Some Observations on What ESIP Might do With Respect to the Enironmental and Budgetary Pressures on Travel

The Slate article on a meteorologist's decision to forego air travel provoked an interesting thread of conversation on the subject. This note summarizes the responses, makes some observations on meetings, and provides some suggestions based on those responses and observations.
The most important observation is that the challenges we face are largely sociological, although there may be some opportunities for technological "lubrication" to help.

Face-to-Face meetings are an important sociological facet of modern scientific life. While we usually discuss them in terms of "information exchange" and learning about important technical discoveries, several of the responses to the Slate article noted that meetings serve as "tribal" behavior that reinforces our sense of belonging to a community. Virtual meetings with the technology we've been using doesn't serve that function well. There may be some technology advances that would make virtual meetings more rewarding. At present these advances are probably used more by senior agency officials and high-level corporate executives than by working scientists and IT specialists.

Travel to meetings also raises some sociological issues. Meeting travel by bus and rail (as well as by car) suffers from scheduling difficulties and uncertainties. Given our dislike of delays, we often prefer to make individual adjustments to disruptions rather than using arrangements that depend on social contacts. For example, when our travel schedule is disrupted by delays, technology might enable us to use an app to coordinate a response - provided we develop the habit of using the app.

Suggestions for ESIP activities are highlighted in bold in the text that follows.

Opportunities for Improving Meeting Productivity

The largest portion of the ESIP conversation thread was concerned with the difficulty of replacing face-to-face interactions with unreal reality (usually known as "virtual reality"). It appears that we could divide the responses along the Myers-Briggs personality axis of "introvert vs extrovert".
We might think of this as "introverts concentrate on technical interchange", while "extroverts concentrate on personal relationships". ESIP meetings

serve both sides of our personalities.

Meeting Sessions for Information Transfer

We might separate the purpose of meeting sessions based on whether they are primarily "active presenter and passive audience" information presentations or "interactive conversations". **Several of the thread comments suggested that the current technologies are "not too bad" for one-way information transfer.** Of course, we're all aware of the habits we have picked up of using our computer technologies to "multitask" by reading e-mail even when we're personally attending meetings. Using Webex does allow a sort of Victorian approach to informational presentations
using the "lecture with lantern slides" style. It even supports a Q&A style
response at the end of the lecture.

A more serious change is probably needed for more detailed technical matters. As a community, we have gotten used to PowerPoint presentations
for this purpose. We expect to communicate with sound bites, rather than
complete sentences. Edward Tufte's commentary of the PowerPoint's role in the Challenger disaster strongly suggest that **we may benefit by returning to technical reports as a primary communication medium.** This mode of writing would return us to the historic roots of scientific communication in correspondent reports to scientific societies such as the Royal Society. When travel is difficult and disrupted, we need better
ways of advancing our arguments and documenting consensus on issues. This mode of writing is also part of the procedures W3C uses for developing
its recommendations.

As a sociological custom, **it may be helpful to adopt project management approaches to planning and scheduling where we are trying to reach technical
consensus.** We would benefit by having a project schedule for Wiki contributions and papers, with clearly identified deadlines and roles for completion.

Meeting Sessions Requiring Personal Interaction

The thread comments suggest that there are two other kinds of meeting purposes: reaching consensus on technical issues and establishing community
bonds. The first of these alternatives may use meetings with agendas. The second is much more informal, including hallway and dinner conversations, together with drinking sessions in watering holes. These conversations
are probably not susceptible to easy technological improvements.

It was clear in the thread conversation that the technology we have been
using is not as helpful as it could be for face-to-face meetings that have
to deal with resolution of technical issues. For this kind of meeting, we need higher resolution video and audio. Based on personal recollection
of project work, it seems likely that senior management of agencies and

corporations have access to much better virtual meeting services then we've
been able to employ. Even twenty years ago, NASA centers and contractors
could sustain project synchronization meetings on a weekly basis (or even
more frequently if a crisis emerged) using these high bandwidth facilities.
Perhaps the most memorable of these were conversations and consultations
during a Shuttle launch, where there was a requirement to synchronize
Johnson Space Flight Center, Kennedy, Goddard, and JPL over most of a day.

The technical requirements are dedicated facilities with rooms having
appropriate equipment, together with a committment to undivided attention
to the conversation on the part of the participants. **ESIP may want to forecast when these kinds of facilities will become available for a reasonable cost.** That requires some research on bandwidth and video resolution, together with a projection of technological progress. Such a projection would probably be useful to ESIP on a continuing basis.

The harder part is the sociological requirement for undivided attention
to accomplishing the work involved in a particular meeting time. In project
work on space missions, work is paid for. In a volunteer organization,
it's necessary to reward participation in other ways. This isn't impossible,
as the W3C recommendation development process, as well as Apache Open Source
development projects show. However, it probably requires clear goals and
concentrated attention by project leaders.

There is probably no substitute for face-to-face meetings to deal with the forging of human bonds. Several of the thread comments noted that even the Royal Society relied on meetings in coffee shops to conduct their business.

Opportunities for Reducing the Carbon Footprint of Travel

The opportunities for reducing the carbon footprint of travel are also
an issue where it would seem sensible to separate sociological considerattions
from technical ones.

The impact of travel schedule disruptions and budetary constraints might
be considered as costs attributable to alleviating the impact of future
disasters. In climate cost-benefit analysis, economists use the discount
rate to judge the balance between future risk avoidance and present
investment. If d is the discount rate, then the time horizon, t, for worrying
about the future is roughly $1/d$. For $d = 0.07$ (seven percent per year
discount rate), $t = 14.3$ years. In this case, if we expect significant
impacts in t, we would be justified in buying down the risk now. If d
is lower, then the time horizon goes out and we would be justified in
buying down more future risk. From this standpoint, accepting the time

and irritation cost of travel disruptions is the cost of reducing the impact of bad climate outcomes. Kahneman's *Thinking, Fast and Slow* may be useful for understanding some of the "irrational" biases that affect our personal decision making on these costs.

So, what are the disruption costs? First, there's an expenditure of our time because non-air travel is slower. Second, there's a higher probability of more schedule disruption (although, given the airline flight cancellations due to weather this winter, that may not be entirely fair).

If public surface travel had no disruptions, the major cost would be slower trip travel. Of course, a full accounting needs to allow for the time required to get to and from the airports. As the Slate article points out, bus and rail may provide opportunities to make use of the travel time by using laptops for writing and programming. To the extent wireless communication is possible, that adds an additional cost reduction.

Where ESIP might use technology to reduce the cost of travel occurs in dealing with schedule disruptions. **The thread of conversation did raise the possibility of using a "meeting board" to arrange volunteers to help transport people from terminals (including airports) to meeting venues.**

The harder part of such arrangements is dealing with schedule disruptions and personal decisions to change arrangements. One or two of the thread responders provided personal stories of how hard it was to adjust to these happenstances.

One possibility would be for ESIP to support an app that would allow transportation arrangements to do on-line renegotiations of "contracted services". Perhaps this might make an interesting student project.

The tribal customs involving individual preferences for rearranging travel and accommodations is one of the challenges for this approach.

Summary

The thread of conversations regarding the Slate article on avoiding air travel suggests that there may be some technological aids to facilitating this decision. It also suggests that we all need to find group incentives for dealing with the habits we've acquired in our community.