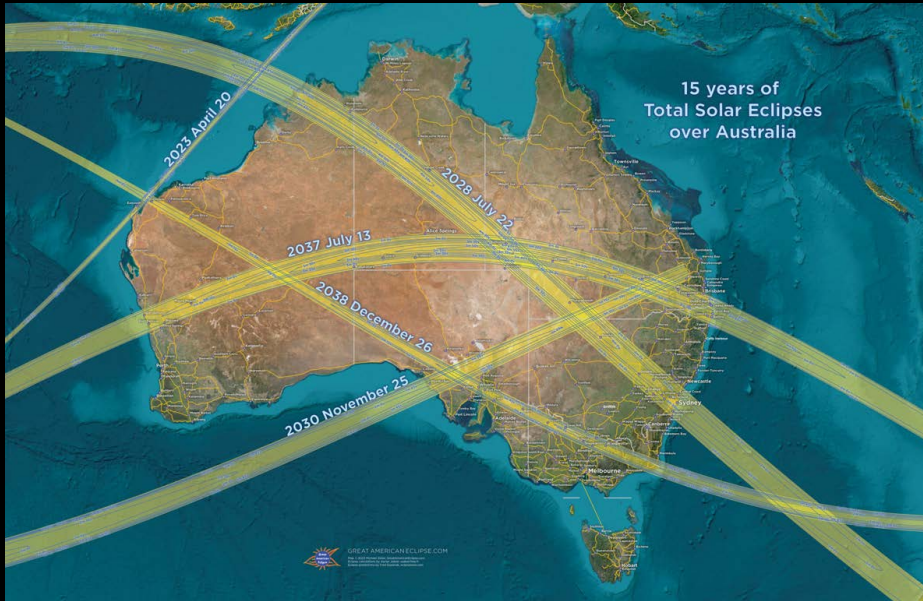


SHINING A LIGHT ON AUSTRALIA:



FIVE TSE's in 15
years and early
planning

Dr. Kate Russo, Founder, Being in the Shadow

AAS SETF Eclipse Planning Workshop, San Antonio TX, Sep 29-30, 2023

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About the AAS Solar Eclipse Task Force

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In 2014 the American Astronomical Society (AAS) – the major organization of professional astronomers in North America – created the AAS Solar Eclipse Task Force (SETF) to help coordinate national preparations for the “Great American Eclipse” of August 21, 2017. The task force, meant to function as a think tank, coordinating body, and communication gateway/hub, was composed of professional and amateur astronomers, formal and informal educators, eclipse chasers, science writers, and outreach specialists.

With funding from the National Science Foundation (NSF), NASA, and the AAS, the SETF carried out three main activities: (1) built this website with basic information about solar eclipses, safe viewing practices, and eclipse imaging and video, along with resources for educators and the media; (2) managed a mini-grants program to support eclipse-related education and public outreach to underrepresented groups; and (3) organized a series of multidisciplinary workshops to prepare communities for the eclipse and to facilitate collaboration between astronomers, meteorologists, school administrators, and transportation and emergency-management professionals. The safety advice we developed in collaboration with eye doctors was widely endorsed, and our efforts to keep the public safe during the eclipse were successful.

Two more major solar eclipses are coming to North America. On October 14, 2023, an annular (“ring”) eclipse sweeps from Oregon to Texas and then on to Central and South America. Just six months later, on April 8, 2024, a total solar eclipse darkens a swath across Mexico, from Texas to Maine, and then on to the Canadian Maritimes. In both cases virtually all of North America will have at least a partial solar eclipse.

