rajul Pandya as he opened the “Planning for Seven Generations Conference” in Boulder, Colorado, on March 19-20, 2008. “There is much that scientists can learn from indigenous people,” he went on. “And we know that science has something to offer.”

A View from the Scientific Way of Knowing

In 2007, former U.S. vice-president Al Gore shared the Nobel Peace Prize with the Intergovernmental Panel on Climate Change (IPCC), a body of 2,500 scientists from around the world whose job is to report on what physical science knows about the heating up of our planet. Gore’s film *An Inconvenient Truth* presented the information in one way, and the IPCC’s 2007 report is the latest science on global warming. The “Planning for Seven Generations Conference” was honored to have Dr. Elisabeth Holland, one of the key authors of the IPCC Report and a climate scientist with a background in biology and ecology at NCAR, present the findings of the IPCC to the conference.

“What this group of scientists said from these multiple bits of data is that *warming is unequivocal*,” Dr. Holland declared. “We are saying warming is unequivocal and that’s all over the globe. The story of what that warming looks like differs around the globe, but what we see is a rise in the global mean temperature, we see a rise in the global average sea level, we see a decline in the northern



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Nobel prize laureate Dr. Elisabeth Holland during her keynote address at the conference

hemisphere snow cover. We have stories in the oceans and in the upper atmosphere that give us all the same message.”

But Holland’s message was much more than factual scientific conclusions alone. Her presence as a compassionate human being acted as a bridge between hard science and the further aspects of knowledge, which is one of the unique strengths of traditional indigenous science. In fact, the notion of a bridge between Western and indigenous ways of knowing, or their “marriage,” was one of the thoughts in many people’s minds as the days unfolded.

According to Holland, “The data shown in the climate change charts is what we believe in as scientists today, and these are the numbers that we can believe in. This is where objectivity has gotten us. But that’s not the whole journey. The rest of the journey belongs to all of us. We have to translate what these numbers mean, into what it means to be a human being living on this earth.”

Dr. Caspar Ammann, a paleo-climatologist at NCAR, also laid out some of the current findings about worldwide climate change. He commented, “I bring a traditional scientist’s perspective, but we have some connections with the indigenous viewpoint through the field of paleo-climatology. This is the study of climate, not as it is

Highlights of the Planning for Seven Generations Conference

1. It was a meeting ground in which a rare, open window for in-depth communication between the two groups was shared;
2. There was a view from the scientific way of knowing as key climate change scientists presented the facts and latest science about climate change;
3. There was a view from the Native way of knowing as four Native Elders and scholars shared traditional perspectives about climate change and the Native worldview;
4. Presentations about solving real problems from Native and non-Native people working in Native communities were offered;
5. The next generation spoke, via three young people working in Native communities and at the start of their careers in techno-science; and
6. We participated in remarkable and unprecedented synchronicities when exceptional, unplanned occurrences took place while we were all together.

at any particular state, but as it has evolved. We ask, how has climate evolved, and do we, at some point in this evolution, see something that is disconnected from what we would expect from these natural variations?”

The answer to his question is “yes.” The pattern of climate change, at least since the mid-20th century, stands outside what might be predicted based on studying ancient climate records from past ages. The difference is probably the accelerating increase of the anthropogenic greenhouse gases, such as carbon dioxide, methane and nitrous oxide, due to human habitation. It is probably not due to any increase in *insolation*—the incoming radiant energy of the sun on the earth’s surface—because no current-day measurements or inference from paleo-science supports that.

The presentations of both Drs. Holland and Ammann summarized the now well-known effects of global warming in this way:

- The mean temperature of the planet, air and sea is rising;
- The rate of change of temperature rise is also increasing;
- The four major global ice sheets are decreasing in size;



L to R: Albert White Hat, Sr., Billy Frank, Jr. and James Rattling Leaf

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- Numerous local glaciers are collapsing (melting);
- Permafrost areas in the Arctic region are decreasing;
- Precipitation patterns, both rain and drought, are changing;
- The normally frozen Arctic Sea area known as the Northwest Passage is opening up; and
- Sea levels are rising.

