

— WHITE PAPER — 2022

COMMUNITY SOLAR ECLIPSE PLANNING

A GUIDE FOR COMMUNITIES IN THE PATH OF TOTALITY



— SECOND EDITION —

TOTALITY 2024

MEXICO/USA/CANADA

Incorporating Annular Eclipse 2023

ACKNOWLEDGEMENTS

I wish to acknowledge the many eclipse coordinators whose experiences have informed both editions of the White Paper, from the following eclipses:

- 2012 in North Queensland—my "home" eclipse. It was during these preparations my mindset shifted from being just an eclipse chaser to seeing the importance of engaging communities when preparing for an eclipse.
- 2015 in the Faroe Islands, where I took on the rewarding role of Eclipse Coordinator. I was privileged to have interned within the multi-award-winning creative team at *Visit Faroe Islands* and fell in love with these amazing islands. I have no doubt I will return.
- 2017 coast to coast across the US. Thanks to those who took on the unknown eclipse coordinator role and whose feedback of their experiences gave depth to this second edition.

I also would like to thank those within the supportive eclipse community who offer their expertise and guidance to provide resources for the benefit of others. These people make our eclipse community what it is.

Finally, a special mention to those who contributed directly to this second edition of the White Paper, including Rick Fienberg, Fred Espenak, and Michael Zeiler.

Feedback on this document and topic area is welcomed: kate@beingintheshadow.com

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EXECUTIVE SUMMARY

A total solar eclipse is an extraordinary event that attracts large crowds and international media interest. Communities within the path of totality have hit the celestial jackpot simply by being located in the right place at the right time.

Effective eclipse planning will ensure your community is ready to host the vast crowds that will congregate all along the path of totality. But *strategic* planning will allow your community to shine within the path.

By taking a community development approach to planning, the eclipse can serve as a focal point for engaging your community while meeting long-term goals. Strategic planning should start YEARS in advance—the earlier the planning, the greater the benefit.

This second-edition White Paper, *Community Solar Eclipse Planning*, is offered as a free educational tool to facilitate community eclipse planning.

The first edition was published in 2015 and informed by planning insights and experiences from 2012 in Australia and 2015 in the Faroe Islands. The need for written guidance was pressing—over a thousand communities across the US found themselves "in the dark" preparing for the 2017 total solar eclipse, something that hadn't happened in the US since 1979.



Dr. Kate Russo - Author, Psychologist, Eclipse Chaser. © 2017 Kieron Circuit

The core message of the first edition was to: *start planning early; focus on the community in addition to eclipse tourists; and consult with eclipse experts to prepare for the unknowns.*

This second edition is more detailed and supplemented with material from a needs analysis of eclipse planners across the 2017 path of totality, along with in-depth interviews with over 30 eclipse coordinators completed pre-and post-eclipse. The core message of this second edition is below.

CORE MESSAGE:

- *Assemble your team*
- *Develop your strategy*
- *Boldly go where no one has gone before.*

Alternative versions of this White Paper will be made available from my website for each total solar eclipse, including totality 2023, totality 2024, totality 2026, and totality 2028. Downloads will be free, and you are encouraged to share.

I wish you every success in planning for your community to shine in the Moon's shadow.



Dr. Kate Russo
Founder, Being in the Shadow

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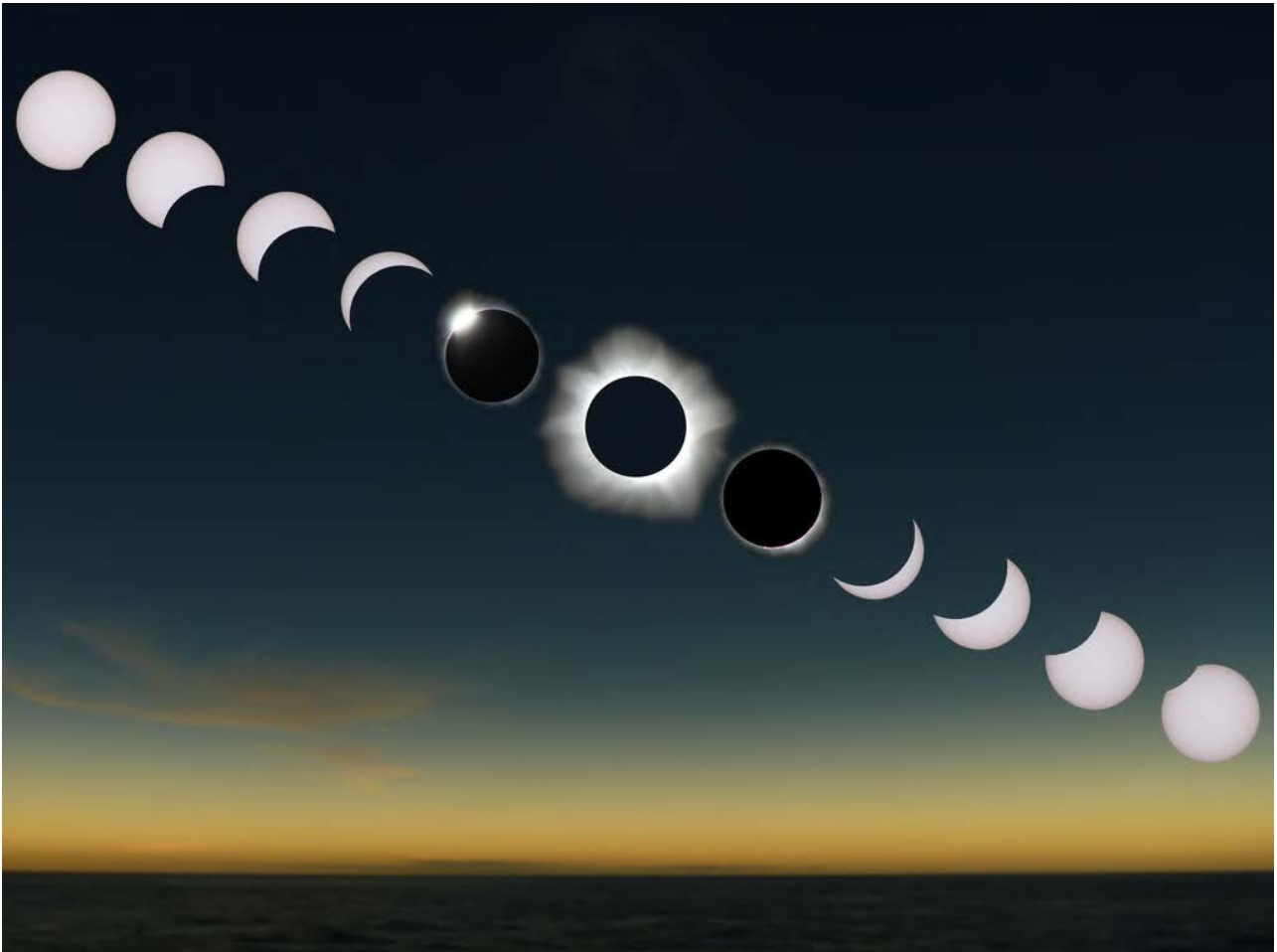
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BACKGROUND INFORMATION



A composite image of the total solar eclipse sequence of November 14, 2012, as seen from aboard the *Paul Gauguin* in the South Pacific near New Caledonia. © 2012 Rick Fienberg/TravelQuest International/Wilderness Travel

TOTAL ECLIPSE FACTS

- A total solar eclipse occurs somewhere on Earth once every 18 months on average.
- In any one location, a total solar eclipse is rare, occurring on average once every 375 years.
- The Moon's dark inner shadow intersects Earth along a thin track known as the path of totality.
- If you are located within the path of totality, you will experience nature's most amazing spectacle: a total eclipse of the Sun.
- During totality, the Moon blocks the Sun, casting a dark shadow. This is the only time the Sun's ethereal solar corona (outer atmosphere) is visible to the naked eye.
- Totality is awe-inspiring, beautiful, eerie, and emotional. The experience is hard to describe.
- Many people are so moved by the experience they become "eclipse chasers."
- You **MUST** be in the path of totality to experience a total solar eclipse.
- Outside of this path, even if the Sun is 99% covered, the sky is still 10,000 times too bright. You will not experience the full wonder and awe of totality.
- Except during totality, it is never safe to look directly at the Sun. Solar filters compliant with the ISO 12312-2 standard are necessary for safe viewing of the partial phases of the eclipse.
- Only in the path of totality is it safe to view totality without solar filters, as all direct light from the Sun is blocked by the Moon.