Charter

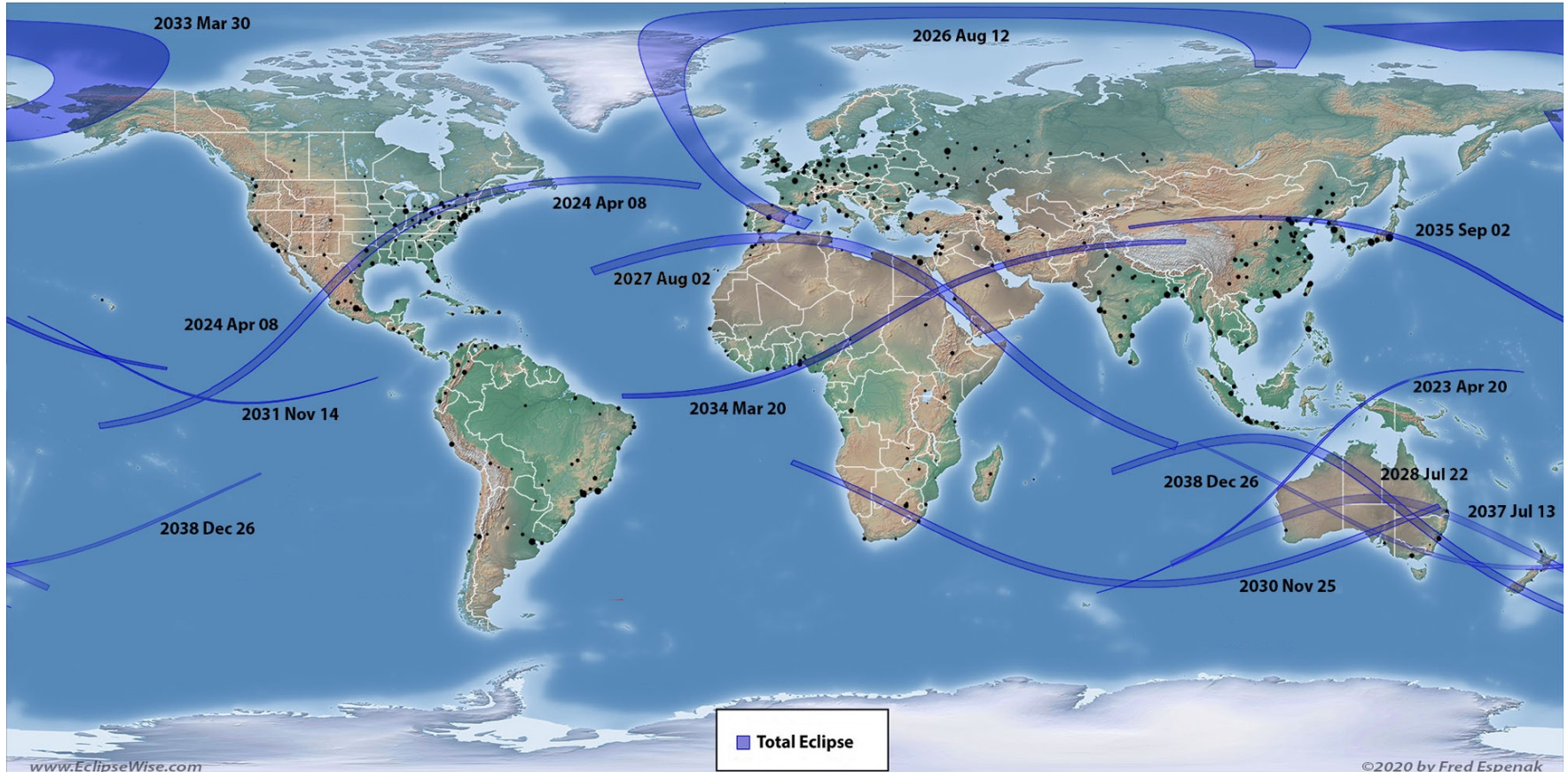
The charter of the AAS Solar Eclipse Task Force has been renewed through 2024 to help prepare citizens of, and visitors to, the U.S., Canada, and Mexico to safely experience and enjoy the upcoming solar eclipses. Its responsibilities include (but are not limited to) the following:

• Identify and link up appropriate astronomy and eclipse-related organizations, groups, and individuals, and coordinate their efforts to maximize outreach

Task Force Members

- Bob Baer (Southern Illinois University, Carbondale)
- Michael Bakich (*Astronomy*, retired)
- Kelly Clark (AAS Chief Financial & Operating Officer)
- Kristen Erickson (NASA Headquarters)
- Rick Fienberg (AAS Senior Advisor to the Executive Officer), *Project Manager*
- Andrew Fraknoi (Univ. of San Francisco & San Francisco State Univ.)
- Pamela Gay (Planetary Science Institute)
- Diana Hannikainen (*Sky & Telescope*)
- Michael Kirk (NASA Goddard Space Flight Center)
- Kelly Korreck (NASA Headquarters)
- Mario Motta (American Medical Association)
- Michelle Nichols (Adler Planetarium)
- Tyler Nordgren Space Art Travel Bureau)
- Laura Peticolas (Sonoma State University)
- Laurel Radow (U.S. Dept. of Transportation, retired)
- Shannon Reed (NASA Goddard Space Flight Center)
- Debra Ross (KidsOutAndAbout.com), *Co-Chair*
- Kate Russo (BeingInTheShadow.com)
- Dennis Schatz (Institute for Learning Innovation & National Science Teaching Association)
- Angela Speck (University of Texas, San Antonio), *Co-Chair*
- Trae Winter (Advanced Research In STEAM Accessibility [ARISA] Lab)
- Michael Zeiler (GreatAmericanEclipse.com)