Dr. Ammann’s careful, clear scientific presentation wrapped up as he addressed potential critics. “We are often asked whether we are overblowing the troubles and the pessimistic outlook,” he confided. “The models give a certain pessimistic scenario for certain greenhouse gas emissions up

to 2006. But when actual temperature measurements are made, we have already surpassed that. The greenhouse emissions are the driving force of the current warming. But if anything, the models seem to be underestimating the climate compared to the data. We are not overblowing this.”

A View from the Native Way of Knowing

It wasn't the first time that day that a mood of gloom and depression wafted over some 150 conference participants. It had been there on and off from the start because of the sobering subject

matter. It's not that anything said was wrong or biased. Unfortunately, it was perhaps all too true. But Dr. Ammann then passed the microphone to Craig Fleener, a Vuntut Gwitchin and wildlife biologist from Fort Yukon, Alaska. Fleener was next up in the panel discussion. But he didn't start to speak. He looked around and a hush could be felt in the air. More time went by. Then he spoke.

“I think that the news we just heard seems pretty horrible,” he began. “I'm going to start my presentation a little differently than I had planned because I want to try to set a scene for you so you can picture where I come from and what I'm going to talk about. I want to take your mind off what you just heard, take the bad things out of your mind, the negative future that's been laid out before us, not just right now, but all the stuff we've heard about climate change and the negative impact that we are going to be facing. So I'm going to ask you to do something that is a little strange, but you'll see why in a minute. I've done this before and I think it helps you paint a really good picture and sets a good scene for what I want to talk about. So everyone close their eyes and just relax for a minute. Try to free your mind of everything that's bothering you, your cell phone, your e-mail, screaming neighbors, wondering if you are going to make the next flight, car horns honking, whatever your problems might be. Put all that out of your mind and think for a minute of the most beautiful place on earth, the most absolutely most beautiful place you've ever seen.”

Fleener then went on to take the conference through a guided meditation, painting a picture and telling the story of the beauty of his own home country around Fort Yukon, Alaska. Participants were moved, cleansed, even a little bit healed. “A little strange?” he said. Yes, perhaps, from the point of view of an ordinary science conference. But in “changing the channel,” so to speak, into the story voice, the personal voice, Fleener crossed over into one of the forms of indigenous science. Rather than simply talking about Native science, rather than defining it or discussing it intellectually as is often done, he actually demonstrated it and allowed participants to become Native scientists.



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Dr. Mimi E. Lam and Dr. Roberto Gonzalez-Plaza at the “Planning for Seven Generations Conference.”

The “Ah-Ha” Moment

One of the most memorable experiences of the conference came during a conference break. Speaking with Dr. Roberto Gonzalez-Plaza, a molecular biologist and indigenous educator at the Indigenous Education Institute, revealed yet another way to break out of the box. Participants were discussing the bridge between the different ways of *knowing and being* that were on everybody's mind. Suddenly, Gonzalez-Plaza said that maybe the bridge is not an appropriate metaphor. In order to meet, maybe we need to “meet at the bottom.” What could that mean? Do we need to find commonality in simpler, more human terms? As things get more difficult, will it be our mutual basic needs, rather than ideologies, that will point the way forward?

Later, Dr. Mimi E. Lam, a colleague of Dr. Gonzalez-Plaza and a researcher in the Fisheries Centre at the University of British Columbia, explained what “meeting at the bottom” might mean.

“We need to ‘meet at the bottom’ over points of commonality such as our hearts and our spirits, rather than try to bridge the cognitive and cultural gaps between incompatible worldviews, which can feel dangerous to our group psyches and senses of self,” she said. “Bridging the gap immediately sets up an us versus them mentality,” she went on, “whereas by appealing to our common humanity, we meet at points of affective convergence rather than divergent viewpoints. Maybe by discovering our intrinsic humanness, we can discard those false identities, trust in our true relational selves, and share meaning in our lives that is worth planning for seven generations.”