A composite image which features the naked eye view of the beautiful solar corona, taken from the Mulligan Highway, Queensland. © 2012 Phil Hart

ECLIPSE GEOMETRY

BY RICK FIENBERG

ASTRONOMER, SCIENCE COMMUNICATOR, PROJECT MANAGER OF THE AMERICAN ASTRONOMICAL SOCIETY (AAS) SOLAR ECLIPSE TASK FORCE.

The Sun is roughly 400 times bigger across than the Moon, but it's also roughly 400 times farther away. Thus the Sun and Moon appear about the same size in our sky.

Earth's orbit around the Sun is slightly elliptical, such that the Sun's distance and apparent size change by about 3% from farthest/smallest in early July to closest/largest in early January.

The Moon's orbit around Earth is slightly more elliptical, such that the Moon's distance and apparent size change by about 11% from farthest/smallest to closest/largest.

Because the Moon orbits Earth every 27.3 days but goes through its cycle of phases every 29.5 days, the Moon's phase and distance are out of sync.

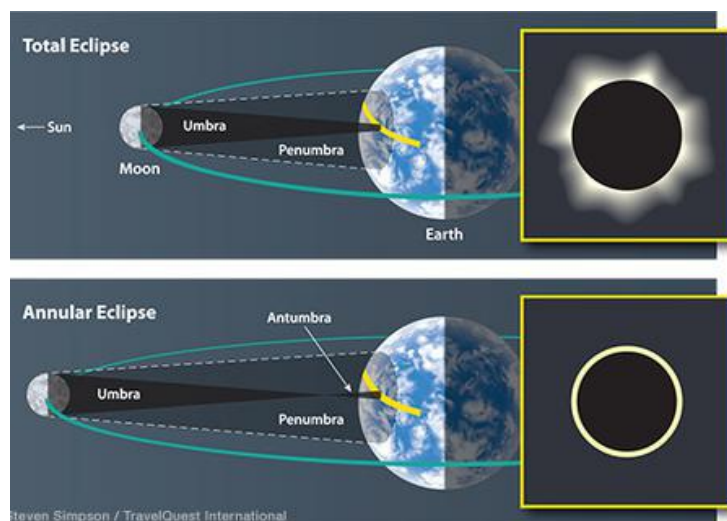
Thus any of the Moon's phases can occur when the Moon is at any distance in its orbit (closest, farthest, or in-between) and at any time of month.

All this means that at those times when the Moon happens to pass directly in front of the Sun as seen from Earth's surface, the Moon can appear at any size from slightly smaller than the Sun to slightly larger than the Sun.

When the Moon passes directly in front of the Sun but appears smaller, we get an **annular (ring) eclipse**, where the Moon doesn't completely cover the Sun's bright face but leaves a brilliant "ring of fire" around the Moon's dark silhouette. Daylight is only slightly diminished; if you didn't know an eclipse was occurring, you might not notice.

When the Moon passes directly in front of the Sun but appears larger, we get a **total eclipse**, where the Moon completely covers the Sun's bright face, revealing the much fainter (and spectacularly beautiful) solar corona stretching out from beyond the Moon's dark silhouette. Daylight almost instantly gives way to deep twilight, the brightest stars and planets become visible, and the sky around the horizon glows with the pastel hues of dawn and dusk.

Both a total solar eclipse and an annular solar eclipse typically last a few minutes, but for about an hour before and after the annular or total eclipse, while the Moon is moving onto the Sun's face and then off of it, respectively, we see a **partial solar eclipse**. Thus a total solar eclipse is really a partial, then total, then partial solar eclipse. Similarly, an annular solar eclipse is really a partial, then annular, then partial solar eclipse.



Because the Moon is moving along in its orbit throughout the eclipse, its inner shadow (from within which you can see totality or annularity) traces a **long, narrow path** along Earth's surface. This path is typically about 100 miles wide. A much larger area to either side of this path gets only a partial eclipse, because as seen from those areas, the Moon doesn't cross directly in front of the Sun, but a bit above, below, or to one side or the other, blocking only part of the Sun's bright face.

There's one more wrinkle: Earth's surface is curved. A person standing near the center of Earth's blue-white face (as seen from the Sun or Moon) is about 4,000 miles closer than a person standing near the limb (edge), because Earth's radius is about 4,000 miles.

Thus if the Sun and Moon are very nearly exactly the same size as seen from Earth, it is possible that the Moon will not quite cover the Sun from one, the other, or both ends of the path but will indeed cover it from the middle of the path. This is what we call a **hybrid, or annular-total, solar eclipse**.

SAFE SOLAR VIEWING

Eclipse planners should confidently refer to the AAS authoritative guidance on eye safety, which is evidence-based and written by international experts in safe solar viewing.



Usually, we have a reflex to look away from the Sun due to discomfort from brightness. However, during a solar eclipse, attention is drawn toward the Sun, which raises the potential for eye damage. Except during the brief total phase of a total solar eclipse, it is never safe to view the Sun with the naked eye. Safe solar viewing is essential.

Some individuals or groups will publicly suggest that there is no safe way to view a solar eclipse. Their agenda is to avoid litigation, rather than educate about safe viewing. Those advising to watch the eclipse on TV, remain indoors, turn your back to the event, or to use a pinhole camera during totality are uninformed. This mis-information creates confusion and increases the chance of people viewing incorrectly.

Instead, it is important to follow safe viewing guidelines that have been used for decades and are based on years of research and extensive product testing. Cardboard handheld solar viewers and solar eclipse shades are inexpensive and safe when used correctly.



Outside of the path of totality, solar filters should be used at all times when viewing a solar eclipse. Within the path of totality, solar filters should be used during the partial phases. However, filters can be removed once the Sun's bright face is completely covered by the Moon. This is when you will see totality—and it is spectacular!

Solar viewers must be certified by a properly accredited testing laboratory to meet the ISO 12312-2 international safety standard for such products.

Because some vendors claim to sell ISO-compliant solar viewers when in fact they do not, you should obtain solar viewers only from the reputable sources listed on the AAS solar eclipse website, eclipse.aas.org.

TOTALITY: THE EXPERIENCE

Totality is fully immersive, with exciting things happening above you, around you, and within you. For some, it is life-changing.

Many people have witnessed a partial solar eclipse. Seeing the Moon's silhouette marching across the Sun is a wonderful demonstration of fortuitous celestial alignments. But witnessing totality is a wholly different — and wholly immersive — experience!

As the eclipse progresses and most of the Sun is covered, the environment changes. You notice the dimming and special quality of the light around you, the fading colors and the drop in temperature. Nature becomes quiet, and you too become hushed as the Moon's shadow creeps eerily toward you.

The ominous darkening in the sky can be seen and felt. Many have an intense physical reaction at this moment. The hair on the back of your neck rises, and goosebumps cover your arms. You feel excitement tinged with mild terror, as the world around you rapidly becomes engulfed in darkness.

Those final moments before totality are incredibly powerful as things change rapidly. The brilliant diamond ring — a last gleam of sunlight seen against the lunar silhouette — heralds the start of totality. This sight is so otherworldly that you think it's a special effect from some science-fiction movie. You find yourself screaming out with excitement, not knowing what you are saying. The remaining arc of light reduces until there are only tiny beads of it shining through the valleys of the Moon — creating an effect called Bailey's beads.

And then you are, quite literally, plunged into darkness. You are standing in the shadow of the Moon. Totality.