Total Solar Eclipses 2023 - 2038



www.EclipseWise.com

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DR KATE RUSSO
AUTHOR • PSYCHOLOGIST • ECLIPSE CHASER
kate@beingintheshadow.com
www.beingintheshadow.com

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IN THE SHADOW

DON'T LEAVE ME!

“It takes a village....

And WE are the village people.”

RICK FEINBERG, PROJECT MANAGER, AAS SOLAR ECLIPSE TASK FORCE



PARTNERSHIPS



Queensland, Australia

Griffith Institute for Tourism

Australia's Number 1 Tourism Research University

Griffith University is Australia's leading tourism university and is ranked No.1 in Australia and No.3 in the world in the most recent Shanghai Ranking's Global Ranking of Academic Subjects. It is one of only two universities in Australia to receive an ERA 5, indicating tourism research at Griffith University is well above world standards.

Griffith Institute for Tourism (GIFT) is Australia's largest tourism research institute with over 50 academic members, 11 adjunct members and over 60 PhD candidates from tourism and tourism-related disciplines, such as technology, economics, architecture, planning and environmental sciences.



Griffith University Olympic and Paralympic Experts

Griffith has a range of sport, Olympic and Paralympic Games experts

The Brisbane 2032 Games provide a once-in-a-lifetime platform to amplify, accelerate and transform the region's future on a global stage and an opportunity to highlight the incredible work being done at Griffith.

Griffith played a key role as a [partner in the Gold Coast 2018 Commonwealth Games](#) and will use those mega-event learnings and experiences, among others, to help plan for the future opportunities Brisbane 2032 represents.

Countdown to Brisbane 2032

Our Research Clusters



Climate Change
Action



Events and
Sport
Management



The Future of
Aviation



Resilient and
Sustainable
Tourism
Regions &
Businesses



The Visitor
Economy Data
Analytics and
Indicators



Specialist
Research Areas

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'Experience totality—above you, around you, within you'



15 years of Total Solar Eclipses over Australia

2023 April 20

2028 July 22

2037 July 13

2038 December 26

2030 November 25



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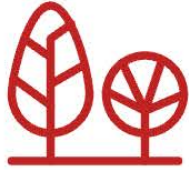
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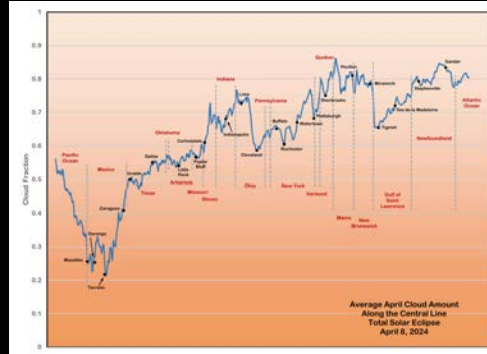
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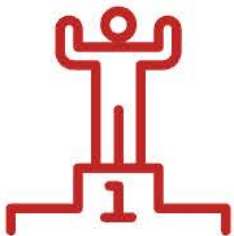


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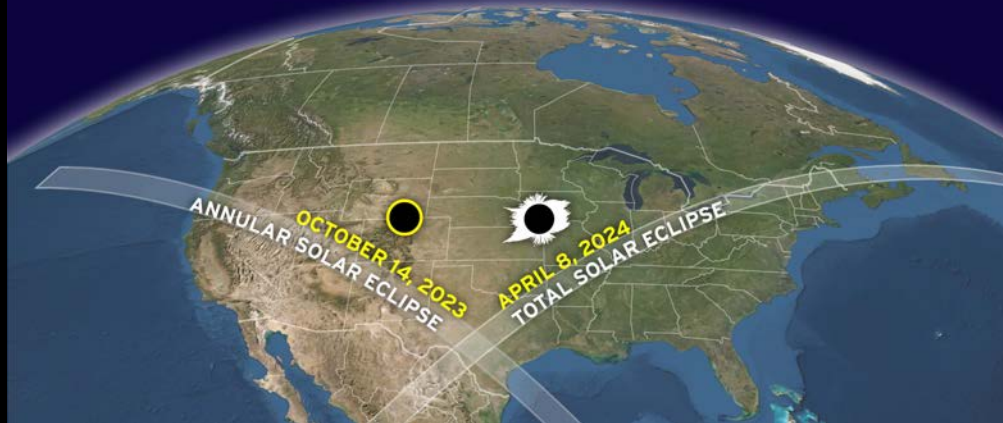
Climate Change Action





