

## Lessons for the 2040s from the AAS Solar Eclipse Task Force

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**Abstract.** A task force of the American Astronomical Society spent a decade preparing North America for the solar eclipses of 2017, 2023, and 2024. Its activities included developing a website with basic information about eclipses, safe viewing practices, and eclipse imaging and video, along with resources for educators and the media; operating a mini-grants program to support eclipse-related education and public outreach to underrepresented groups on and off the eclipse paths; and organizing a series of multidisciplinary workshops to prepare communities for the eclipses and to facilitate collaboration between astronomers, educators, community organizers, government leaders, and tourism professionals. Everyone who participated in this effort learned a lot—both from its successes and its failures. Here we share some of the most important lessons for the benefit of those involved in preparing for future solar eclipses, especially the 2044 and 2045 North American ones.

## 1. The AAS and Its Solar Eclipse Task Force

The American Astronomical Society (AAS), established in 1899, is a major international organization of professional astronomers, astronomy educators, and amateur astronomers.<sup>1</sup> Its membership of roughly 8,000 also includes physicists, geologists, engineers, and others whose interests lie within the broad spectrum of subjects now comprising the astronomical sciences. The mission of the AAS is to enhance and share humanity's scientific understanding of the universe as a diverse and inclusive astro-

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<sup>1</sup><https://www.aas.org>

nomical community, which it achieves through publishing, meetings, science advocacy, education and outreach, and training and professional development.

The AAS accomplishes much of its work through standing committees, long-term working groups, and short-term task forces, all of whose members are volunteers. The initial step toward what became the AAS Solar Eclipse Task Force was taken in 2012, five years before the August 2017 U.S. total solar eclipse, the first to cross the country in a century. Shadia Habbal, a solar physicist and eclipse chaser, organized a workshop in Washington, D.C., at which eclipse-interested amateur and professional astronomers began to consider how best to prepare North America for the coming eclipse.

The AAS Council (later renamed the Board of Trustees) took up the issue in 2014, spurred principally by Kevin B. Marvel, the AAS Executive Officer, and AAS Councilor Angela Speck. Marvel was especially keen to ensure the widespread dissemination of appropriate safety messaging; he wanted to avoid a situation he'd seen in some other countries where solar eclipses had occurred and where authorities recommended that citizens should stay indoors and not look at any phase of the eclipse, not even totality. Speck, then at the University of Missouri in Columbia—within the 2017 path of totality—was already working on local eclipse planning and recognized that the nationwide event was too big for astronomers to tackle alone; she recommended a partnership with other relevant stakeholders, for example, in education and public engagement, the tourism and hospitality industries, state and local government, transportation and emergency management, law enforcement, health care, and the media.

### **1.1. Task Force Charge and Leadership**

The Council agreed with Marvel and Speck that the AAS should play a major role in preparing the country for the 2017 eclipse (and the subsequent American eclipses of 2023 and 2024) and created the Solar Eclipse Task Force<sup>2</sup> with Habbal and Speck as its co-chairs. The task force was charged principally with the following responsibilities: (1) Coordinating state, local, and national efforts by bringing eclipse planners together, helping them to work together effectively and minimize redundancy; (2) Facilitating frequent and effective communication and idea sharing among all stakeholders; (3) Providing clear, evidence-based information and guidance on solar-eclipse eye safety; (4) Encouraging and supporting the debunking and quashing of bad/unreliable (mis)information; and (5) Encouraging as many people as possible to experience the eclipses, inside the path of totality (2017, 2024) or annularity (2023) if possible, but in any case safely, enjoyably, and meaningfully.

Together Habbal and Speck recruited a multidisciplinary group of about two dozen task-force members with a wide variety of relevant experience and expertise. While Speck remained co-chair throughout the subsequent decade (Speck, Fienberg, & Ross 2025), Habbal left the task force after the 2017 eclipse and was succeeded by Claire Raftery, then the National Solar Observatory's education and outreach coordinator. Raftery left NSO and the task force in 2022 and was succeeded by Debra Ross, the lead eclipse planner in Rochester, New York, and an accomplished networker and motivator of volunteers. Each co-chair has brought unique strengths to the role. The task force also had incredible support from Rick Fienberg, first as an AAS staffer and later, after his retirement in 2021, as a volunteer; an experienced eclipse-chaser and project

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<sup>2</sup><https://eclipse.aas.org/about-us>

manager, he was indispensable in keeping the AAS eclipse-planning effort running smoothly.

