

THE ZODIACAL LIGHT

The zodiacal light is an eerie light extending up from the horizon. No matter where you are on Earth, spring or autumn is the best time to see it. So, start looking for the zodiacal light – or false dawn – an eerie light in the east before sunrise, visible every spring and autumn in clear dark skies. You might also see it in the west after sunset, in which case it's called the false dusk.

The light looks like a hazy pyramid, comparable in brightness to the Milky Way, but even milkier. How I can see the zodiacal light?

Maybe you've seen the zodiacal light in the sky already and not realized it. Maybe you glimpsed it while driving on a highway or country road. This strange light is a seasonal phenomenon.

Springtime and autumn are best for seeing it, no matter where you live on Earth. Suppose you're driving toward the east in the hour before dawn. You catch sight of what you think is the light of a nearby town, just over the horizon. But it might be the zodiacal light. The light looks like a hazy pyramid of light extending up from the eastern horizon, shortly before morning twilight begins. The zodiacal light can be extremely bright and easy to see from mid latitudes. **Unlike true dawn or dusk, though, there's no rosy colour to the zodiacal light. The reddish skies at dawn and dusk are caused by Earth's atmosphere, while the zodiacal light originates outside our atmosphere.**

People used to think zodiacal light originated somehow from phenomena in Earth's atmosphere, but today we understand it as sunlight reflecting off dust grains that circle the sun in the inner solar system. These grains are thought to be left over from the process that created our Earth and the other planets of our solar system 4.5 billion years ago. They spread out from the sun in the same flat disc of space inhabited by the planets Mercury, Venus, Earth and Mars. **This flat space around the sun – the plane of our solar system – translates on our sky to a narrow pathway called the ecliptic, the same pathway travelled by the sun and moon as they journey across our sky.**

The pathway of the sun and moon was called the Zodiac or Pathway of Animals by our ancestors in honour of the constellations seen beyond it.

In other words, the zodiacal light is a solar system phenomenon. The grains of dust that create it are like tiny worlds – ranging from metre-sized to micron-sized – densest around the immediate vicinity of the sun and extending outward beyond the orbit of Mars. **Sunlight reflects off these grains of dust to create the light we see.** Since they are part of that flat sheet of space around the sun, we could, in theory, see them as a band of dust across our entire sky, marking the same path that the sun follows during the day. **And indeed there are sky phenomena associated with this band of dust, such as the gegenschein, a faint and elusive elliptical patch of light sometimes seen in the night sky opposite the sun.** But most of us see only the more obvious part of this dust band – the zodiacal light – in either spring or fall.

The darker your sky, the better your chances of seeing it. Your best bet is to pick a night when the moon is out of the sky, although it's definitely possible, and very lovely, to see a slim crescent moon in the midst of this strange milky pyramid of light.

AK with EarthSky and Wikipedia Notes



Zodiacal light over Lake Superior in northern Wisconsin. Note the Circlet of Pisces to the lower right - and the Y-shaped Water Jar of Aquarius to the lower right of the Circlet, just above the sunlit cloud



The zodiacal light is a diffuse cone-shaped light extending up from the horizon on the right side of this photo. Photo by Richard Hasbrouck in Truchas, New Mexico



Zodiacal Light over the Faulkes Telescope, Haleakala, Hawaii