A black hole appears in the sky where the Sun should be, like a celestial eye gazing back at you. The world around you is now in deep twilight — dark enough to reveal planets and the brightest stars above, with glorious sunset colors all around the horizon. As your eyes adapt to this surreal darkness, the Sun's atmosphere — the corona — becomes visible. Silvery, wispy, and ethereal, it seductively surrounds the eclipsed Sun. Crimson-hued prominences can also be seen leaping from the edge of the now-hidden Sun.

The world seems to be suspended in time, as you are lost in your own little rapture. You feel an immediate connection to our primitive ancestors, who would have been terrified by all this, possibly believing the end of the world was imminent. A little part of you also wonders if the Sun will ever return. You recognize that we humans are but a small and insignificant part of the vastness of our universe. It's a strangely comforting and empowering insight, like you've finally figured out what life is all about, and that your life matters.

More brilliant beads of light mark the beginning of the end. The diamond ring again dazzles before daylight's full brightness returns. Totality might be over, but the experience has been seared into your brain — a new, vivid memory that you'll hold dear forever.

After witnessing my first total eclipse, I turned to my partner, choked up, and we hugged. Others around us were hugging too, some with tears in their eyes. We were all connected through the experience, and no words could be found — nor were they needed.

No other event in my life has had such a positive and powerful impact, igniting a passion that will burn for a lifetime. I'd become an eclipse-chaser even before I knew there was such a thing. I wanted to repeat what just happened, and I just knew this would not be a one-and-done event for me. Every total solar eclipse is unique and special, like a new chapter in my life.

I firmly believe that if every person could experience a total solar eclipse, the world would be a better place. A total solar eclipse is more than just a celestial event. It's a meaningful life event — an awe-inspiring and fully immersive natural wonder that you'll cherish for a lifetime.

THE PATH OF TOTALITY

*To experience the awe of a total solar eclipse, you **MUST** be within the path of totality.*

If you are not within the path of totality, you will only see a **partial solar eclipse** and miss all the thrilling features of totality.

You will come across people who insist they have seen a total solar eclipse when they were nowhere near the path of totality. They are mistaken—but not easily convinced. The difference is literally night and day.

Similarly, some people assume that being near to the path is good enough. In fact, there is little advantage of shifting location if you still only get to see a partial solar eclipse. Even if you are just

outside of the path of totality with only 1% of the Sun visible, the sky is still 10,000 times too bright to see any exciting eclipse phenomena.

The message is clear—to experience a total solar eclipse, you **MUST** be within the path of totality.

The **path of totality on April 8, 2024**, is approximately 125 miles wide. Locations close to the centerline of the path have the longest duration of totality. Locations towards the edge will still experience the wonder and awe of totality, but the length of time during totality will be reduced.

Communities positioned nearer to the centerline, and with the best-predicted weather, will be magnets for the largest crowds. Communities with less appeal are those with limited options for mobility, located nearer to the edge of the path, and with a high chance of cloud on eclipse day.

People who do not live within the path will need to choose where to view the eclipse to experience totality. Experienced eclipse chasers will use historical weather records to select areas that are most likely to have clear skies on eclipse day. Others will make this choice based on existing ties to locations within the path, ease of access, major organized events, or unique photographic opportunities. Highly desirable locations are national and state parks, areas of outstanding natural beauty, and near existing tourist attractions.

Every region within the path has the potential to experience large crowds and should be aware of their capacity and make plans.



Don't veer off the path. © 2017 Kieron Circuit

It is crucial for communities to understand their unique positioning within the path and to tailor their plans accordingly.

BENEFITS OF BEING IN THE PATH

Along with the direct economic benefits of the eclipse, consider the indirect benefits—years of free publicity can generate numerous opportunities and open up new tourism markets.



Media call the day before the total eclipse, 2012 Australia. © 2012 TTNQ

2012 - NORTH QLD, AUSTRALIA

- Population in the path 150,000
- Crowd of 60,000 was double the predicted 30,000
- Eclipse in the tourist off-season, with 70% increase in visitation compared to same time previous year
- 100% bed occupancy across the region, with an average stay of 4 days
- Estimated US\$92 million direct spend by eclipse tourists
- Generated US\$22 million in global publicity value
- Significant growth in media exposure internationally, especially China.

2015 - FAROE ISLANDS

- Population in the path 50,000
- Crowd of 11,000 far exceeded the predicted 3,000 eclipse visitors, also exceeded historical records
- Region capacity of 800 hotel beds, expanded creatively, average stay was 5-6 days
- 40 planes landed in Vagar Airport on eclipse day, the busiest day in airport history
- Estimated US\$9.5 million directly due to the eclipse.
- 62 international media outlets, with an estimated PR value of US\$22 million
- Social media followers increased from 100,000 in 2015 to 250,000 in 2016
- Tourism growth increasing in years following the eclipse.

2017 - USA

- Path of totality crossed over 1,000 communities in 14 states
- In-path population 12 million, with est 20 million traveling into the path
- An estimated 88% of the US adult population (216 million) viewed the eclipse either directly or indirectly
- Largest recorded audience for any scientific, athletic, or entertainment event
- NASA's eclipse coverage was their most-watched and most-followed event on social media, reaching 5.3 billion people.

WYOMING IN DETAIL

- Estimated 261,000 visitors (of which 29,000 international travelers) spent US\$63.5 million in eclipse-related travel
- State-wide traffic count-derived estimate of 204,190 visitors greatly exceeded the calculated estimate of 156,400
- Casper (pop 58,000) hosted the "Wyoming Eclipse Festival", with 21,000 visitors, and an economic impact of US\$7.5 million
- "Wyoming Eclipse Festival" generated over 225 million media impressions in the calendar year of 2017
- Festival website had 731,966 visitors in the year leading up to the eclipse
- Wyoming mentioned 19,603 times by media outlets covering the eclipse, with an estimated editorial value of \$6.77 million.

AN ECLIPSE BONANZA

After an "eclipse drought" of almost 40 years, the continent of North America is "flooded" with solar eclipse opportunities until 2024.



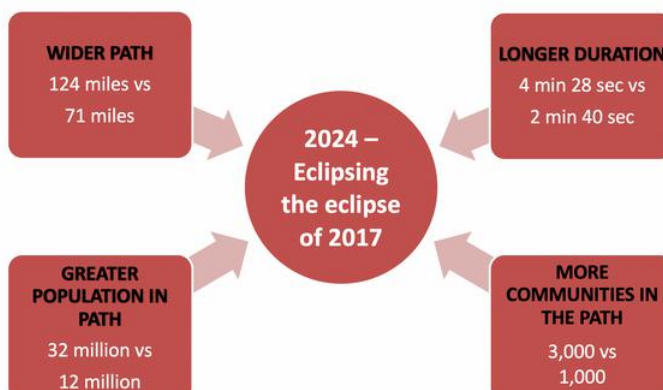
The criss-cross of eclipse opportunities North America 2017-2024. © 2021 GreatAmericanEclipse.com

For the first time in 39 years, the **2017 total solar eclipse on August 21** crossed 14 states, from coast to coast. This was soon followed by the **2021 annular solar eclipse on June 10** that made landfall over remote Canada, with a partial solar eclipse visible over the whole of North America.

But the best is yet to come. The path of annularity for the **2023 annular solar eclipse on October 14** crosses the USA, Central America, and South America. Although annular eclipses do not attract the same crowds, this one is likely to be of great appeal given the ease of travel, good weather prospects, and growing awareness of what is considered to be the main event occurring six months later—the **2024 total solar eclipse on April 8**. Although hard to imagine, the 2024 total solar eclipse will be even bigger than the "Great American Eclipse" of 2017. With greater awareness, and over double the population living within the wider path of totality, audience numbers are guaranteed to far exceed that of 2017. As the path crosses Mexico, the USA, and Canada, this is likely to be referred to as the "Great North American Eclipse."

Even though a total solar eclipse occurs every 375 years on average in any one location, occasionally the same location can experience a total eclipse more than once in a lifetime. For example, the paths for the 2017 and 2024 total eclipses intersect over areas in Illinois, Missouri, and Kentucky. Those in this "eclipse crossroads" will be lucky to experience two total solar eclipses in their home location within seven years.