Yes, to meet in our humanness, to meet in our feelings, and to meet in both our strengths and in our vulnerabilities so that we may heal and strengthen through the earth changes now taking place. This is what happened at the conference. There is no reason why such healing through dialogue between representatives of Western science, those supporting indigenous knowledge, and the melding of both, can't continue.

Indigenous Thought

Elder Leroy Little Bear, Blackfoot Confederacy, is a well-known Native educator and proponent of traditional indigenous knowledge. His presence and his words illuminate the underpinnings of indigenous science, and more than that, of Native thought. He voiced one of the key floating questions when he said, “How do we bring about a marriage between Western science and Native science, if we want to call it that?”

Little Bear summed up the Native American paradigm in six points.

Change: In the Native view, everything is in constant flux, impermanent, always moving. Everything changes, breaks down, transforms and comes back in a different shape.

Spirituality: Everything is about energy and waves. In contrast with Western science, which is focused more on matter, the spirituality suggested by an energy view is closely associated with Native Americans.

Everything is Alive: In the indigenous view, everything is animate. There is no such thing as inanimate. That’s why the earth must be treated as a living mother.

Everything is Interrelated: There is no such thing as something happening in isolation. It’s not accurate to look at just one thing in a vacuum, as Western science often does.

Renewal and Repetition: Things take place in an endless repetition that is most accurately described by cycles and seasons, rather than by a straight line. “Been there, done that, let’s move on” can have hurtful results.

Holistic Thought: Western thought is often about polarized thinking: good-bad, saint-sinner, day-night, black-white. It’s either-or so much of the time. But the Native thought process is holistic, inclusive, embracing, relational.

Speaking more about holistic thought, Little Bear reflected on the type of binary or dualistic thought needed in the contemporary world. He said, “It is not because we can’t do it, but we don’t think that way. It is always



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Leroy Little Bear asks a question during one of the many Q & A sessions.

the holistic thought that governs our way of thinking.”

Angayuqaq Oscar Kawagley is another Elder who directed attention to the kind of thinking and cultural practices that best help Native people as they work in the field of climate change. An Alaska Native, Yupiaq, he returned over and over to the need for Native people to speak their own languages, if possible, because some of the Native worldview is carried right in the language and cannot be translated. He

Presentations On Webcast

Generously hosted by UCAR (University Corporation for Atmospheric Research), NCAR (National Center for Atmospheric Research), and the American Indian & Alaska Native Climate Change Working Group, some of the key presentations from the “Planning for Seven Generations Conference” are available now as a full video webcast on the Internet at www.cbp.ucar.edu/tribalagenda.html

made the connection between climate change, spirituality, land and language.

“We encourage the community members, in this case the indigenous people, to do their own home-grown science studies projects because they are going to recognize those things that are important to them and the changes that are taking place,” he began. “If they ask the scientists for help, we must be careful. Rather, we say, give us a simple instrument and instruct us how to use it. They don’t want you



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Billy Frank, Jr., in blue shirt, acknowledges Native peoples’ adaptability to change.

out there, they want to do it their own way because the very special ingredient in doing these studies is spirituality. Spirituality, land and language are very much related to the weather change. The climate change. So I always encourage our Alaska Native people to learn their Native languages and to teach them orally in the classrooms and to encourage the parents to talk in their Native language. When you talk about climate change, talk about it in your own indigenous language. The indigenous language is the one that is more capable of coping with the changes because we have lived successfully for thousands of years," he concluded.

Voices of Elders

Billy Frank, Jr., Nisqually, has been a leader of the Northwest Indian Fisheries Commission for 22 years. It is said that he "speaks for the salmon." He spoke passionately at the conference about telling the truth about the degradation of the environment, not to cover it up with pleasantries. As part of the need for honesty, he encouraged participants to acknowledge the greed that has led to today's problems. He voiced another of the key floating questions when he said, "We have got to bridge that gap to where science takes a new look at what it is doing and starts to work with the Native tribes. We have so much to offer. They cannot clean up Puget Sound without the tribes. It will never happen. If you want success, then include our tribes, include our people."

