

## What's Lost When a Meeting Goes Virtual

Mihály Horányi has been a regular at NASA's annual Lunar Science Forum since its debut in 2008. But when the University of Colorado, Boulder, plasma physicist registered for this summer's conference at NASA's Ames Research Center in Mountain View, California, he didn't bother booking a plane ticket or a hotel room. That's because the meeting had gone virtual.

Horányi, who also directs the Colorado Center for Lunar Dust and Atmospheric Studies, was on the program to describe an instrument that was launched last month aboard a NASA probe to study the moon's dust and thin atmosphere (*Science*, 13 September, p. 1161). But instead of stepping onto a stage in front of hundreds of colleagues, Horányi sat down at his computer at 1:45 p.m. on the first day of the conference and began talking into a webcam perched above the screen.

"Last year it was a performance," he says about an invited talk he gave at the July 2012 forum. "This year it meant staring at myself, being annoyed that I kept leaning in and out of the picture, and thinking, 'Boy, am I getting old.'"

The switch makes the forum the largest scientific gathering to embrace the new world of cyber meetings, says Greg Schmidt, deputy director of NASA's Solar System Exploration Research Virtual Institute. (That's the new name for the Lunar Science Institute [LSI], which reflects the Obama administration's decision to substitute an asteroid for the moon as a target for human exploration.)

NASA officials decided to go virtual because of budget pressures—most participants in the forum are either NASA employees or scientists on NASA-funded projects. Schmidt doesn't know how much money was saved, although he says that the cost of the additional bandwidth and servers needed to conduct the live streaming was much less than that of hosting a physical event.

Institute officials tried to cushion the shock by preserving the forum's usual format. But instead of welcoming some 500 scientists to the Ames campus, the hosts invited participants to log on each day, from 8:30 a.m. to 3 p.m. Pacific time. In addition to the scientific talks, the forum included virtual poster sessions with an introductory video or audio from the author and a chat window to submit questions and get feedback.

Participants were also encouraged to create virtual "hubs" at home to facilitate interactions. The forum even offered a virtual version

of its traditional 1-day mini meeting for graduate students and postdocs.

By all accounts, the virtual forum escaped most of the glitches that can plague a typical webinar. "My hat is off to LSI," Horányi says. "I was expecting a hell of a lot more technical problems. But they pulled it off."

Even so, he and other participants say the virtual conference was a pale imitation of the real thing. At previous forums, Horányi says, "You see your friends, you ask about their kids, and then the discussion flows into the science." He confesses that he participated much less this year—"2 hours a day would be a generous estimate." In

addition to the physical challenge of sitting at one's computer for hours on end, participants say that their day jobs competed for their attention. Schmidt estimates that some 150 to 200 people "attended" the forum at any one time.

Even without distractions, the quality of the interaction was much lower than in person. "I received a handful of short comments [from my talk] and had maybe one e-mail exchange," Horányi recalls. One scientist who didn't present this year—and who listened to only one talk after the fact—said that he much prefers an in-person meeting because

"you get a much better sense of how the audience is reacting to what you're saying, especially any negative feedback."

Schmidt agrees that a virtual meeting has serious limitations. "It funnels people into a very narrow setup," he admits. At the same time, he says that the institute welcomed the chance to test the idea because it relies on virtual interactions among institute members.

But there's a big difference between a virtual institute and a virtual meeting, says David Morrison, a senior scientist at the lunar institute and a former director of NASA's virtual Astrobiology Institute, also based at Ames. "I do not think the virtual approach works well for science conferences," says Morrison, who believes that a virtual institute makes sense only if collaborators also have regular face-to-face meetings throughout the year.

NASA hasn't decided on the format for next year's forum, Schmidt says, and its decision will be influenced by the responses to a survey asking participants what they liked and disliked. Despite the grumbling, Schmidt says one thing is already clear: "If virtual is the only option, they say they would rather have that than nothing." —JDM

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The second blow is a 5% cut this year in the overall budgets of most agencies. That reduction, known as sequestration, kicked in this spring after the breakdown of a 2011 agreement between the White House and Congress to reduce the federal deficit.

Society officials say they have felt the effect of sequestration and tighter travel budgets. For example, some 14% fewer federal scientists attended last fall's AGU meeting, says the organization's CEO, Chris McEntee. In response, societies are trying to make meetings more enticing to both participants and those unable to attend in person. The revised fare includes Web-based features

such as electronic posters, live-streaming of some events, and archiving much of the content for later viewing.

But devotees say those new wrinkles are no substitute for what they consider the real thing: the chance to hear firsthand about new research, present their own findings, meet potential collaborators or mentors in person, and feel part of the tribe. Neural scientist Thomas Carew, dean of arts and sciences at New York University in New York City and a former president of the Society for Neuroscience (SfN), compares the experience of attending the society's annual meeting to a sporting event.