Events and Sport Management

Within a span of under 6 months, an annular eclipse and total eclipse will criss-cross North America with Texas being the bullseye for both solar eclipses



SOLAR ECLIPSE ACROSS AMERICA
Monday, April 8, 2024: Sun ... Moon ... You!



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With funding from the National Science Foundation (NSF), NASA, and the AAS, the SETF carried out three main activities: (1) built this website with basic information about solar eclipses, safe viewing practices, and eclipse imaging and video, along with resources for educators and the media; (2) managed a mini-

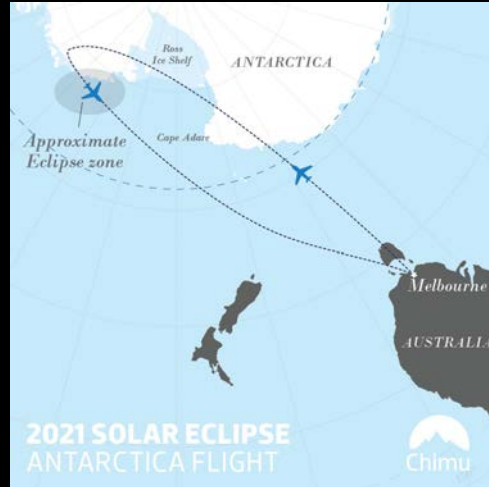
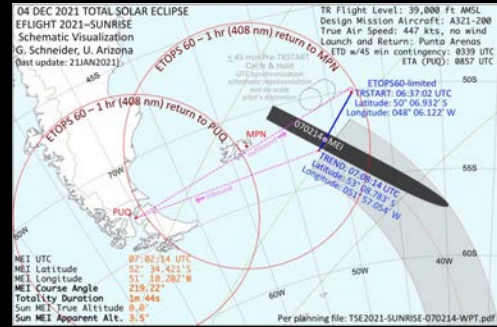


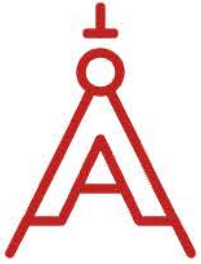
‘Experience totality—above you, around you, within you’





The Future of Aviation





Resilient and Sustainable Tourism Regions & Businesses

EXMOUTH CHAMBER OF COMMERCE

ZOOM SERIES: LEVERAGING THE ECLIPSE FOR SUSTAINABLE TOURISM DEVELOPMENT

ZOOM SESSIONS
26 August 2022
1 September 2022
5 September 2022
Dr. Kate Russo, Founder

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FREE WORKSHOP

WHAT TO EXPECT & HOW TO PREPARE YOUR BUSINESS

ONLINE ZOOM WORKSHOP
10:00am to 11:00am

WEDNESDAY 6 July, 2022

VIA ZOOM
OR AT THE
Exmouth Business Hub,
22 Maidstone Cres

BEING IN THE SHADOW



BUILDING SUSTAINABLE TOURISM EVENTS AROUND ECLIPSES

28 Sept 2022
Dark Skies & Natural Phenomena Workshop
Dr. Kate Russo, Founder

BEING IN THE SHADOW



PROPOSED ECLIPSE STRATEGY
for the 2023 Total Solar Eclipse

SHIRE OF ASHBURTON
DECEMBER 2021



SHIRE OF ASHBURTON
JUNE 2022

SUMMARY REPORT
APRIL 2022
LAUNCH VISIT

BEING IN THE SHADOW



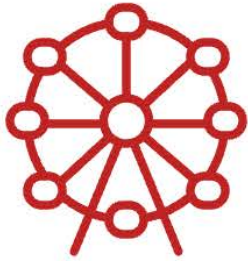
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'Experience totality—above you, around you, within you'