WHY THE 2024 TOTAL ECLIPSE WILL BE EVEN GREATER THAN THE GREAT AMERICAN ECLIPSE OF 2017



NORTH, CENTRAL & SOUTH AMERICA ANNULAR SOLAR ECLIPSE 2023



October 14 (Saturday). This is an ANNULAR solar eclipse.

The path of annularity first makes landfall in the US, and includes the states of Oregon, Nevada, Utah, New Mexico, and Texas, briefly grazing the states of California, Idaho, Colorado, and Arizona. The path then continues through the Yucatan peninsula in Mexico, then across Central America through Belize, Guatemala, Honduras, Nicaragua, Costa Rica, and Panama. The path then makes landfall again into South America, crossing over Colombia and Brazil.

Regions that will see a partial eclipse include North America, South America, West Africa, the Pacific, Atlantic, and Arctic.

UNIQUE PATH FEATURES

- The path of annularity for this eclipse occurs over huge population areas in the US, before continuing into Central then South America
- The point of maximum eclipse is in the Caribbean Sea off the coast of Nicaragua and Costa Rica, with annularity lasting 5 minutes 17 seconds
- The path is 116 miles wide at the point of maximum eclipse
- The best weather prospects will be in the US Southwest, and toward the end of the path near the Brazilian Sertão
- This path intersects areas in Oregon that played host to the 2017 total eclipse
- The path also intersects areas in Texas that will play host to the 2024 total eclipse.

SPECIAL PLANNING CONSIDERATIONS

- This annular solar eclipse will occur 177 days before the next total solar eclipse and therefore may generate more interest than usual
- Communities in the path of annularity in Central Texas that also intersect with the 2024 path of totality six months later will require "double planning". This will generate huge media interest, and crowds are likely to be higher for these locations. These communities should maximize this very rare opportunity.
- Communities in the path of annularity in Oregon, who were also in the 2017 path of totality, will also experience higher interest than other locations along the path
- Solar filters must be worn even during annularity, as parts of the Sun will always remain visible
- Communities in Central and South America may experience an increase in international eclipse tourism, especially where the weather is more favorable in Brazil.

MEXICO, USA, AND CANADA

TOTAL SOLAR ECLIPSE 2024



April 8 (Monday). This is a TOTAL solar eclipse.

The path of totality for the 2024 total solar eclipse initially touches down in Mexico, crossing the regions of Nayarit, Sinaloa, Durango, and Coahuila. The path then crosses the USA from Texas to Maine, including the states of Oklahoma, Arkansas, Missouri, Tennessee, Kentucky, Illinois, Indiana, Ohio, Michigan, Pennsylvania, New York, Vermont, and New Hampshire, while grazing over parts of Canada, including Ontario, Quebec, and New Brunswick.

The path then continues into the Atlantic region of Canada, including Prince Edward Island, Nova Scotia, Newfoundland, and Labrador before heading into the Atlantic.

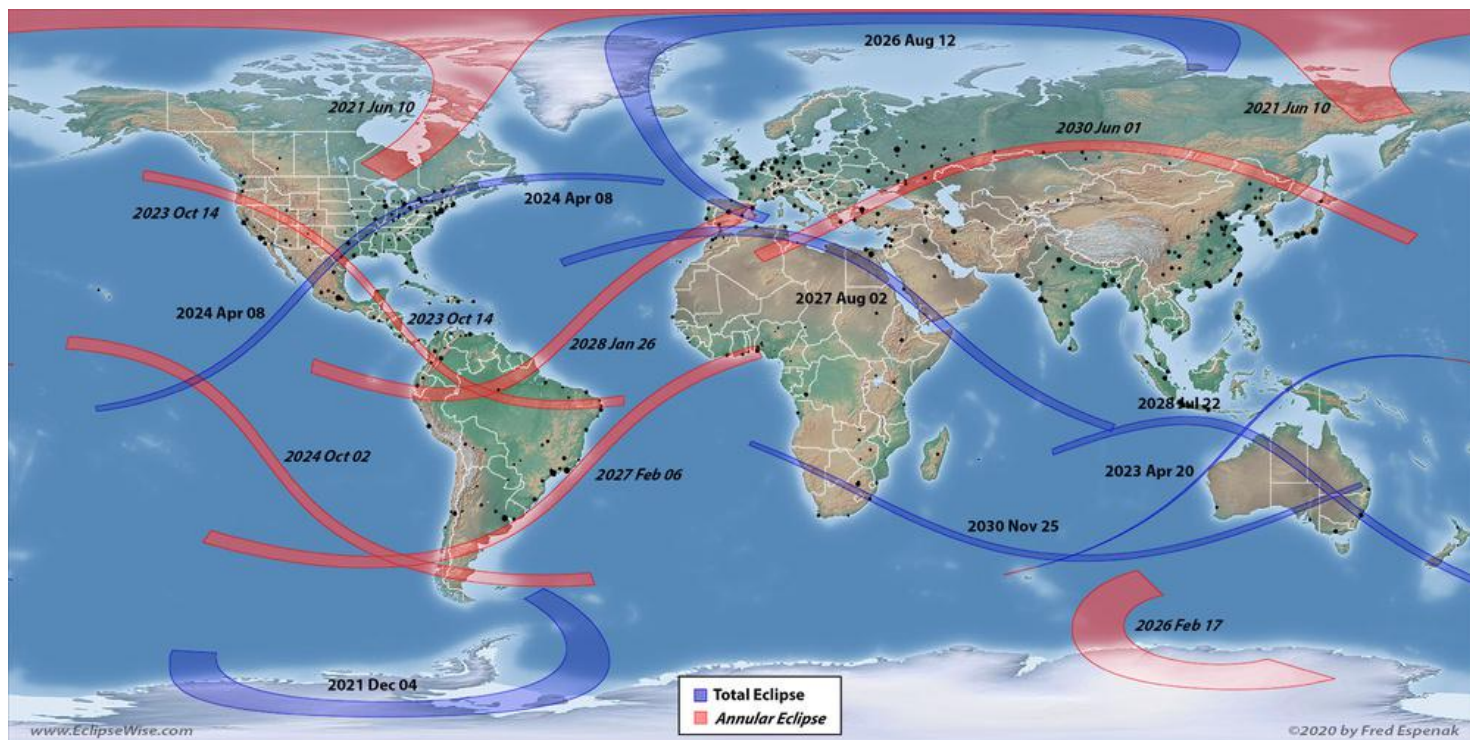
UNIQUE PATH FEATURES

- The path of totality crosses regions with high population density, especially over Mexico and the USA
- The path of totality averages around 115 miles wide
- The point of maximum eclipse is in Durango, Mexico, where totality lasts 4 minutes 28 seconds
- The best weather prospects along the path are in Mexico, with the least favorable in Canada
- Within the US, the best weather prospects are to be found in Texas, Arkansas, and Missouri
- This path of totality overlaps with the 2017 path of totality over a region of nearly 9,000 square miles including parts of Illinois, Missouri, and Kentucky
- This path of totality also intersects with the 2023 path of annularity 6 months earlier, exclusively in Texas
- All of North America and Central America will have a partial solar eclipse.

SPECIAL PLANNING CONSIDERATIONS

- An estimated 32 million people live within the path of totality
- Within the US portion of the track, a number of high-population metropolitan areas both within and near the path will create state-wide challenges for traffic management
- Areas along the western parts of the path, including Mexico and the US states of Texas, Arkansas, and Missouri, are likely to draw the largest crowds due to better weather prospects. Demand for accommodations and car rental within these areas will exceed capacity.
- Other regions along the northeastern part of the path will still draw large numbers based on proximity—even given less favorable weather predictions—simply due to population density
- With the eclipse occurring on a Monday, many people will not be able to travel far due to work and school commitments. Travel into the path is likely to be staggered due to the preceding weekend; however, travel out of the path following the eclipse is likely to cause significant bottlenecks. Planning should include limiting routine traffic on eclipse day.
- Communities within the "eclipse crossroads" should market accordingly, as this may be of appeal for those wishing to view from the same location
- National and international planning is likely to be better coordinated for this eclipse, increasing opportunities for path-wide coordinated scientific and media efforts
- This eclipse is likely to break all preceding live and online audience viewing records.

