CLIMATE, WEATHER, AND TOURISM

Issues and Opportunities

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Increasingly, tourists are taking into consideration the weather of the day or week as well as other climate-related factors when determining vacation destinations, activities, and ultimately the extent to which they enjoy their travel experience. Wind, humidity, temperature, drought, storminess, snow conditions, water temperature, and degree of sunshine are a few of the variables that affect visitors' decisions, satisfaction, and the extent of spending—that important economic "bottom line" for tourism businesses and tourism destinations. To help bridge the divide between atmospheric science expertise and data and business practices, the Center for Sustainable Tourism (CST) at East Carolina University hosted a timely workshop to i) provide a forum to explore the interchange of scientific information with decision-making needs of tourism businesses; ii) identify the questions that need to be answered to make this interchange effective; and iii) create an organizational structure that serves as the policy-making framework for the long-term management of a climate, weather, and tourism initiative. The workshop was organized into three main themes related to weather and climate: current trends in tourism, information needs and communication, and vulnerabilities and adaptive management capacities for the future.

CLIMATE, WEATHER, AND TOURISM: ISSUES AND OPPORTUNITIES

WHAT: Approximately 100 scientists, academics, public policy officials, nonprofit leaders, and business owners addressed the short- and long-term impacts of weather and climate fluctuations on the economic vitality of the tourism industry.
WHEN: 14–15 November 2008
WHERE: Greenville, North Carolina

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CURRENT TRENDS IN TOURISM. Ken Cordell, pioneering scientist and project leader of the U.S. Department of Agriculture (USDA) Forest Service, began by explaining that tourists are choosing outdoor activities now more than ever before. But, while leisure has been increasing, time devoted to outdoor recreation has in fact decreased, as people are taking more frequent but shorter-duration trips. This trend has been attributed in many ways to a changing economy, as household discretionary income is being stretched further. Additionally, tourists increasingly are seeking more inexpensive local destinations (e.g., walking trails) for recreation and leisure rather than

long-distance trips (e.g., skiing vacations), which tend to be more costly. Finally, tourist decision timelines are shortening.

Because of these changes, the influences of weather and climate frequently emerge as important criteria for choosing a tourism destination, as they help in determining the appeal of a location in absolute or relative terms. The tourism industry is particularly sensitive to climate variability. Daniel Scott, chair of the World Meteorological Organization (WMO) Expert Committee on Climate and Tourism, noted that weather and climate have the potential to impact new tourism planning, since they can serve as an opportunity for tourism as much as a potential threat. When travelers choose alternative destinations, the economic effects can be devastating to local economies and can alter the patterns of tourism for long periods of time. As Scott commented, "Weather can ruin a holiday, but climate can ruin a destination."

INFORMATION NEEDS AND COMMUNICATION. Tourism businesses are turning more to weather and climate information to aid in focused marketing efforts during periods when climate conditions are favorable. There have already been significant attempts in North Carolina to use weather information and tourists' environmental perceptions for decision making and marketing. Bob Farren, director of golf course and grounds management at Pinehurst (NC) Resort and Country Club, reported that when the weather is favorable locally, direct e-mail marketing is used to advertise excellent golf conditions to surrounding areas in North Carolina, Virginia, and South Carolina that may be experiencing poor weather conditions. Jeff Greiner, director of marketing at Wildwater Ltd., reported the use of a personal digital assistant (PDA) to communicate when river levels are most conducive to a great rafting experience.

However, many of the tourism businesses at the workshop did not know exactly what their needs were nor had weather and climate information needs that were activity specific. In fact, tourism businesses in the same geographical location can have conflicting needs and requirements. For example, in coastal areas, a vacation/golf resort may prefer light wind, while a sailboat rental shop would desire a stronger wind. Other businesses, especially agritourism and wine tourism, are secondarily impacted by seasonal climate variability; for example, the length and quality of leaf color or wine quality depends on a number of complex atmospheric conditions occurring over many weeks to months, even years.

Traditional media is often not the best medium to communicate current weather and climate information to tourists, as it can be inaccurate or predominately and unnecessarily negative. Some western North Carolina businesses at the workshop believed media coverage of the 2007 drought prompted tourists to change their reservations without checking local conditions. This is one reason why tourism businesses are turning to scientific data for realistic information and promotion strategies. The National Climatic Data Center (NCDC), State Climate Office of North Carolina (SCO), Southeast Regional Climate Center (SERCC), and North Carolina Sea Grant were represented at the workshop, and all are developing ways to interface with tourists and tourism businesses to communicate climate data more effectively.