BEING IN THE SHADOW





Specialist Research Areas



Science

Technology allows visually impaired, blind to experience solar eclipse



FLOURISHING: Individual vs collective



INTERPRETATIVE PHENOMENOLOGICAL ANALYSIS (IPA)

HOW YOU CAN HELP

- Evaluate the impact on your community
- Write an outcome report and share it
- Consider involvement, sharing expertise etc
- Consider supporting building the authority
- Consider support for future AAS-like events in Australia

Our Research Clusters



Climate Change
Action



Events and
Sport
Management



The Future of
Aviation



Resilient and
Sustainable
Tourism
Regions &
Businesses

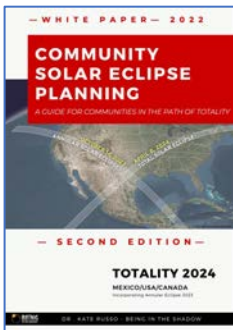


The Visitor
Economy Data
Analytics and
Indicators



Specialist
Research Areas

RESOURCES



PROJECT AWE: Capturing the Experience of Totality

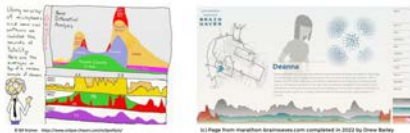
Dr. Kate Russo, Founder - Being in the Shadow
 Andrew W. Bailey, Ph.D., Professor of Health & Human Performance, University of Tennessee at Chattanooga
katebeingintheshadow.com



Background

- The Total Solar Eclipse (TSE) is considered to be one of the most awe-inspiring and immersive natural events.
- Phenomenological research on the experience of totality has indicated the range of intense emotions experienced within a short period of time - Sense of wrongness, Primal fear, Awe, Connectedness, Euphoria, Desire to repeat (Russo, 2012).
- The central component of the totality experience is awe.
- Laboratory research using fMRI technology has shown distinct changes in brain activity when people are shown awe-inspiring images.
- Technology now exists to capture brainwave activity in the field using EEG headsets.

Below (left) is a comedic depiction of what we experience during totality, drawn by eclipse chaser Bill Kramer over a decade ago. The tech now exists to show what eclipse chasers will experience, just as Bill predicted. Below (right) is the webpage of a similarly designed study with marathon runners by the co-investigator.



We know that the **Annular Solar Eclipse (ASE)** does not elicit awe and personal transformation like the TSE. However, the ASE gives us an opportunity to test the research protocol and refine processes for Project AWE in 2024. **Uniquely, for the ASE in October, we have opted to share the data capture during this pilot LIVE!**

Project AWE - the Pilot (October ASE)

- Five participants will be purposively selected to wear the EEG headsets and EKG chest strap to record sensory data as they observe the whole ASE, with the focus on annularity lasting a min 55 seconds on location at the Solar Eclipse Village in Garner State Park.
- Brief questionnaires will also be used, to determine the least-intrusive and most efficient measures.
- Three of these participants will have their recordings transmitted to the project website, with a 7-second delay that may be impacted by poor phone reception.
- The project website will be shared on the Moonshower Marquee main screen, with a live interview with social com occurring soon after annularity to discuss the project.
- The protocol will be refined to minimize issues for PROJECT AWE in 2024.

AUSTRALIA'S ECLIPSE QUINTET: 2023-2038

Experience totality—above you, around you, within you!
 —Dr. Kate Russo, Founder, Being in the Shadow

20 Apr 2023, Northwest Cape, Indian Pilbara Islands, WA, Mac Islns WA
 With both critical land regions, including the Ningaloo Eclipse, will concentrate in the North West Cape area of Earth'sk. Viewing options include the stunning World Heritage listed Ningaloo coastline and Cape Range National Park in Western Australia (WA). Those wanting to escape the crowds are likely to head further north to Onslow and across the path of totality by land. The iconic Australian totality experience is likely to be seen from a beach location.

22 Jul 2028, Durack, WA, Tennant Creek, NT, Thargomindah, QLD, Sydney, NSW, Mac Islns WA
 This one is definitely not to be missed with such a long duration of totality. By far the longest (duration of awe-inspiring totality) will be the 3.3 million light hours across which just have to look out. Eclipse chasers are likely to focus on the areas going maximum during totality with the best weather prospects on the Kimberly region of WA, Northern Territory (NT) and the Queensland (QLD) outback. The iconic Australian totality experience is likely to be had the Eyreback Highway, although the Kariakabu (Kariakabu) (NT) will provide the iconic outback setting, along with the Bungarie Border in WA. Totality in Christmas and Coles Islands will provide a special contrast.

