

# Sun-Earth Day Highlights (06-20-08)

## Eclipse 2008: China

### Interview with Fred Espenak on Eclipse Photography

[Troy Cline]

"A few seconds before the sun was all hid, there discovered itself round the moon a luminous ring about a digit, or perhaps a tenth part of the moon's diameter, in breadth. It was of a pale whiteness, or rather pearl-colour, seeming to me a little tinged with the colors of the iris, and to be concentric with the moon."

*Refers to a total solar eclipse of 3 May 1715.*

*From: Edmund Halley.*

*Quoted in Popular Astronomy by Newcomb, and in [UK Solar Eclipses from Year 1](#) by Williams.*

*[Click here for Fred Espenak's map of this eclipse.](#)*

This quote refers to a total solar eclipse that occurred on May 3, 1715 by Edmund Halley.

My name is Troy Cline and welcome to another Sun-Earth Day Highlights podcast. As many of you have heard, there will be a total solar eclipse on August 1, 2008 visible from within a narrow corridor that will traverse half the Earth. The path of the Moon's umbral shadow will actually begin in Canada and extend across northern Greenland, the Arctic, central Russia, Mongolia, and China. The Sun-Earth Day team plans to bring that event to you doing a live webcast from China. You can find information on that webcast on the Sun-Earth Day home page.

In today's podcast we'll continued our talk with 'eclipse expert', Fred Espenak, who over the years has been able to safely photograph many of these breathtaking moments. So how does he do it?

**[Fred Espenak]**

Well, it's been a long process of learning how to take photographs of an Eclipse. The biggest problem with trying to photograph an eclipse, trying to capture the corona and make it resemble something the eye sees, is really a limitation in the photographic process. A photograph can only capture a very narrow slice of brightness in an object. Our eyes are much more powerful than that. We can see things in almost pitch black night up to bright sunlight. We can see that whole gamut with our eyes. A photograph can only capture a narrow slice in the whole spectrum of brightness. So when you normally take an individual photograph of an eclipse, you're only capturing one side of it: the inner part of the corona, the middle part of the corona, or the outer part of the corona. So what I've done, and others have done, is to take a whole series of photographs at different exposures to capture these various sections of the corona and then process them in the old

fashion way in a dark room by combining all of the negatives. These days we scan the negatives or shoot digitally. Take that whole sequence of exposures and combine them in a computer, composite them together to give the entire view of the sun from the brightest to the faintest parts.

**[Troy Cline]**

With that in mind, I asked Fred to tell us where we can find more information about upcoming eclipses?

**[Fred Espenak]**

For upcoming eclipses, I author a series of NASA bulletins called "Eclipse Bulletins". These are usually available one to two years ahead of time for each major total solar eclipse. These solar eclipse bulletins are available from my web site. They are available at no charge. People can just send me a self addressed stamped envelope and I'll mail them a copy of these bulletins. They are typically about 70 or 80 pages long and have a lot of maps and tables and details about each particular eclipse. So that's a good place to get detailed calculations about each upcoming eclipse.

**[Troy Cline]**

So how did the Mr. Eclipse website come about?

**[Fred Espenak]**

Originally I started the NASA web site here at Goddard, with eclipse predictions. And I would sort of pepper that web site with some of my photographs. Well at a certain point I was told I couldn't put private or personal photographs on a government web site. So I decided to start a new web site that was strictly devoted to my eclipse photography. And that's how the Mr. Eclipse web site came to be.

In upcoming podcasts we'll ask Fred about his amazing career at NASA and the influences that lead to a life in astronomy. Lou Mayo will fill us in on the latest Sun-Earth Day supported eclipse activity for Amateur Astronomers. We'll also hear from the chief editor of Sun-Earth Day's Technology Through Time series, Sten Odenwald, about the latest eclipse additions.

I hope you enjoyed this Sun-Earth Day Highlights podcast. We are very interested in hearing your questions and comments. If you have something to say, just send an email to [sunearthday@gmail.com](mailto:sunearthday@gmail.com) . If selected we'll share it on one of our upcoming podcasts!

For all other details about the Sun-Earth Day program including information about our past SED themes be sure to visit our website at [sunearthday.nasa.gov](http://sunearthday.nasa.gov).

Don't forget that you can learn more about NASA by simply visiting [www.nasa.gov](http://www.nasa.gov) .