Neal Lott, head of the Data Access Branch at NCDC, explained that the level of engagement between NCDC and the tourism sector to date has been minimal and that its data are currently being used only in limited ways for tourism support. The directors of SCO and SERCC, Ryan Boyles and Peter Robinson, respectively, gave an overview of their outreach activities. They expressed that weather and climate education is part of the solution, as there is a good deal of weather and climate awareness but very little weather and climate education. Often SCO must correct common weather and climate misconceptions, which are sometimes promulgated by the media. Finally, North Carolina Sea Grant provides climate extension services to communicate coastal climate change and variability throughout the Carolinas. The roles of the climate extension program are catalyzing collaboration between scientists and stakeholders, interpreting different sector languages, aligning different priorities, and depoliticizing scientific issues. Some of the tools include user needs assessments, sheets of frequently asked questions, and a climate extension blog.

VULNERABILITES AND ADAPTIVE MANAGEMENT CAPABILITIES. Assessing the current adaptive capacity of tourist businesses is a necessary first step in understanding future vulnerability and adaptation strategies. This is, however, not a straightforward task. All tourism sectors face distinct and unique vulnerabilities because of changing climate and environmental conditions, and individual businesses vary in their current adaptation planning and capabilities.

For example, sea level rise poses a direct threat to coastal tourism in North Carolina. The impact

of sea level rise will be felt through erosion, habitat loss, saltwater intrusion, changing insurance costs and property values, and coastal recreation and tourism choices (Bin et al. 2007), but it will play out based on a case-by-case basis driven by other local factors and individual events, such as storms. The challenge proposed is to devise federal or region-wide adaptation regimes and institutions that can effectively provide support to what will necessarily be local decisions.

Another recurring theme of vulnerability across a wide variety of tourism business in North Carolina was drought. One need only look to the recent past at severe droughts—from 1999 to 2002 and from 2006 to the present—that have affected tourist-sensitive regions to note adaptive capacities. For North Carolina's golf industry, the increasing occurrence of drought puts additional pressure on water use, use of fertilizers, and course management. For the restaurant sector, installing water-saving spray heads in dishwashers and the practice of serving water to patrons only upon request will be expanded to other water-saving techniques. Experiences of current businesses can give insight into adaptive capacity and strategies of how to strengthen that capacity.

Adaptation is clearly necessary—climate change has affected and will continue to affect tourism. On the flip side, however, tourism activity and resource use affect climate and the natural environment. Thus, planning criteria for tourism businesses should recognize the bidirectionality of climate change and tourism. There has been an increasing trend toward green and sustainable practices in the tourism industry. North Carolina's Grandfather Mountain, Bald Head Island Conservancy, and the national Great Wolf Lodge Resorts provide examples of sustainable practices, such as the use of energy-efficient light bulbs, turning back thermostats, and small-scale solar energy production. With the increasing pressure for mitigation and adaptation, these practices need to be maintained and expanded.

FUTURE DIRECTIONS. The director of CST, Patrick Long, has been involved with a similar workshop focused on the Colorado Plateau (Alvord et al. 2008). While the geography and tourism activities between North Carolina and Colorado can be quite different, one can identify common themes and also point to progress made in the awareness of the linkage of climate and weather with tourism between the time of these two events. In both workshops, it was apparent that scientists must work toward better characterization and communication of climate information. One means of accomplishing this is through climate–tourism indices (e.g. De Freites et al. 2008). However, many of these indices are developed based on a subjective determination of "ideal" weather and climate conditions or from site-specific preference surveys, which can be geographically and culturally biased. Developing operational and planning products tailored for the diversity of outdoor tourism activities will require more extensive surveys and focus groups. In closing, Eileen Shea, head of NCDC's Climate Services Division, identified new challenges in climate, weather, and tourism: i) the need for a systems approach; ii) a meaningful engagement of the media, businesses, and public officials; and iii) a full confrontation of the effects of climate change on the natural resources and infrastructure that support the tourism industry.

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