SOLAR ECLIPSES 2021-30



- 2021 Jun 10 – Annular Solar Eclipse: Greenland, Canada, Russia.
Dec 4 – **Total Solar Eclipse**: Antarctica.
- 2023 Apr 20 – **Hybrid (Annular-Total) Solar Eclipse**: Australia, Indonesia.
Oct 14 – Annular Solar Eclipse: USA, Central America, South America.
- 2024 Apr 8 – **Total Solar Eclipse**: Mexico, USA, Canada.
Oct 2 – Annular Solar Eclipse: Rapa Nui, Chile, Argentina.
- 2026 Feb 17 – Annular Solar Eclipse: Antarctica.
Aug 12 – **Total Solar Eclipse**: Greenland, Iceland, Spain.
- 2027 Feb 6 – Annular Solar Eclipse: Argentina, West Africa.
Aug 2 – **Total Solar Eclipse**: Spain, North Africa.
- 2028 Jan 26 – Annular Solar Eclipse: Galapagos, South America, Portugal, Spain.
Jul 22 – **Total Solar Eclipse**: Australia, New Zealand.
- 2030 Jun 1 – Annular Solar Eclipse: North Africa, Europe, Central Asia, East Asia.
Nov 25 – **Total Solar Eclipse**: Namibia, Botswana, South Africa, Australia.

This list omits eight additional solar eclipses that are only partial.

02

INTO THE UNKNOWN



Eclipse chasers standing in the Moon's shadow during totality in China. © 2009 Daniel Lynch

WHERE TO START

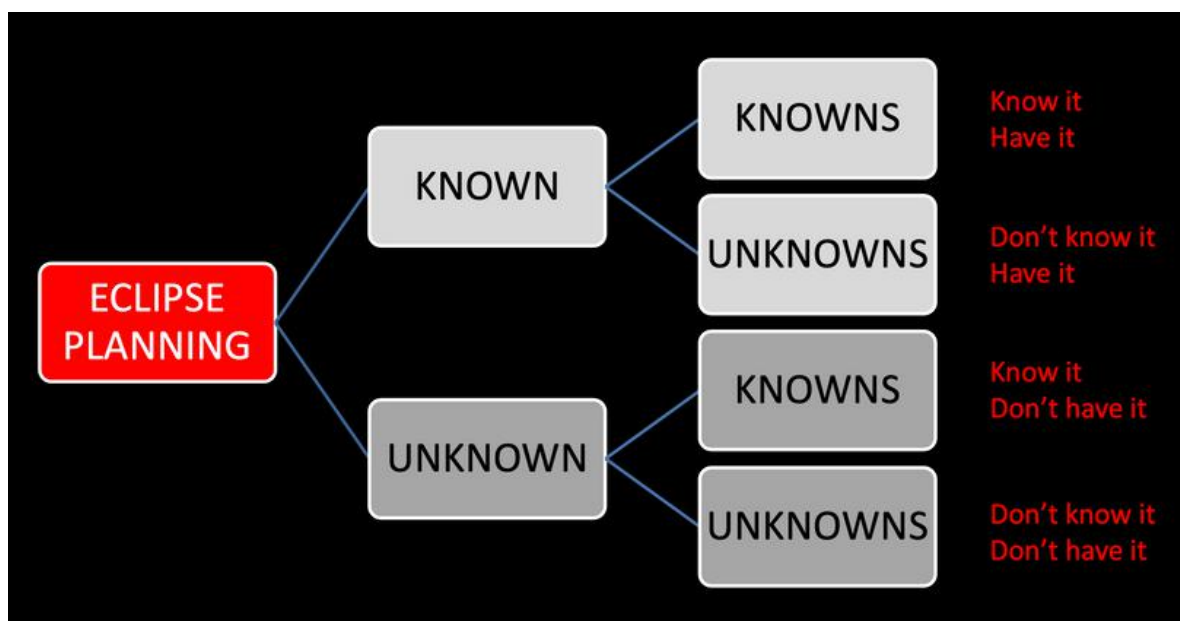
Effective eclipse planning is about preparing for the knowns and reducing and managing the unknowns. Planners need to accept that some things will remain unknown.

There are many unknowns when preparing a community for a total solar eclipse. Every community within the path will need to understand their own unique circumstances, determine the level of appeal of their location, and tailor their planning accordingly. Most community planners will initially not know what they need to know and may need to seek guidance from eclipse experts.

A useful framework for developing your strategy for eclipse planning is the Johari window, usually presented in a matrix but presented with more clarity as a flow chart below. As outlined in the diagram, there are two key points of reference for eclipse planning: the Known (the things we have and that we can share with others), and the Unknown (the things we do not have, that we have to discover, learn, and assume).

Over the years, lessons learned from past eclipse coordinators have allowed for a deeper understanding of the process of planning. This specialist knowledge will reduce—but not eliminate—the unknowns. How many people will come to YOUR community—that remains unknown.

What we DO know: the general public is now much more aware of the wonder of totality, and more people will be planning their travels into the path. A rapidly growing eclipse-chasing community, post-pandemic travel demand, and growth in experiential and nature-based travel will ensure increasing interest for years to come.



COMMUNITY PLANNING PROFILES

Forward-thinking stakeholders see the benefit of being a community within the path of totality, and would be wise to embrace the opportunity as early as possible.

Communities within the path vary in how they approach eclipse planning, based on resources, population, location, leadership, and other factors. Based on detailed consultations with many communities preparing for 2017, four engagement patterns have become evident.

The guidance in this White Paper encourages the Community Champion approach, as this is likely to bring longer-term benefits by building upon the existing strengths and uniqueness of the community. In this way, all planning efforts can be used as publicity to share your community brand, while also preparing for the eclipse.

EVANGELICAL EMBRACERS

- These communities have external validation of their unique position along the path, giving them the confidence to proceed with big plans
- Planning starts years in advance and funding is arranged for planning efforts, including an eclipse coordinator
- A strong eclipse brand is developed, and the spotlight is on the eclipse
- Pre-eclipse planning events are scheduled in the years leading up to the eclipse, with local community involvement
- Evangelical embracers become the focal point of national and international eclipse stories and benefit from extensive publicity.

COMMUNITY CHAMPIONS

- These communities show strong vision and leadership despite any external validation
- The eclipse is used as the reason to fundraise and push for community development, and there is strong community engagement
- The eclipse is the focus, but the branding and marketing spotlight is on the community
- Champions are already in positions of leadership and absorb eclipse planning into their existing role
- Working groups are formed that not only focus on the eclipse, but other key priorities
- Community champions often dream big, and have the most to gain from publicity.

WATCHFUL WAITERS

- These communities understand the potential opportunities but struggle to get going. They wait for "someone in charge"
- A person is usually "volunteered" to independently take on the task of eclipse planning without information, resources support, leadership, or authority to develop a cohesive plan
- They watch what others are planning, and arrange a few similar events
- The eclipse happens and it is a success—but many opportunities are missed.

UNSUPPORTED HEROES

- Occasionally, a community fails to make any plans
- An individual often attempts to alert senior leadership and other authority figures about the significance and potential of the eclipse, however no support is forthcoming
- The unsupported hero will either helplessly continue to prompt action or eventually focus their energy on other things
- In the final weeks, hasty plans are put together as it is realized how big the event will be.

WHO'S IN CHARGE?

A solar eclipse occurs due to celestial mechanics, without any human intervention. This creates an interesting paradox: nobody is "in charge."

If you are responsible for eclipse planning in your community, you will immediately understand this paradox.