Frank talked a lot about how indigenous people have always adapted to change. This would give Native peoples an advantage as the earth's climate changes. In a sense, it's nothing new to indigenous people. He also pointed to the way forward in teaching our youth to be responsible. He said, "We have a responsibility and we have got to teach children that responsibility. Now we tell them, go out there and make all the money they can make and try to survive. Borrow the money and go deep in debt right now. You're going to go deep in debt to go to the university because it costs so much. But at the end of that education, whatever you learn, you have to learn responsibility, to be responsible."

Albert White Hat, Sr., Rosebud Sioux, has been a Lakota language



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Daniel Wildcat (L) and Billy Frank, Jr., discuss a point during the conference.

instructor for 25 years and a key person at Sinte Gleska College in Rosebud, South Dakota. Picking up the topic of honesty in a moving talk, he revealed his own need to find forgiveness before he could work effectively in the meeting ground of the multicultural world that is a reality now for all Native peoples. He remarked that we can all work together effectively if we find peace within ourselves. He came back to the issues of responsibility, spirituality and land as each of the other Elders had. He said, "One way we can address our climate issues is that we all have a responsibility. Every tribe has their own way and they need to return to spiritual ways to save the earth, the air and the water. Western culture needs to learn humility, to learn to share and to take responsibility. Western culture is killing all of us."

Many Remarkable Events

Another remarkable and unprecedented happening took place at the conference by way of the panel entitled, "The Perspective of the Next Generation." Once again, the weighty problems we are all facing seemed to lift as three young people early in their careers told about their work, their lives and their visions for the future. When Casey Thornburgh, Brett Harper and Sherri

Heck finished, a wave of hope once again washed over the audience.

Still another remarkable happening unfolded when Dr. Elisabeth A. Holland took the microphone at the end of the conference and exclaimed, "I would like to thank each and every one of you for teaching me more than I have ever learned at a science conference." The magic of the meeting ground, and especially the Native heart, were really showing when Dr. Holland revealed that she would work to strengthen the collaboration between NCAR and Native people and communities as a result of this conference. She also expressed her commitment to gain representation for the indigenous voice within the prestigious 2,500 member IPCC. ❖

Richard Simonelli is a freelance writer and editor who has been allied with Native Americans in the areas of addictions recovery, education and traditional knowledge for over 20 years. He can be reached at richsimone@aol.com

Thoughts on Native Science

An interview with Dr. Daniel Wildcat

by Richard Simonelli

Daniel Wildcat is a professor at Haskell Indian Nations University in Lawrence, Kansas, and an accomplished scholar who writes on indigenous knowledge, technology, environment and education. A Yuchi member of the Muscogee Nation of Oklahoma, Wildcat is the co-author, with Vine Deloria, Jr., of *Power and Place: Indian Education in America* (Fulcrum, 2002), and co-editor with Steve Pavlik of *Destroying Dogma: Vine Deloria, Jr. and His Influence on American Society* (Fulcrum, 2006). His newest book, *Red Alert!: Saving the Planet with Indigenous Knowledge*, will be released later this year.

Winds of Change spoke to Daniel Wildcat during the Planning for Seven Generations Conference held in Boulder, Colorado, on March 19-21, 2008.

Winds of Change: What is one of the key ideas or concepts that Native science offers this conference regarding connecting indigenous and scientific approaches to the climate change problem?

Daniel Wildcat: I think one of them is this: How do we disabuse ourselves of this false idea that there is some struggle between humans and nature, between culture and civilization and nature? How do we move away from the belief that we are always in some sort of struggle or war with nature? That formulation is deadly because it is a false formulation. We are not outside of nature. We are right in the middle of it; in fact, we are part of it. But to the extent that we insulate ourselves from all that is out there, we develop a society-wide forgetfulness about how connected we are, all the while destroying it. That's going to be our real challenge, I think, and it's going to be a challenge because it means we are going to have to change the way we live. I think a lot of people are comfortable right now and that will have to change.