25 Nov 2030, Stravely Bay, SA, Parkadeville, NSW, Minn, QLD, Mac Islns WA
 With no major cities in the path, people will be travelling to the stunning Eye Peninsula of South Australia (SA) to greet the Moon's shadow. Those searching for clean seas will head into the outback in SA, New South Wales (NSW), and QLD. The iconic Australian totality experience is likely to be had on the coast or in the outback.

13 Jul 2037, Geraldton, WA, Uluru, NT, Gold Coast, QLD, Byron Bay, NSW, Mac Islns WA
 The path of totality for this eclipse passes elegantly across the entire Australian continent from west to east. Colourful Corralton will be the premier location to first welcome the Moon's shadow. The outback areas of SA, WA, and QLD will make great viewing locations, especially in QLD with the maximum duration of totality. Some may like to head to the tourist areas of Gold Coast and Byron Bay. Those seeking the iconic Australian totality experience will not doubt make a beeline to Uluru (Uluru) (NT).

26 Dec 2038, Onslow, WA, Whyalla, SA, Barham, NSW, Shepparton, VIC, Mac Islns WA
 This path of totality crosses the entire Australian continent from the Australian coast in WA in the lucky position to first welcome the Moon's shadow. To avoid the challenge of a sea-weather, viewers are likely to head to the outback in WA and SA. Those seeking the longest duration should consider the use of the path in Victoria (VIC). An iconic Australian totality experience can be had from the starting region of the path in South Australia (SA).



2028 PATH OF TOTALITY

Australia and New Zealand

Experience totality—above you, around you, within you!
 —Dr. Kate Russo, Founder, Being in the Shadow

July 22 (Saturday)

The path for this total solar eclipse commences on the Indian Ocean, passing over the island nations of Christmas and Coles Islands (located in the Kimberly, WA). The Moon's shadow then crosses the iconic Australian states of WA, QLD (likely grazing SA) and NSW before heading to New Zealand, and over the Antipodes Island Group before ending in the Tasman Sea.

Unique path features

- Everyone living and travelling into the path will see a total solar eclipse which is the most awe-inspiring event and awe-traveling far.
- The long duration of totality for this eclipse is a stand-out feature. This along with the ease of access to the path and choice of interesting locations, will make this a very appealing total solar eclipse.
- The eclipse path is a very wide maximum of 230km, which is in contrast to the 100km width of totality for the 2023 total solar eclipse from the North West Cape in WA.
- The maximum duration of totality is a long 5m 30s at the point of greatest eclipse in the Kimberly region of WA, in Australia's North-west.
- The best weather prospects along the path will be in the Timor Sea, WA, NT, and QLD (especially in NSW's east coast), but the choice of most impressive landscapes.
- In NZ, the path goes through major tourist areas such as Queensland and Durban, although the winter weather will not be ideal for an uninvited outdoor experience.
- The path goes over high population areas of NSW including Sydney, although most chasers are likely to head to the coast for an uninvited outdoor experience where clear weather is almost guaranteed.
- All of Australia, New Zealand, and most of South East Asia will see a partial solar eclipse.

AUSTRALIA'S ECLIPSE QUINTET 2023-2038

Dr. Kate Russo, Founder - Being in the Shadow; Terry Cull, Astronomical Association of Qld
www.beingintheshadow.com, www.astronomical.org.au, fb.beingintheshadow.com, fb.beingintheshadow.com

Over the coming two decades, Australia will be preparing for multiple total solar eclipses, including the years 2023, 2028, 2030, 2037, and 2038. This quintet kicks off on April 20, 2023 - just six months away.