No one will feel they are in charge, and people assume someone else will start the planning process. You may find yourself frustrated with those in authority who are not able to see the potential scale and benefits—and challenges—of being in the path of totality.

You will find yourself questioning where to go to seek reassurance or permission, and exploring things that are out of your experience, expertise, and zone of comfort.

The eclipse *will* happen—regardless of how much or little you plan. Equally, eclipse chasers *will* start securing their bookings years in advance. Unprecedented crowds *will* congregate within the path of totality. You must plan for the consequences and impact of the eclipse. Planning should commence as early as possible—ideally when queries are first received about the eclipse.

Delays in planning are frustrating for people trying to visit your region, which in turn is damaging to your reputation.

In hindsight, all past eclipse coordinators share the same view: the total eclipse exceeded all expectations, and they wished they initiated planning earlier instead of "waiting for permission."



No community chooses to host totality—the Universe chooses you.

WHO WILL COME?

The total solar eclipse is an experience that will appeal to all ages, and will be remembered for a lifetime.

There is no single homogenous group that makes up the typical "eclipse tourist." Instead, a number of different audience groupings can be identified, and each group may differ in how they approach the eclipse. The following are suggested audience groupings—note that this is not an exhaustive list.

Many assume all your plans should be directed to incoming "eclipse tourists," those traveling into the path of totality. However, for many locations, the majority of the crowds will consist of the local population and their invited guests. There are exceptions to this, of course.

DIFFERENT AUDIENCES TO CONSIDER

Local population – Those who live within the path of totality are likely to want to remain in their home region to experience the eclipse. They will be choosing to view from special local "beauty spots," to take part in arranged events, or may choose to view the eclipse from their home.

Friends and relatives of locals – If you live within the path of totality, you are likely to be inundated with requests for hosting visits from even long-lost friends and relatives. Previous communities estimated that every household had an additional two visitors for the eclipse. In 2024 that number could be much greater, especially in high-demand areas of the path.

Eclipse chasers – Chasers select their preferred viewing location, usually based upon the best-predicted climate, often booking years in advance. Some like to take part in celebrations, staying for several days to experience other tourist offerings. Others like flexibility, and will book multiple options within the path and will rely on last-minute weather forecasts to determine their final viewing location. Experienced chasers are less likely to take part in organized events, and will want to be in the path of totality the night before the eclipse.

People living outside of the path – Those living outside of the path, and travelers staying in close proximity to the path are likely to travel in and out of the path on eclipse day. This influx will result in unprecedented traffic congestion, especially immediately following the eclipse. It is essential to make plans for traffic management and parking to facilitate the movement of large numbers on eclipse day.

Eclipse tour groups – Eclipse tour operators tend to book years in advance and will focus on areas close to the centerline and with the best weather prospects. They will often have a 'Plan B' location in the case of challenging eclipse-day weather. Often they have their eclipse celebrations planned within the tour.

Scientists and astronomers – These experts will often have secured their accommodation and other arrangements years in advance, and also focus their efforts on the centerline in the areas with the best weather prospects. Science activities and events are often the focal points for media.

03

GUIDANCE FOR PLANNING



Waiting for totality 2015 in the Faroe Islands. © 2015 Instagram

ASSEMBLE YOUR TEAM

Community eclipse planning should never be the responsibility of one individual. Build upon existing strengths and resources within the region.



The AAS Solar Eclipse Task Force planning workshop, Portland, Oregon. © 2015 AAS

High-Level Support

Mayoral involvement is important in developing an eclipse planning strategy, and for funding support. Also important is high-level tourism and business development support. Communities without this leadership support struggle with stakeholder engagement.

Local Eclipse Task Force/Panel

Local government involvement is essential to facilitate arrangements. The committee that currently works together to coordinate the major community event is a good starting point for the local eclipse task force.

A range of stakeholders should be present and may include representatives from tourism, government, transport, business, health, creative industries, and education. In some regions, a state-wide eclipse task force is also required along with the local task force.

Eclipse Coordinator

The main task of an eclipse coordinator is to lead and coordinate planning efforts, and to be the point of contact for stakeholders, the community, and the media for all eclipse-related matters.

They must be able to convey the significance of the eclipse, key facts, and updates on community planning to large audiences and in the media. The position is complex and requires someone who is confident and assertive, with excellent organizational skills and project management experience. The individual must be proactive and strategic regarding the many decisions and actions that need to be taken.

Most communities rely on someone with well-established relationships across a wide variety of stakeholder organizations to take on this role, usually within the tourism industry or the Chamber of Commerce. Existing responsibilities will need to be re-allocated to free up time. It may be helpful to consider funding a new eclipse coordinator post which should end three months post-eclipse to allow for final information gathering and reporting.

The role increases in intensity as the countdown clock ticks away and becomes all-encompassing in the final weeks. Following the frenzy of the final days, the countdown reaches zero, the eclipse happens—then the phones are eerily silent.

Expert Advisors

Expert advisors, such as the ones below, can be drawn upon to help address the unknowns. This is not an exhaustive list, and some individuals have a unique skill set to advise in multiple areas. It is essential to have an advisor that has experienced a total solar eclipse.

An **astronomy expert** will ensure that all astronomical information about the eclipse is accurate, and may possibly lead the community viewing event. They can advise on viewing locations, equipment, eye safety, and a variety of other matters.

A **science educator** can help develop the program of events, exhibitions, workshops, and lectures for the public. They may also develop viewing activities or citizen science projects. This person usually works at a local museum or science center.

Those with **past eclipse coordinator** experience will have useful insights that will help reduce unknowns.

A **weather expert** with expertise in local meteorology can provide tailored information about past weather patterns, areas to avoid due to microclimates, and specific eclipse weather changes. In the final days before the eclipse, the weather expert will be in high demand.

An **eclipse chaser** can help address many of the unknowns. They have experienced totality many times before, in many locations, and can contribute practical advice based on their experience. Eclipse chasers who are able to give dynamic and engaging presentations and media interviews may play a key role in engaging the community.



Left: One of the eclipse media panels held in the days leading up to the 2015 total solar eclipse in the Faroe Islands.

Panel member roles (from left): Visit Faroe Islands representative, eclipse coordinator/eclipse chaser, local eclipse coordinator, meteorologist, local storyteller.

© 2015 Visit Faroe Islands

Additional support staff

Additional staff may be required to support website building and maintenance, the development and production of written materials/resources/information, branding and design, media communications, social media coordination and management, phone and web queries, etc. It is worth exploring the automation of high-demand tasks, such as providing a central online booking system for accommodation and events.

Arrangements should be made to relieve work pressure by delegating some responsibilities to others. Developing and drawing upon a pool of local volunteers for on-the-ground practical help is a great way of engaging the community. Management of volunteers takes time and is separate from the role of the eclipse coordinator.

DEVELOP YOUR STRATEGY

Align your eclipse planning with your community strategic plans. The eclipse then becomes a focal point—not a diversion—to meeting your long-term goals.



Preparing for a total solar eclipse in your community is complex. The Moon's shadow will impact on your region—but will also sweep quickly across the continent, and impact thousands of communities in real-time that will capture the attention of the world. Keeping informed of national planning efforts will help maintain this important mindset.

Just as the science community uses the eclipse for real-time science education, astute leaders

will see the opportunity to transform, solidify or rebrand their community identity. Community development can become newsworthy when viewed as part of this bigger picture.

Early on—usually years in advance—a strategy session for community leaders should be arranged to develop your community eclipse strategic plan. You will need to circulate key eclipse information to the team. It may be useful to show videos or have a presentation on the eclipse to ensure the team is fully informed and has the opportunity to clarify any misunderstandings.

It is important to understand your position within the path, and how this relates to the path as a whole, so you can tailor your plans accordingly. You may need guidance on this.

The overall purpose of this strategy session is to determine what all this information means for YOUR community specifically. Several strategy sessions may be required in order to fully explore the issues and can be guided by the table below.