## **1.2. Our Community**

Our community included professional and amateur astronomers, formal and informal educators, community leaders, emergency managers, transportation coordinators, health-care professionals, and media representatives. Tourism and hospitality were also key players because eclipses bring a significant economic boost to regions in the path of annularity or totality.

Having participants with expertise in a wide variety of fields was crucial. For example, federal and state transportation officials provided invaluable insights into transportation logistics for large events.

One example of our community’s creativity comes from Erie, Pennsylvania. Their 2024 eclipse slogan, “The Ultimate Sunblock,” won a U.S. Travel Association award for integrated marketing. This kind of local pride and engagement was essential to successfully preparing for each of the three American solar eclipses.

## **2. AAS Solar Eclipse Task Force Key Projects**

We undertook three main projects to accomplish the goals set out in our charge: (1) a series of eclipse-planning workshops, (2) a program of mini-grants to support eclipse education and outreach, and (3) a website to serve as a gateway to all the best eclipse information and resources both online and “in real life.”

### **2.1. Workshops**

Between 2014 and 2024 we organized 10 workshops in cities across the United States in or near one (or sometimes two!) of the American eclipse paths.<sup>3</sup> These brought together people from all relevant stakeholder groups and were vital for building connections, fostering collaborations, and sharing ideas and resources. Each event focused on specific aspects of eclipse planning, often tailored to the needs of the host community, and was organized around six task-force working groups: local planning, national planning, informal education and outreach, formal education, media relations, and eye safety. These working groups each had dozens of members and were led or co-led by one or two dedicated volunteer task-force members with expertise in their respective fields.

Some workshops were held in conjunction with AAS meetings, where we also held press briefings to fortify the sizable cohort of science writers who attend these semiannual conferences with information and resources to use in their coverage of the eclipses.<sup>4, 5</sup>

During the worst of the COVID-19 pandemic, of course, we had to hold our workshops virtually. Subsequent workshops were hybrid, with both in-person and virtual

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<sup>3</sup><https://eclipse.aas.org/workshops>

<sup>4</sup>[https://www.youtube.com/watch?v=4\\_KNcgtNMxc](https://www.youtube.com/watch?v=4_KNcgtNMxc)

<sup>5</sup><https://www.youtube.com/live/h4GzGiXHCvA>



Figure 1. Attendees at the June 2019 solar-eclipse planning workshop held in St. Louis, Missouri, in conjunction with that summer’s American Astronomical Society meeting.

attendees. Each of our virtual and hybrid workshops attracted about 300 attendees from across North America, whereas the earlier in-person-only events averaged closer to 100 attendees, many of them from the host city or region.

## 2.2. Mini-Grants

Our mini-grants programs empowered communities to create innovative and transformative learning programs, scientific activities, and outreach events to engage the public with the American solar eclipses. In awarding grants, we gave priority to projects specifically designed to engage members of under-represented groups, including women or girls, ethnic minorities, and people with physical and/or mental disabilities) who often don’t imagine themselves in science careers or who believe that science is “not for them.” For the 2017 eclipse,<sup>6</sup> we distributed about \$100,000 across 31 projects, reaching nearly 30,000 people in 21 states. These projects ranged from hands-on educational activities to community outreach events, and they had a significant impact.

We expanded the mini-grants program for the 2024 eclipse,<sup>7</sup> awarding about \$200k via 25 small grants and 8 larger ones. This time, we focused even more on underserved communities, including people with visual or auditory impairments. Many people think a solar eclipse is irrelevant to those who can’t see or hear, but our grantees found cre-

<sup>6</sup><https://eclipse.aas.org/mini-grants/jsd-2017-awardees-projects>

<sup>7</sup><https://eclipse.aas.org/mini-grants/jmp-2024-awardees-projects>



Figure 2. A Google map showing the distribution of solar-eclipse mini-grant recipients for 2017. We named the program for Julena Steinheider Duncombe (1911–2003), an outstanding astronomer and educator who started the U.S.’s first school-lunch program for underprivileged children. For many years she published eclipse predictions for the U.S. Naval Observatory.

ative ways to engage everyone. Even people without disabilities found value in the tactile resources and descriptive narrations developed by some of the projects we funded.