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LEVERAGING MULTIPLE TOTAL ECLIPSE OPPORTUNITIES IN AUSTRALIA

An Eclipse & Dark Sky Strategy for the Shire of Ashburton, Western Australia
 Dr. Kate Russo, Being in the Shadow & Carl Burrell, Astronomer WA. Email: katebeingintheshadow.com

JUST OUTSIDE OF THE 2023 PATH OF TOTALITY

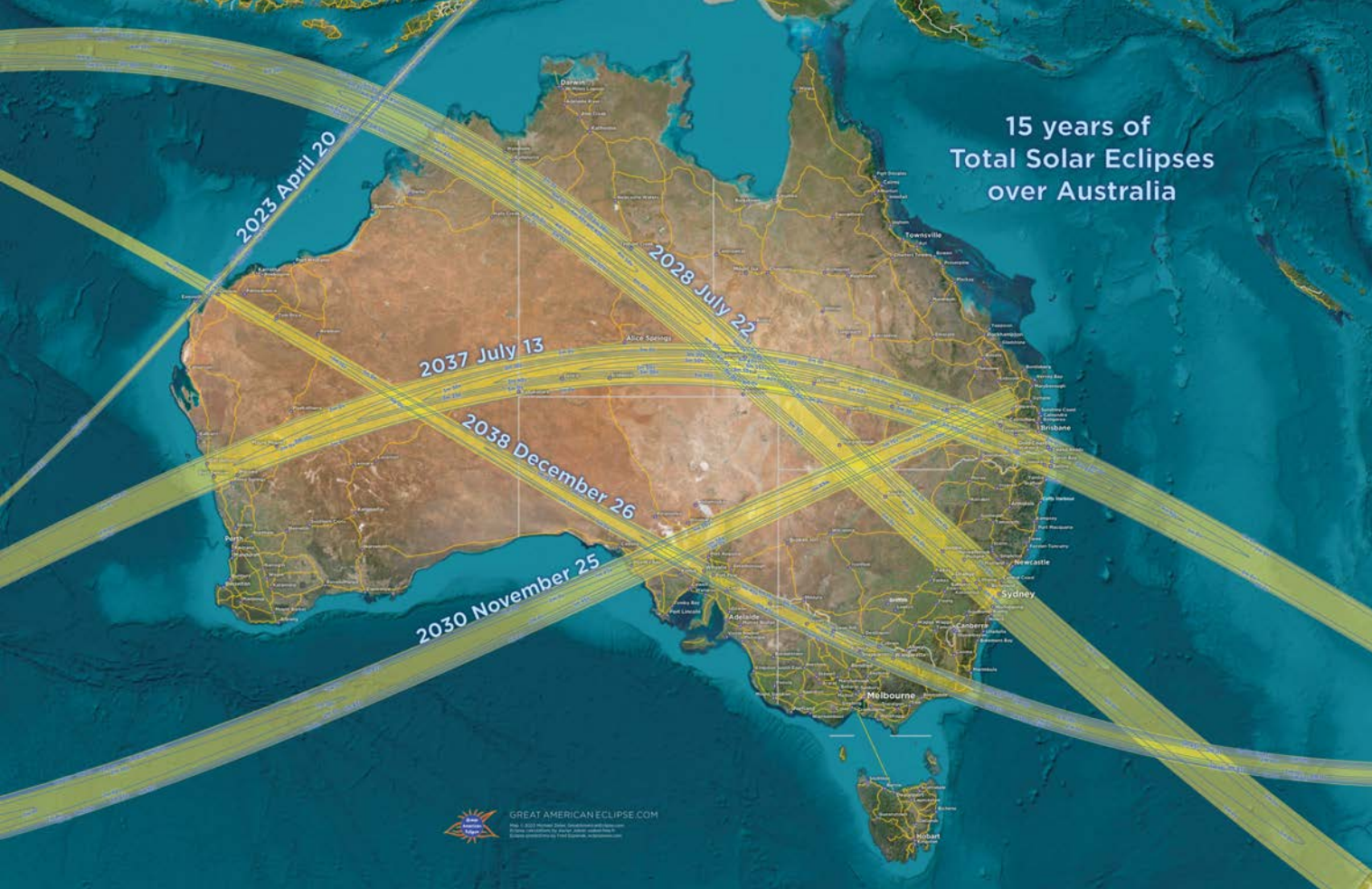
The Shire of Ashburton is a beautiful coastal town in the south-west of Western Australia. It is located just outside the path of totality for the 2023 total solar eclipse. This means that while the sun will not be completely covered, it will be significantly dimmed, and the sky will be dark enough to see stars and other celestial objects.

ASHBURTON ECLIPSE & DARK SKY (AEDS) STEERING GROUP

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FIRST STEPS: APRIL 2022 PROGRAM OF EVENTS

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15 years of
Total Solar Eclipses
over Australia

**COME
SAY
G'DAY!**

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Eclipse illustrations by Fred Espenak, www.fredesp.com