ECLIPSE PLANNING STRATEGY

DIFFERENTIATION	BRANDING	LEGACY
<p><i>What is our eclipse unique selling point</i></p> <ul style="list-style-type: none"> • What is unique about our community • What are we best known for • What is unique about our situation along the path of totality • How can we stand out amongst others along the path 	<p><i>How should we best brand and market the eclipse</i></p> <ul style="list-style-type: none"> • What is our long-term community brand • How shall we brand the eclipse • How shall we brand our eclipse events 	<p><i>What is our desired eclipse legacy</i></p> <ul style="list-style-type: none"> • What are our long term goals • How can the eclipse help meet our goals • What tourist assets can we develop for the long term • How can we use the eclipse to increase community engagement

Your overall strategy should include multiple levels of engagement—including locals, visitors, the media, and other stakeholders.

COMMUNICATION STRATEGY

Every community within the path of totality should have an official eclipse website and social media page, which serves as the central source of information for the community and tourists. A "holding site" with a timer countdown can be set up years in advance, and information can be added over time, including advice on the local circumstances, accommodation options, events, eye safety and traffic information.

Eclipse planners need to be a resource and share information about the eclipse in an engaging manner. Multiple levels of engagement are required and can be done through a range of events that target stakeholders, community, visitors, and media.

The eclipse will inspire many young people to pursue a career in the sciences. However, not everyone relates if the eclipse is only promoted as a science event. People should be informed of the fully immersive experience of totality—usually resulting in awe, wonder, feelings of insignificance, and feelings of connection. Those who can effectively convey the wonder of totality will be a useful resource at stakeholder and community events leading up to the eclipse.

PROACTIVE MEDIA STRATEGY

Media reporting of the eclipse is one of the greatest benefits for regions within the path of totality. Local, national, and international media will be looking to cover eclipse-related stories from a variety of angles and will be keen to know what is being planned across the path of totality.

Unfortunately, not all publicity is positive. The media seem to gravitate towards negative coverage and preoccupation with the unknowns—visitor estimates, traffic gridlock, food shortages, price gouging, and accommodation challenges. There is a danger of potentially damaging the tourism reputation of the region and disengaging the local community if a proactive strategy is not used.

Having a media communications plan will allow some control over the media narrative. It can be useful to prepare eclipse-related media packs about your community. Additional promotional materials can be added, such as tourist offerings, unique things to do, new developments, community events, weather information, interesting people in the region—these all allow for interesting story angles to be taken.

Interviews should answer the most common questions—*what is an eclipse, why should you get into the path, what is it like to experience totality, how many people are expected, what's on offer, what are the local times, what will the weather be like, how has this impacted the region, what options are there for people to book.* If your region is generating a lot of interest, you should arrange a media panel of planners and eclipse experts the day before the eclipse to maximize media exposure while efficiently managing the time required for interviews.

Cease all media interviews 30 minutes prior to totality so you can fully enjoy the experience.

You can effectively leverage years of free publicity for your community by planning early.

SKELETON TIMELINE FOR PLANNING

As a rough guide, the following is a suggested timeline of key tasks and when they should be considered. This is not prescriptive, and each region will have different requirements. If you are starting late, then do your best to catch up quickly.

THREE YEARS OUT

- Eclipse strategy planning day held with all key stakeholders, to develop strategy
- Commence regular meetings with the eclipse task force to work on strategy implementation
- Eclipse on the agenda for all key stakeholder meetings
- Region-wide infrastructure and capacity problems identified and working toward solutions
- Eclipse webpage, with links from all tourism sites, point to this page
- Media story about countdown to the eclipse
- Community eclipse social media sites started.

TWO YEARS OUT

- Identification of eclipse coordinator for contact point
- Tourism industry briefings and workshops for leveraging opportunity
- Strategy for managing accommodation bookings
- Strategy for media, including stories about countdown to the eclipse
- Community engagement regarding boosting accommodation supply
- In-depth logistic planning involving first responders (police, fire, Emergency Management Teams), road and transport departments
- Securing resources such as portable toilets and shade for outdoor events.

ONE YEAR OUT

- Media countdown to eclipse, more detailed plans shared, and region promotion
- Approach solar filter manufacturers to discuss and order solar filters
- Detailed planning of eclipse events
- Media countdown for eclipse, with more detailed plans and region promotion
- Development of regular media stories
- Stakeholder and community engagement program of activities commenced
- In-depth logistic planning ongoing.



A countdown timer should be on public display in the final year to count down the days to totality.

BOLDLY GO WHERE NO ONE HAS GONE BEFORE

The eclipse will likely be an unprecedented event for your region. You should think creatively and "outside the box" with regards to planning, events, and solutions to overcome any obstacles.



© 2017 Kieron Circuit

Estimating crowds

One of the biggest unknowns is how many people will travel into the path of totality on eclipse day. Crowd size is difficult to predict, and every location along the path will have their own unique circumstances that may draw or deter crowds.

Population statistics can be used to make predictions about potential crowds, however population alone does not predict behaviour.

Those who plan in advance are likely to use climate statistics to determine their viewing location, whereas most people are likely to rely on proximity to the path if unable to book in advance. Travel into the path tends to be naturally staggered, however travel OUT of the path after totality can create immense congestion. Traffic management plans need to be coordinated at the state level well in advance.

It may be useful to consider capacity for your community and events, to have arrangements to manage overcapacity, and to ensure non-essential travel is avoided around eclipse time. Many locals will consider viewing from their homes or arrange street parties—this should be especially encouraged in high population areas.

Plan your events

In the years leading up to the eclipse, a range of events should be offered that inform, engage and entertain. Locals are your greatest asset, and if informed will strongly promote your community to their family and friends. Businesses will promote the eclipse across their networks. Community engagement is a powerful marketing tool.

Most communities offer an eclipse festival over several days with multiple events. A number of viewing locations should be arranged, with the main public viewing event being the focal point of festivities.

Communication about your events can be through simple handouts, web posts, newspaper articles, informal information sessions, town hall meetings, public lectures, and social media. Regular radio interviews are engaging for the community.

Additional activities can be arranged through other experts, such as citizen science projects, astronomy awareness sessions, and science outreach. Creativity in engagement activities is encouraged, and unique local characteristics can be leveraged for maximum benefit.

Aim high—use this unique opportunity for your community to shine.

What about the weather?

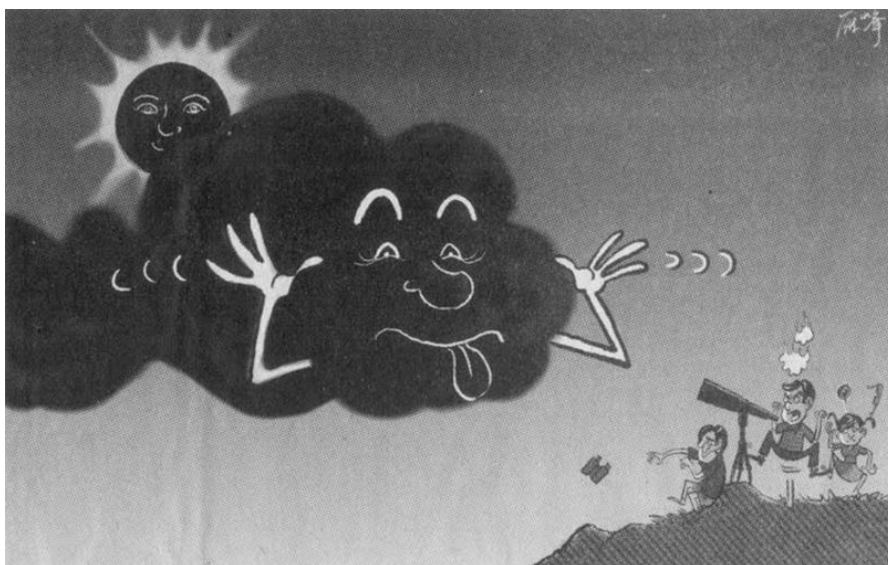
The weather on eclipse day is of utmost importance. The eclipse will happen regardless, but if it is cloudy then the main feature of totality—the Sun’s corona—will not be visible.