Other projects included such things as bilingual educational materials, solar telescopes, and portable planetariums. Public events, another major focus of our awards, included everything from local pre-eclipse workshops to large-scale viewing events on eclipse day itself. Some projects even incorporated science experiments and live demonstrations.

Figure 3. A Google map showing the distribution of solar-eclipse mini-grant recipients for 2024. We named the program for Jay M. Pasachoff (1943–2022), a charter member of the AAS Solar Eclipse Task Force. Among his primary research interests were the heating and dynamics of the Sun’s corona, which he studied at solar eclipses all across the planet, often accompanied by Williams College undergraduates.

The 33 teams we funded in 2024 engaged hundreds of educators and outreach practitioners, reached more than 40,000 students, and attracted hundreds of thousands of attendees to public events (e.g. Miller-ray et al. 2024, Purvis & McCreedy 2025). This level of impact was possible only because of the money we distributed through the mini-grants. Our grantees’ creativity and dedication turned these funds into transformative experiences for their communities and undoubtedly inspired a new generation of scientists and science educators.

### 2.3. Online Resources

Our main website, [eclipse.aas.org](http://eclipse.aas.org), served as a central hub for eclipse-related information and resources, from basic facts to detailed safety guidelines. Rick Fienberg created and maintained the site and updated and expanded it for the 2023 and 2024 eclipses, incorporating feedback from our 2017 effort. The most popular pages on



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the site were in the eye safety section. Our guidelines<sup>8</sup> for safe viewing (Fienberg 2024) were echoed by NASA, the National Science Foundation (NSF), the National Oceanic and Atmospheric Administration (NOAA), and numerous medical, optometric, and ophthalmological societies, giving the AAS a level of credibility that was crucial for public trust. For more about eye safety, see section 3 below.

Over time our online presence became more robust than just the main website. We also managed social media channels on Facebook, Instagram, and YouTube<sup>9</sup> with important announcements and a collection of videos from our workshops, preserving valuable content for future eclipse planners.

For the April 2024 eclipse, Debra Ross developed `eclipse2024resources.com` as a supplement and complement to `eclipse.aas.org`. There she consolidated information, videos, and tools for educators and event organizers with a user-friendly interface that provided quick and easy access to many of our most important resources.

## 2.4. Funding & More

Of course, to carry out our key projects and other activities, we required funding. In addition to a grant from the AAS Council, we received significant support from NASA, which especially helped with travel and logistics for the workshops. NSF funded our web development and mini-grant programs, and the American Institute of Physics (AIP) supported several outreach training sessions for students, teachers, and amateur astronomers held in conjunction with our eclipse workshops. AIP also provided funding

<sup>8</sup><https://eclipse.aas.org/eye-safety>

<sup>9</sup>[https://www.youtube.com/@aas\\_eclipse](https://www.youtube.com/@aas_eclipse)



Figure 4. The homepage of the AAS Solar Eclipse Task Force website, [eclipse.aas.org](https://eclipse.aas.org), as it appeared 1½ months before the April 8, 2024, total solar eclipse.

to upgrade the *Totality by Big Kid Science* mobile app,<sup>10</sup> which was donated to the AAS by its creator after the 2017 eclipse.

Quite a few task-force members ran their own major projects with funding from various sources including Fraknoi & Schatz (2024), Hellman & Peticolas (2024), Allen et al. (2025), White et al. (2025), and Fraknoi & Schatz (2025), and many participants in our workshops joined our working groups, which advanced the task force's efforts and increased its reach to large numbers of communities in the U.S., Canada, and Mexico.

## 2.5. Some Lessons Learned

Throughout our decade of eclipse planning, we learned some valuable lessons (see Fienberg 2019 and Noel-Storr 2019). First and foremost, this kind of work is hard—it takes time, patience, and careful coordination among individuals and groups from diverse backgrounds and disciplines.

