Engaging Citizens through Partnership with Interpreters

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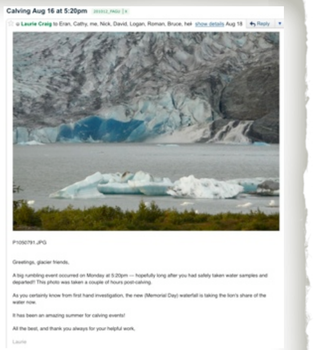
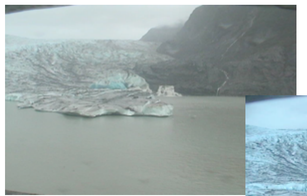
ABSTRACT

A partnership between USDA Forest Service Mendenhall Glacier Visitor Center interpreters and University of Alaska faculty and students has facilitated citizen science engagement. The Mendenhall Glacier Visitor Center is the most visited facility operated by the United States Forest Service with approximately 445,000 visitors per year. University and visitor center personnel have developed exhibits in the Visitor Center. A majority of visitors stay for only approximately one hour due to cruise ship schedule constraints, so direct engagement by interpreters is an effective public engagement method. Therefore, the University of Alaska Southeast and the Mendenhall Glacier Visitor Center (MGVC) have worked in partnership to study the Mendenhall Glacier, providing annual public lectures through the MGVC Fireside Lecture Series, intense training sessions for all MGVC interpreters at the beginning of every summer season, and facilitating a dialog of "on-site" observations by interpreters and visitors and University researchers. The MGVC facilitates a weather station and multiple cameras providing real time data and images of Mendenhall Glacier which may be accessed by anyone and time-lapse videos of calving or advance/retreat of the terminus of the glacier. Specifically, these images and meteorological data allow the continued engagement of visitors through access when they have returned home. The open communication between MGVC and UAS allows the rapid communication of observations of changes associated with the glacier and quick response to questions of interpreters or the public. A public recording of calving facilitates public engagement and facilitates the production of time-lapse video by university personnel. In our presentation we will describe the partnership between UAS and MGVC.

Collaborative Notification, Cataloging, and Observations of Calving

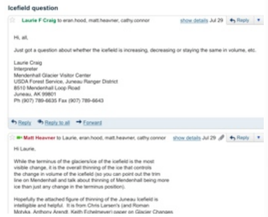
Glacier calving is the most dynamic and captivating aspect of the glacier for a majority of visitors and interpreters. The picture at right shows a chalk board in the visitor center used to record calving dates and times. Often interpreters email UAS personnel with pictures of recent calving. UAS operates two web cameras observing the terminus of the Mendenhall Glacier. A monitor in the MGVC loops through 1) a live feed of the camera 2) video time lapse of multi-year terminus changes and 3) video time lapse of calving events. An email from MGVC interpreters (an example is shown at right) often triggers UAS personnel to find a good pair "before and after" sequence of photos (shown at lower right). If possible, a time lapse video of the calving is created and can be added to the monitor at the MGVC. This tight-loop engages visitors to MGVC to report and record calving. Visitors are also able to see recent calvings if no calving occurs during their visit (as is generally the case).





Email Dialog for Rapid Response to Public Questions

USFS MGVC interpreters are able to email university personnel and receive prompt responses to specific questions. This is beneficial by empowering interpreters and providing low-effort public engagement opportunities for university personnel.



Student Interpreters

Several UAS students have taken environmental science courses and then work as interpreters at the USFS MGVC during the summer. This reinforces the UAS/MGVC relationship and information flow.

Fireside Public Lectures

The majority of visitors to the Mendenhall Glacier Visitor Center is by summer tourists to Alaska. In the wintertime, the Visitor Center organizes programs more targeted to Juneau locals. One program is the early spring Fireside Public Lecture series. UAS faculty and students participate and provide updates on recent results including overall changes in the glacier (*e.g.* terminus location, volume change, bathymetry changes of Mendenhall Lake); student projects; new studies and opportunities.

Mendenhall Glacier Visitor Center

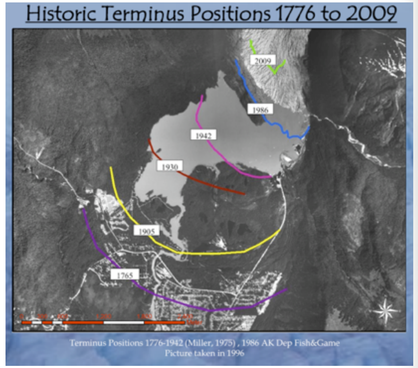
The center was built in 1962, the first visitor center in the National Forest System. The original structure was primarily a large observatory where people could get out of the rain and look at the glacier. It was designed to accommodate 23,000 people a year. Over the years a few exhibits were added. Thirty-five years after it first opened, the center was hosting over 400,000 people a year. Between 1997 and 1999 the building was renovated and enlarged to include an exhibit gallery and theater.

University of Alaska Southeast

The University of Alaska Southeast is an open enrollment, public university. The University of Alaska Southeast Juneau campus is the scholastic home to about 700 full-time and 2,000 part-time students. It offers a variety of degree and certificate programs including master's and bachelor's degree. The Juneau campus' natural setting along the shores of the Inside Passage lends itself to the study of marine biology and environmental science. The University of Alaska Southeast prides itself on developing academic programs to utilize its spectacular location. Its small class sizes and liberal arts emphasis help to produce graduates who are well-rounded communicators and thinkers.

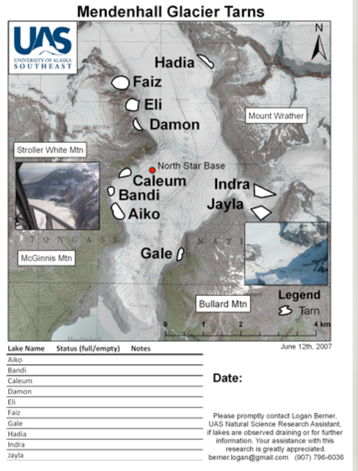
Sample Data Products

UAS students participate in field work including terminus mapping, lake bathymetry measurements, and mass balance measurements. This data can be used for student projects. The results of the student projects can be integrated together to provide information to interpreters. For example, student terminus measurements and historic terminus locations were combined in a GIS student project to produce the "Historic Terminus Positions 1776 to 2009" graphic which was distributed to the USFS MGVC.



Counter Example - Ineffective "gate-keeper" engagement

The success in identifying "gate-keeper" individuals at the Mendenhall Glacier Visitor Center prompted us to pursue similar relationships with the four helicopter glacier tour operators. UAS researchers regularly use helicopter transport for research needs so a working relationship already existed. During the summer tourism season, pilots may fly six or more flights over the same glacier. The multiple large marginal lakes that form on Mendenhall Glacier are hypothesized to be causally related to calving events and/or thermal mixing events in the Mendenhall Lake. The pilots often query UAS personnel for scientific results about the glacier, demonstrating interest and the desire to prepare for passenger queries. UAS personnel prepared the lake observation sheet and distributed it to helicopter pilots. This effort was a failure -- not a single data sheet was returned.



Conclusions

Engaging the public ideally requires interaction with a large number of people. Cooperating with "gate-keeper" individuals who are already interacting with large numbers of people can be an effective and relatively low effort way for researchers to engage with a large number of the public. As illustrated by the counter-example of helicopter pilots, this approach is apparently most successful when the "gate-keeper" plays the primary role of information provider.

Acknowledgements

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