A cloudy eclipse does not provide any of the awe that seeing totality does, though it can still be quite an eerie experience and provide memorable moments.

Climate statistics can be used to determine the desirability of your location for the eclipse. Poor weather prospects may limit visitors in some locations, whereas good weather prospects will massively increase the appeal of other locations. However, climate statistics do not predict weather on the day. There are many examples where areas that “should have been” clear had unexpected clouds blocking the show.

The local population is most likely to remain in place regardless of weather. However, eclipse chasers are likely to abandon their plans and relocate to avoid challenging weather on the day.

Organizers should be aware that people may uproot themselves to travel to—or from—your location in the event of a cloudy forecast on eclipse day.



Despite selecting a promising viewing location, many were left frustrated after a cloud hampered viewing of the longest totality of the century in China 2009. (Credit: Liu Yanfeng “China Daily” July 23, 2009)

Funding

Funding can be used to support the following:

- a dedicated eclipse coordinator and any additional staffing that may be required
- strategy and planning guidance
- investment in event infrastructure such as venues, signage, portapotties, mobile phone towers, seating, and shade facilities to facilitate key eclipse events
- additional staffing and resources during all events
- pre-eclipse events that aim to increase community and stakeholder awareness and engagement, such as public lectures, stakeholder workshops
- marketing such as printed materials, promotional videos, and attendance at industry events
- the purchase of safe eclipse-viewing glasses to ensure adequate supply within the community
- extra public works to improve visual appeal for visitors.

Eclipse merchandise

Branded solar filters and T-shirts can be sponsored by local businesses as a unique marketing opportunity. Pre-sales can raise funds and awareness for eclipse promotion activities.

Locals and visitors are very interested in purchasing eclipse-related merchandise as a memory of the experience, and local businesses should be proactive and creative about unique offerings.

Local newspapers will be in high demand during eclipse week, and souvenir editions make an excellent keepsake while also promoting your region.

People come from all over the world to get into the path of totality. Help them make it memorable for all the right reasons.

RESOURCES



Authoritative science information – Fred Espenak, a.k.a. “Mr. Eclipse” is the leading expert in the science of eclipse prediction, now retired from NASA’s Goddard Space Flight Center. His main site, and linked sites, include a range of science information and beautiful eclipse photography. mreclipse.com.

Interactive Google maps featuring detailed eclipse information for any location – Xavier Jubier, an eclipse enthusiast and IT specialist, hosts the essential Interactive Google Eclipse Maps site, which is a key resource for eclipse chasing and planning. He also is the creator of the Eclipse Maestro automated software for eclipse photography. http://xjubier.free.fr/en/site_pages/SolarEclipsesGoogleMaps.html

Personalized information for your community - Dan McGlaun has collated a range of resources for community eclipse planners in the US, Mexico, and Canada at eclipse2024.org, which is based upon a similar page used in 2017. Every town within the path has its own site, which includes detailed unique eclipse circumstances. Make sure to also look at the eclipse simulator, which gives an insight into what totality will look like from each location. Another US site with collated information and a place to record community plans is <https://nationaleclipse.com/events.html>.

Detailed maps of the path of totality - Michael Zeiler, a geographer employed by Esri, the leading provider of geographic information systems (GIS) software, runs greatamericaneclipse.com which features a beautiful range of eclipse maps and merchandise, with a special focus on US eclipses.

Climate statistics along the path of totality – Jay Anderson, a retired meteorologist and eclipse veteran, provides a detailed analysis of climate for every total eclipse at eclipsophile.com. He relates this to specific regions along each path, visiting locations along the path of totality several years in advance.

Solar viewer manufacturers – Solar filters should be ordered in bulk direct from manufacturers of products compliant with the ISO 12312-2 standard. Californian-based Rainbow Symphony provides great support for eclipse planners - see rainbowsymphony.com. Ordering from online agents or through general internet searches is discouraged to avoid counterfeit products of an inferior standard. A list of approved solar viewer manufactures can be found at eclipse.aas.org.

Information about the experience of totality - You will need to convey to your stakeholders, community, and visitors what it is like to experience totality, so they understand the significance and importance of the event. *Being in the Shadow: The First-Time Total Solar Eclipse Experience* was written with community eclipse planners in mind, to help describe what it is like. Available as a digital download and to order at beingintheshadow.com. Bulk orders are available for communities.



USEFUL ORGANISATIONS

American Astronomical Society (AAS) Solar Eclipse Task Force - The Solar Eclipse Task Force plays an advisory role for eclipse guidance across the US, with working groups on eye safety, web & social media, local planning, national planning, formal education, informal education and public engagement, and media relations.

Eclipse planning workshops are run periodically and provide information and opportunities to network with others. Recordings are available on the website at eclipse.aas.org.

Although US-centric, information and links are relevant to communities within the path in any location around the world. It is worth fully exploring the website and links to many other resources and websites.

The International Astronomical Union's Working Group on Solar Eclipses - This group is chaired by Jay Pasachoff, Professor of Astronomy and eclipse veteran, and aims to provide information to the general public and to support professional astronomers with their eclipse expeditions and research. The site <https://sites.williams.edu/iau-eclipses> has extensive links with excellent resources.



Totality 2017 in the Southern Illinois University football stadium at in Carbondale, Illinois, © 2017 Brian Snyder/Reuters.

04

CONCLUSION



Waiting for totality 2015. (c) Instagram

Teens embracing safe solar viewing in 2015. © 2015 Instagram.

FINAL THOUGHTS

Preparing your community for a total solar eclipse is challenging but also immensely rewarding.

Eclipse chasers travel the world to get into the path of totality to experience the Moon's shadow.

Soon, the path of totality is coming to you.

Your community will be hosting a celebration of the perfect alignment between the Sun, Moon, and Earth. Open up to the world and invite others to share this once-in-a-lifetime community celebration.

This day will be remembered for a lifetime.

Now it's up to you!



Eclipse Reenactment at the Australian Eclipse Festival. © 2012 Bill La.

*Assemble your team
Develop your strategy
Boldly go where no one has gone before.*

ABOUT THE AUTHOR

Kate is an Australian author, psychologist, and eclipse chaser, who has been chasing total solar eclipses for over two decades. In 2019 she experienced her 12th total solar eclipse, and is impatiently waiting to resume her chasing for totality 2023 in Australia.

A clinical psychologist by profession, Kate has extensive clinical, academic, research, teaching, workshop facilitation and presentation experience. She uses her unique skill-set and extensive experience to advise on evidence-based eclipse planning, and to understand the lived experience of totality.

Kate first became interested in community eclipse planning in 2012, when the path of totality occurred near her home region of North Queensland, Australia. Seeing first hand the lack of engagement on the ground showed her the importance of putting the community at the heart planning efforts.

She then went on to guide eclipse planning for the Faroe Islands in 2015, and supported many communities across the US preparing for the 2017 "Great American Eclipse" through her White Paper, consultations, and in-community visits.

Kate has extensively researched and refined the process of helping communities find their unique "angle" which then informs the eclipse strategy, brand development, and media engagement for maximum return on investment.



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Kate is a core member of the American Astronomical Society Solar Eclipse Task Force, and advises on local and state eclipse planning groups. She leads eclipse tours, and is featured extensively in the media. She is in-demand as a speaker internationally, delighting audiences with her relatable and down-to-earth manner.

After living in Northern Ireland for over 20 years, Kate has returned to North Queensland, Australia. Her mission is to share the wonder of totality—an awesome experience that is not just for bearded men with telescopes.

Need help to tailor this evidence-based guidance to your community?

Kate offers the following:

- *A one hour Zoom consultation to talk you through your unique positioning and guidance to get you started*
- *A detailed eclipse strategy report for your community with clear recommendations*
- *Tailored online presentations*
- *In-community visits for community engagement, stakeholder planning, and media opportunities*
- *Interactive Zoom master-classes on key topics for eclipse planners. Max 6 participants per class.*

A GUIDE FOR COMMUNITIES IN THE PATH OF TOTALITY