Starting early is essential, but it's also challenging because many people don't see the urgency until the event is just months or even weeks away. But if you fail to plan, you essentially plan to fail. One of the great tools we made available very early came from Kate Russo, a task-force member, eclipse chaser, and professional clinical psychologist. She wrote *Community Solar Eclipse Planning: A Guide for Communities in the Path of Totality*.<sup>11</sup> Her 2017 and 2024 editions were available from [eclipse.aas.org](https://eclipse.aas.org) more than a year before their respective eclipses, and countless state and local

<sup>10</sup><https://eclipse.aas.org/totality-app>

<sup>11</sup>[https://eclipse.aas.org/resources/downloads#white\\_paper](https://eclipse.aas.org/resources/downloads#white_paper)

task forces used them as their “bible” for preparing for these events. It’s largely thanks to her that many communities over the years and across the continent had huge success on eclipse day.

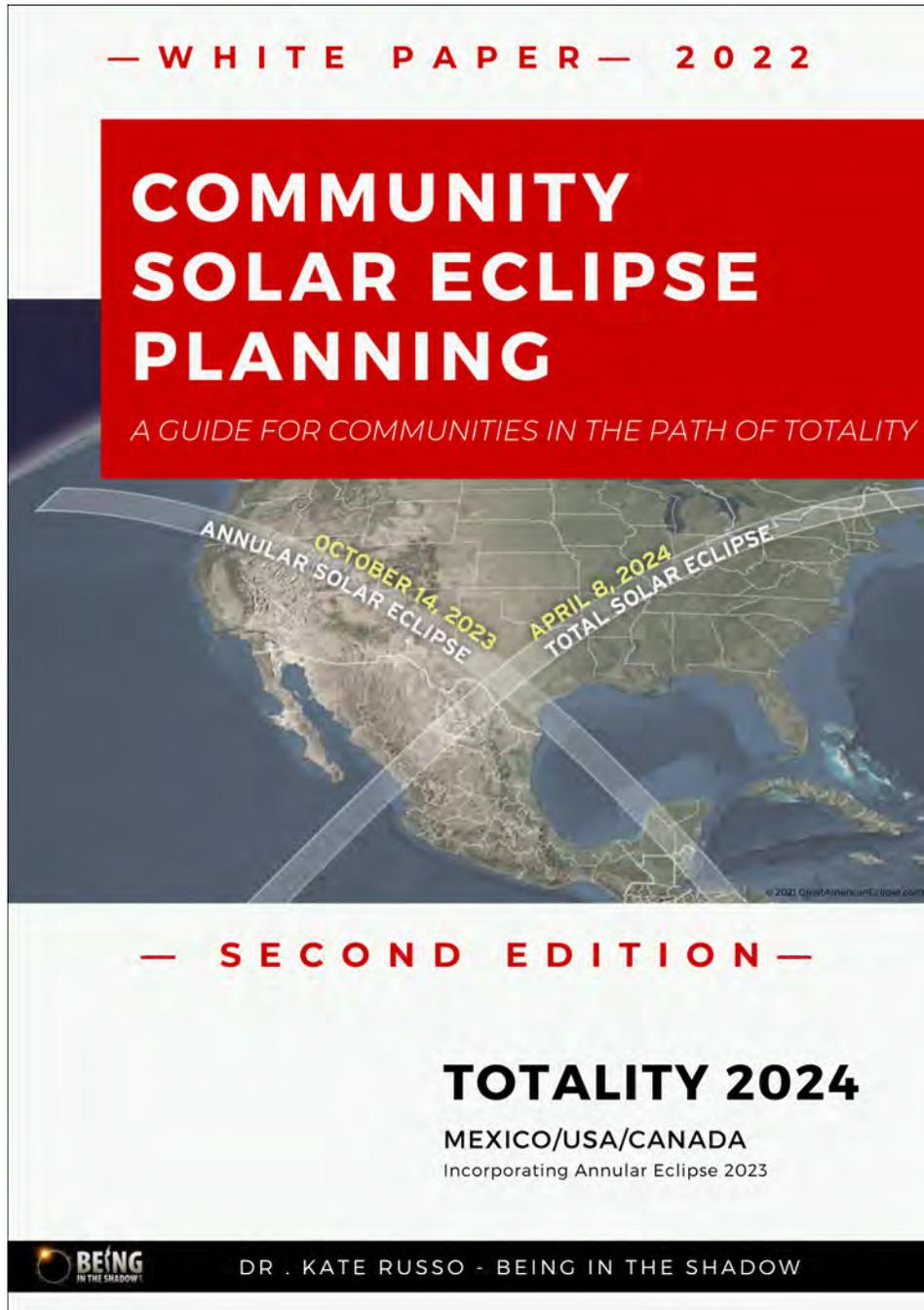


Figure 5. The cover page of the second edition of Kate Russo’s invaluable white paper offering advice to communities preparing for a total or annular solar eclipse.

