

An eclipse is coming. Are you ready?

On April 8th, the moon will temporarily block the sun for up to 4.5 minutes in certain parts of the United States. This rare event won't happen again in the contiguous US until 2044.

We had an "annular" eclipse in October but this event is different.



Unlike the annular eclipse, the upcoming event will allow you to remove your eclipse glasses, but only if you follow my instructions.

See below for a map of the eclipse. [You can download a higher quality version here.](#)

The eclipse is actually partially visible across the entire country, but the center "dark" line is the only place where "totality" is experienced. This is where you want to be.



The difference between 99% and 100% eclipsed is quite literally night and day, as even 1% of the sun's light is too bright to safely observe without special glasses. In fact, that's why they're so dangerous. When the sun's output is diminished, it removes the pain response our eyes give us when looking at bright lights, but you're still exposing your retinas to an unsafe amount of UV rays.

The ONLY safe way to observe the sun is through properly filtered equipment, like eclipse glasses. [Here's more information about how to](#)

[safely observe and photograph the uneclipsed sun](#). The reason it is safe during totality, is because the sun's photosphere is completely blocked by the moon, leaving just some outer chromosphere elements and the corona.

The closer to the center of that line you are, the longer you experience "totality". Try and get in the middle.

The moment it is safe to observe the eclipse without the solar glasses, you'll know. When the sun is 99% eclipsed, the sky feels less bright, but the sun still looks like the sun. You can still see your shadow on the ground, the sky's still blue.

The moment totality hits, you're in the sun's "umbra", the dark part of the shadow. The blue sky turns to black, and the sun now looks like this:



Capturing this shot in 2017 was easy for me. I left my ancient DSLR on "auto" settings and clicked some photos. Better than a cell phone shot, but not quite as elaborate as the shot I'm planning for this year.

The challenge with eclipses is the extreme dynamic range of the scene. The sun's corona is quite bright near the sun, but is much larger than what is visible in this photo. In fact, the solar corona would have exceeded the field of view of my camera in this shot. Conversely, there are bright details around the solar limb that are completely blown out.

To capture it properly, I would need to have exposed multiple times. Minimum once for solar "prominences" (super short, think like 1/1000s),

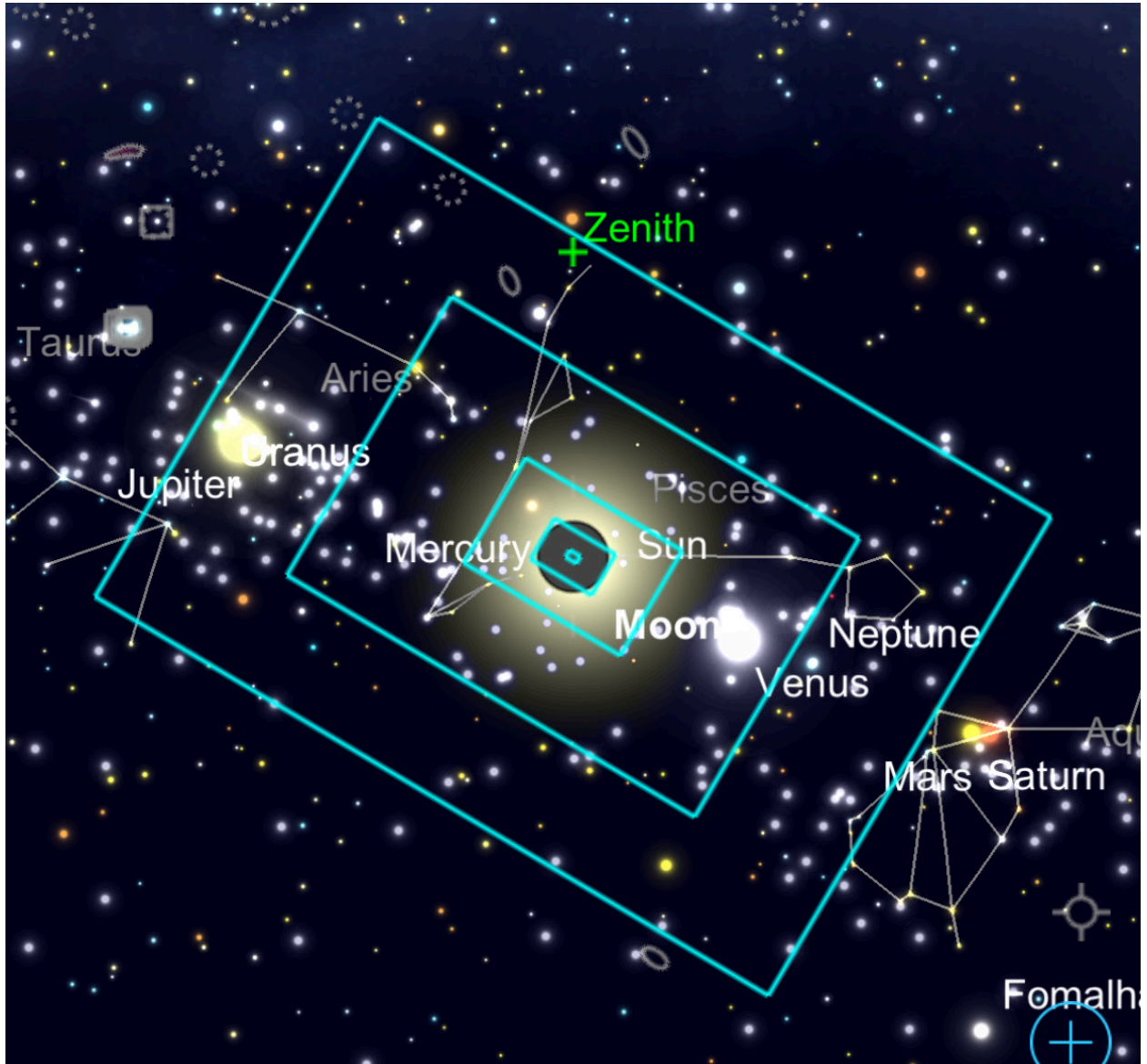
once for the bright inner corona (more like 1/20s), and once for the faint outer corona (5-10s). Combining these photos would create an HDR composite, showing you much more dynamic range than a single photo is capable of.

My suggested exposures are estimates, use your camera's display to see how exposed you are!

Most DSLRs can do this in a simple way via the settings, called "exposure bracketing". There's also eclipse-based software that can plan it down much more precisely! [I just learned about this one that seems interesting.](#)

Your field of view is up to you. I like detail, so I plan on getting in nice and close, with my largest lens being nearly 4000mm focal length. You can get a great shot even using a super wide lens like a 24mm if you want to see some landscape elements included. There's no wrong answers. The shot I captured above was with a 300mm telephoto lens and an aps-c camera (canon digital rebel- the first one).

Here's some of the field of views I plan to use during this event - focal lengths from 28mm to 3469.2mm. Each has their pros and cons!



Here's my biggest piece of advice:

Don't spend the full total eclipse fussing with your camera. You only have a few minutes to look at it, and those minutes are important. These events are one of the few times you can really appreciate our place in the universe, and

it's the most beautiful sight you'll ever see. Don't miss it trying to get a photo.

Mox luna obscurabit solem,
Andrew



A handwritten signature in black ink, appearing to read "Andrew James McCarthy". The signature is stylized with a large, sweeping flourish at the end.

Andrew James McCarthy