

IAU Working Group on Eclipses Annual Report
Inter-Division C-E WG Solar Eclipses — **Functional**

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https://www.iau.org/science/scientific_bodies/working_groups/93/

- Members: Jay Pasachoff (USA, Chair), Iraida Kim (Russia), Hiroki Kurokawa (Japan), Jagdev Singh (India), Vojtech Rusin (Slovakia), Yoichiro Hanaoka (Japan), Zhongquan Qu (China), Beatriz Garcia (Argentina), Patricio Rojo (Chile), Xavier Jubier (France), Fred Espenak (US), Jay Anderson (Canada), Glenn Schneider (US), Michael Gill (UK), Michael Zeiler (USA), Bill Kramer (USA); associates: Michael Kentrianakis (USA), and Ralph Chou (Canada).
- <http://eclipses.info>

Web sites: www.eclipses.info, and for specific expeditions: www.totalsolareclipse.net.

The Working Group on Solar Eclipses has as its task the coordination of solar eclipse efforts, particularly making liaisons with customs and other officials of countries through which the path of totality passes and providing educational information about the safe observation of eclipses for the wide areas of the Earth in which total or partial eclipses are visible. Two of our members, Espenak and Anderson, produce widely used Technical Publications with eclipse paths and detailed information, available as hard copies or online, linked through www.eclipses.info or via <http://EclipseWise.com>, a successor to the "NASA Eclipse Site." Gill runs the Solar Eclipse Mailing List, transferred during 2019 from Yahoo Groups to SEML@groups.io; daily summaries are available: <https://groups.io/g/SEML>. Anderson at <http://eclipsophile.com> has cloudiness statistics and other weather-related information. Chou, a professor of optometry, is the world's expert on eye safety at eclipses. Jubier produces zoomable, clickable maps customizable for each eclipse; the forthcoming few are linked at our website at <http://eclipses.info>.

Schneider is an expert on aerial eclipse flights, and has planned a flight to the sunrise point for the 4 December 2021 totality that otherwise passes only over Antarctica and nearby ocean with low cloudiness-success probability. Kramer at <http://eclipse-chasers-com> keeps a log of statistics of individual eclipse observers. Kentrianakis was the project manager for the American Astronomical Society's 2017 eclipse efforts, <http://eclipse.aas.org>; the site now has advance notice of the 2023 and 2024 eclipse visibility across the United States.

Among our successes is the distribution of material for tens of thousands of eye-protection filters. The organization Astronomers Without Borders has collected millions of slightly used "eclipse glasses" (really "partial eclipse glasses") from users at the 2017 American eclipse. As an example, jmp brought 5000 of them to Mumbai and Madurai, India, for use at the 26 December 2019 annular eclipse, with further use at the 12 June 2020 annular eclipse.

A review article on eclipses was published: Pasachoff, Jay M., 2017, "Heliophysics at Total Solar Eclipses," *Nature Astronomy* **1**, article number 0190 (August).

<https://www.nature.com/articles/s41550-017-0190> <http://rdcu.be/uEuz>.

See also: Pasachoff, Jay M., 2018, "Science at the Great American Eclipse," *Astronomy & Geophysics (A&G)*, 59 (August), 4.1-4.5. See further: Pasachoff, Jay M., 2018, "Education and Outreach about Science at the 2017 Eclipse," in *The 2017 Total Solar Eclipse*, Astronomical Society of the Pacific Conference Series, Sanlyn Buxner, Linda Shore, and Joe Jensen, eds. Also relevant is Scott W. McIntosh, Michael Thompson, Chris G. Tzanis, eds., *Frontiers in Astronomy and Space Sciences: The Great American Eclipse of August 21, 2017 - Connecting Solar and Terrestrial Science*, *Frontiers in Astronomy and Space Sciences*. 5:37. doi: 10.3389/fspas.2018.00037.

The year 2019 saw a partial solar eclipse in Asia on 5 January 2019 and a total solar eclipse across the Pacific and South American (Chile and Argentina) on 2 July 2019, with widespread partial-eclipse visibility across South America. Garcia from Argentina and Rojo from Chile were added to the IAU Working Group on Solar Eclipses to represent their countries. The year ended with an annular solar eclipse that crossed Saudi Arabia, Oman, South India, north Sri Lanka, Singapore, Malaysia, and Indonesia:

http://xjubier.free.fr/en/site_pages/solar_eclipses/xSE_GoogleMap3.php?Ecl=+20191226&Acc=2&Umb=1&Lmt=1&Mag=1&Max=1&Map=ROADMAP

with the following annular eclipse at

http://xjubier.free.fr/en/site_pages/solar_eclipses/xSE_GoogleMap3.php?Ecl=+20201214&Acc=2&Umb=1&Lmt=1&Mag=1&Max=1&Map=ROADMAP

including Oman, Pakistan, north India, and China

At the time of the 2019 eclipse, Alexander Kosonovich was in charge of IAU Symposium 354; the proceedings are in press, including Pasachoff, Jay M., Christian A. Lockwood, John L. Inoue, Erin N. Meadors, Aristeidis Voulgaris, David Sliski, Alan Sliski, Kevin P. Reardon, Daniel B. Seaton, Ronald M. Caplan, Cooper Downs, Jon A. Linker, Glenn Schneider, Patricio Rojo, and Alphonse C. Sterling, 2020, "Early Results from the Solar-Minimum 2019 Total Solar Eclipse," for IAU Symposium 354, *Solar and Stellar Magnetic Fields: Origins and Manifestations*, Copiapo, Chile, July 2019.

At the time of the 2020 total solar eclipse, Garcia is running IAU Symposium 367, <http://sion.frm.utn.edu.ar/iaus367/>, Education and Heritage in the Era of Big Data in Astronomy: The first steps on the IAU 2020-2030 Strategic Plan, 9-14 December 2020, San Carlos de Bariloche, Argentina, which will include a trip to totality at the end of the meeting.