Volunteers were critical to our success, but relying on unpaid labor has its limits. People's time and availability can be unpredictable, especially when they're juggling other responsibilities.

Consistent messaging was critical too. For example, virtually all departments of transportation across the U.S. put out the same message: arrive at your eclipse-viewing site early, stay put no matter what the weather, and don't leave as soon as annularity or totality ends. Well, two out of three ain't bad! There were no traffic jams before the 2017 eclipse and no problems during it, but as soon as the Moon began to move off the Sun, highways became clogged. Some travelers took 10 times longer to get home than they did getting from home to their observing site. Having learned from that experience, many communities were careful to add enticing post-eclipse programming to their 2023 and 2024 events. But somehow that didn't prevent monumental traffic jams from occurring again after those eclipses. We're not sure how the messaging could have been more persuasive or more pervasive, so that's going to be a challenge for the 2040s.

Combating misinformation requires constant effort and vigilance, something beyond any individual's or group's capacity given how fast and far "alternative facts" are able to spread in our current media environment. Even with clear safety guidelines and endorsements from trusted organizations, myths and misconceptions were rampant. The worst of them — that there's no safe way to look at a solar eclipse — unfortunately caused some people to skip (or, in the case of students, to be forced to skip) the 2017, 2023, and/or 2024 events and the learning opportunities that these celestial spectacles offered.

There is no easy fix to the problem of misinformation, but there is a hard one: teaching everyone how to recognize their unconscious biases, think critically, and ask penetrating questions so that they can identify lies and avoid being misled.

*Lessons from our Grantees.* We also gathered valuable feedback from the recipients of our mini-grants, who offered the following advice: (1) Collaborate with other organizations and programs to maximize your impact; (2) Don't reinvent the wheel, but instead use tried-and-tested methods when possible; (3) Advertise extensively and make sure your message reaches diverse audiences, including non-English speakers; (4) Weather, logistics, and attendance can be unpredictable, so expect the unexpected and make sure you have contingency plans; and (5) Think through all the small details, like parking, exterior lighting (we don't want it to come on during totality!), and restroom facilities. These practical considerations can make or break an event.

### **3. Solar Eclipse Eye Safety**

The task-force effort that attracted the most attention from the media and the public—appropriately—was our eye safety campaign, led by Rick Fienberg, who collaborated with experts in science and medicine to develop authoritative safety guidelines that were shared widely. Having all eclipse planners repeat the same messaging was key to ensuring the public's safety during the eclipses. And it worked. While hundreds of millions of North Americans watched the 2017, 2023, and 2024 solar eclipses, the number of eye injuries treated by optometrists and ophthalmologists following each event was of order 100, and to the best of our knowledge, these injuries were all minor

and temporary. We consider this to be our biggest success. But achieving it was a nightmare, as we'll now explain.



Figure 6. Eye-safety flyers prepared by the AAS Solar Eclipse Task Force and NASA were made available on both organizations' websites and were downloaded, reproduced, and distributed widely. For 2017 they were available in both English and Spanish, and for 2023 and 2024 they were also available in French.

### 3.1. A Standard for Solar Viewers

Everyone knows that looking at the Sun without proper protection is dangerous. However, not everyone understands that ordinary sunglasses are insufficient—they transmit thousands of times too much sunlight. Thankfully, there are specially designed solar viewers that make safe observation possible. The most common are inexpensive cardboard- and plastic-framed eclipse glasses and handheld viewers. Our challenge was to ensure that all North Americans had access to these products.

How does one know if a solar viewer is genuinely safe? In 2015, the International Organization for Standardization (ISO) introduced the ISO 12312-2 standard for filters for direct observation of the Sun (ISO 2015). Simply put, products that comply with this ISO standard, recognized worldwide, are safe. How does one know if a product is compliant? Its manufacturer will have documentation showing that its viewers have been tested and shown to meet the standard's requirements for transmittance (the ratio of transmitted light to incident light) at the ultraviolet, visible, and infrared wavelengths that reach our retinas; uniformity of transmittance; material and surface quality; mounting; and labeling.