WOC: So is the challenge one of *attitudes*, (which sometime means a stance or orientation)?

DW: Definitely. Attitude and worldview, I think. That's why we have Elders like Albert White Hat, Sr., Oscar Kawagley, Billy Frank, Jr., and Leroy Little Bear here. That, to me, is our contribution as Native people to the dialogue between Native people and scientists. That's it! It is expressed by our Elders. And it's not abstract. We can talk about it right where we live.

WOC: If the discussion of worldview and the attitude with which we face life is a key American Indian contribution, how does that change begin to merge or actually take place in the science community or in the wider society?

DW: I think there are two issues there. The first is one that I don't think any of us should be naïve about. This is not going to be easy because there are going to be a lot of people within science who oppose this. But we've got allies. They're here right at this conference. But there are a lot of people, even from NCAR [National Corporation for Atmospheric Research], who aren't here at this conference. They are not here because they don't get it. What we are doing here isn't science, they think. But guess what? I would make the argument that this is science. That science isn't value-neutral. Science is very



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Daniel Wildcat

culturally laden. And what Native people are trying to do is to say this: let us give you another prism, another way of looking at knowledge. The discussion is not that we are necessarily better and you are all bad. Not at all. But what we offer is another viewpoint.

WOC: What would be an example of what you're saying?

DW: I got to thinking about this when I got a chance to go to NASA three months ago and it finally hit me. I looked at beautiful satellite images. I looked at the work of NCAR, NOAA and NASA. They work so much today in geospatial technology, satellite imaging,

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and the view from space. They are the remote-sensing experts. Then it hit me like a lightning bolt. What are Native people? They are our *local* sensing experts. They are on the ground. It's not a matter of, “Those guys are wrong and we are right.” We just need to complete the picture, to get a fuller picture, a more realistic picture.

WOC: Do you mean we need to bring the two viewpoints together?

DW: Yes, and we ought to be working together. Working together, because that's how the picture may become more complete. And that's going to be the challenge. The first challenge is how do we get institutions to open up, to allow a space for this kind of work that utilizes the Native science approach? I think it is happening, but that's why we are here at this conference, that's why we are doing it.

The second issue, I think, is that we've got to have some sort of realistic assessment of the fact that often in some Native communities, in our Native landscapes, both figuratively and literally, we have such compelling human problems. Quite frankly, there will be tribal leadership that says of our approach to Native science, “That's nice that you guys are doing this, but we have issues of transportation, health care, care for our seniors and so much else.” These are compelling human issues, human needs.

WOC: So does the viewpoint of utilizing a Native approach to science seem too abstract to a tribal community when you think of the human problems of the communities?

DW: It can. But I won't even say abstract, but maybe not as immediate to some tribal governments. I think many tribal governments are starting to see this different approach to utilizing science and technology in their communities. I think this is where we are going to have an opportunity for agile tribal leadership within the tribal colleges. The tribal colleges are the places that ought to be saying, “Look to us, let us take the lead on this, we will become your repository for expertise for thinking and planning where scientific or technical issues are concerned.” It's starting to happen.

WOC: What about Native people going into mainstream science and engineering careers? What would you say to them?

DW: Right. I think they are looking for ways to connect with their own culture even in the career direction they are headed. That's the other thing that's going on. There's no reason why the University of Colorado, Colorado State University, and others, ought not to have some real institutional formalized linkages with the tribal colleges. We've got to work on making that connection. Here's what I would say to leaders at, for example, the University of Colorado. If you had an engineering program, chemistry, ecology, or a biology program, you ought to be seeking out young Native students because they will bring something to you because of their connection to their Native culture, tradition and language. They will bring something to you that you don't have that will be valuable to scientists. ❖