### 3.2. Vetting Solar Viewers

Fienberg reached out to all the solar-filter manufacturers he could find and asked them to send him their ISO 12312-2 test results, which they did. He examined their documentation and did some online research looking for three things: (1) a laboratory test report showing compliance with the ISO standard, (2) accreditation of the testing lab by a recognized authority, and (3) quantitative results, including transmittance data across the UV, visible, and IR spectrum.

All the manufacturers Fienberg contacted demonstrated to Fienberg's satisfaction that their products complied with ISO 12312-2. Accordingly, he created a web page



Figure 7. Examples of eclipse glasses and handheld solar viewers commonly available during the period 2017–2024. Photos courtesy of American Paper Optics, Rainbow Symphony, American PaperWear, and Flip'n Shades.

listing them and their authorized resellers. <https://eclipse.aas.org/eye-safety/viewers-filters> This list was linked to by nearly all of our eclipse-planning partners, including most importantly NASA, and became incredibly popular, receiving millions of pageviews leading up to each eclipse.

### 3.3. A Proliferation of Sellers

As awareness of the approaching 2017 eclipse became widespread, more and more companies—recognizing that there was a lot of money to be made—began selling solar viewers. Naturally, they all wanted to be on the AAS “safe sellers” list. Most of these companies were retailers selling directly to the public, usually online. Some got their viewers directly from known and already-vetted manufacturers, but others got them from wholesale distributors with whom we hadn’t communicated. Verifying the chain of custody for every company’s products became a significant challenge. To address this, Fienberg contacted both ends of the supply chain. Manufacturers confirmed their distributors (and vice-versa), and both manufacturers and distributors confirmed their retailers (and vice-versa). This cross-checking process helped ensure that only sellers of genuinely safe solar viewers made it onto our list, which quickly grew very, very long.

In late July 2017, “all hell broke loose.” Online marketplaces like Amazon and eBay were suddenly flooded with sellers of eclipse viewers, many of them coming from previously unknown Chinese manufacturers. When Amazon realized that these viewers hadn’t been confirmed to be ISO compliant, they banned all sales of eclipse glasses on their site, including sales by the companies on the AAS list. Fienberg persuaded Amazon to reinstate those companies, but media reports of the confusion left many of Amazon’s customers unsure whether the viewers they’d bought were safe. By then it was too late for some to get their hands on properly vetted viewers, and some of these

unfortunate souls decided to skip the eclipse rather than risk their (or their students') eyes.

For 2023 and, especially, 2024, Fienberg vetted as many Chinese manufacturers as he could track down, but he couldn't find them all, and some of the ones he did find were unable to produce convincing evidence of compliance with ISO 12312-2. The online auction site eBay joined Amazon in hosting countless sellers of eclipse glasses of questionable origin. Both platforms claimed to be using the AAS list to remove illegitimate sellers, but their implementation was inconsistent. In some cases, they removed verified sellers of safe products while still hosting sellers not on the list, causing a new wave of panic and confusion (Fienberg 2025).

On top of that, Fienberg received reports of fraudulent, clearly unsafe glasses being sold under reputable brand names. These were blatant cases of counterfeiting, and they created a last-minute scramble on the part of the AAS Press Office to warn the public.

### 3.4. More Lessons Learned

By the time of the 2024 eclipse, the workload of maintaining the AAS "safe sellers" list had become overwhelming. Fienberg (by now a retired volunteer) was working full time responding to emails and phone calls from vendors, suppliers, and concerned individuals. Even after boarding a cruise to Mexico for the eclipse, he was still fielding inquiries.

On behalf of the AAS Solar Eclipse Task Force, Fienberg offers the following recommendations to future solar eclipse task forces:

1. **Do not aim to create and maintain a comprehensive list of sellers of ISO-compliant solar viewers.** It's impractical and unsustainable for one person or organization to handle this level of responsibility. At best, create and maintain a list of *manufacturers only*; there aren't that many, so the effort would be manageable.
2. **Ask manufacturers to publish their own lists of authorized resellers (both distributors and retailers).** This would reduce the burden on external organizations while maintaining accountability. Unfortunately, some manufacturers have already indicated their reluctance to do so for competitive reasons.
3. **Recommend that people buy solar viewers directly from known manufacturers or any authorized dealers those manufacturers identify.** Buying viewers from online marketplaces, local shops, or other retailers who appear to be "cashing in" on a solar eclipse carries too much risk. This is a real public health problem.
4. **Encourage the public to be suspicious of test reports and certificates of compliance with ISO 12312-2 posted for communal viewing.** It takes a knowledgeable expert to ascertain the authenticity of such documents.
5. **Advise the media and the public how to identify unsafe solar viewers.** While sensitive lab tests are required to demonstrate that a solar viewer *is* safe, it's

relatively easy to tell if such a viewer is *not* safe, as described in a March 2024 AAS press release.<sup>12</sup>

The next major solar eclipse in North America doesn't occur until 2045, but other countries will have to figure out much sooner how to address the challenges described above. Learning from our task force's experience with solar viewers will be critical for the success of future efforts.

## **4. A Legacy for the Future**

The AAS Solar Eclipse Task Force intends to leave a legacy for the future. This legacy will serve two purposes: preserving knowledge for future eclipse events, and helping communities reflect on, and benefit from, what we've accomplished. Capturing the tangible results of our decade of work will ensure that the lessons we've learned can guide others for many years to come.

### **4.1. Building a Network of Relationships**

One of our key successes was creating a strong network of collaborators. In Rochester, New York, for example, the local task force, led by Debra Ross, started organizing right after the 2017 eclipse. Over the years, they built relationships across a wide range of sectors, from local governments to tourism boards and emergency services.

They measured the growth of these relationships quantitatively. Before the task force started, the relationships among the members numbered about 220 active connections. After years of organizing, that number grew by 63%, with many new partnerships forming between people who might never have connected otherwise.

The strength of these relationships extends beyond the eclipse. Many of these networks will remain active, supporting future community initiatives. This kind of social capital is one of the most lasting impacts of our work.

### **4.2. Documenting the Journey**

To memorialize our experience, we created a documentary called *The Path to the Path*. It features interviews with task-force members, community leaders, and other stakeholders, offering an inside look at how we pulled everything together. You can watch the 25-minute film at [thepathtothepath.org](http://thepathtothepath.org). It's an inspiring story of collaboration and dedication.

### **4.3. Archiving Resources**

We're also ensuring that all the information we've gathered and produced remains accessible. The AAS will transition [eclipse.aas.org](http://eclipse.aas.org) into a legacy site, consolidating the most valuable resources, including those on [eclipse2024resources.com](http://eclipse2024resources.com), for future use. This includes workshop recordings, videos, and other materials that have stood the test of time.

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<sup>12</sup><https://aas.org/press/american-astronomical-society-warns-counterfeit-fake-eclipse-glasses>



Figure 8. A promotional graphic for *The Path to the Path* documentary about the work of the AAS Solar Eclipse Task Force.

Additionally, the *Bulletin of the American Astronomical Society* is publishing a series called *Science in the Shadow*.<sup>13</sup> It features articles from a wide variety of people who experienced one or more of the recent American solar eclipses, whether through community engagement, education, or scientific observation. Numerous members of the AAS task force or its working groups, attendees of our workshops, and recipients of our mini-grants are among the authors writing articles for this free, open-access journal. These will capture vastly more lessons for the future than we've shared here.

#### 4.4. Final Thoughts

Working on the AAS Solar Eclipse Task Force has been one of the most rewarding experiences of our lives. The dedication, intelligence, and creativity of everyone involved have been truly inspiring. If you ever have the chance to work on something like this, we highly encourage you to do so. It is challenging, but the impact is immeasurable!

**Acknowledgments.** We thank the hundreds of people who served on the AAS Solar Eclipse Task and its working groups, attended our workshops, or otherwise engaged with us in preparing North America for the 2017, 2023, and 2024 solar eclipses. Our 2017 and 2024 mini-grant programs were funded by the U.S. National Science Foundation, grant numbers 1564535 and 2318745, respectively. We are also grateful to the AAS, NASA, and the American Institute of Physics for additional financial support. RTF, who led the task force's efforts in promoting eye safety, especially thanks B. Ralph Chou (University of Waterloo, retired), Stephen J. Dain (University of New South Wales), Keith Whitten and Stephen Pfriem (both ICS Laboratories), and all the manufacturers and resellers of genuinely safe eclipse glasses and handheld solar viewers for their advice and assistance.

<sup>13</sup><https://baas.aas.org/science-in-the-shadow>

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