



Light Waste – Effects on Astronomy & Star Gazing

Rev. 2016-07-12



The photo on left is a 15 minute exposure of the western sky in the direction of Edmonton from 150 km north-east. Light waste all but conceals the stars whose trails appear across the top of the photo. Star clouds in the Milky Way (top left) are dim and pale. Note that the light waste is bright enough to illuminate the field.

Compare the photo above with the photo below. You will first notice the difference in general colours of the photos, along with the fact that the one below is covered with star trails. The bright stars Capella, near center, and Aldebaran, lower right, are very prominent in this October photo.

Very faint stars are also visible, right down to naked eye limits. City lights definitely have a pronounced and detrimental effect on observing astronomical objects. In the photo below, even the very faint California Nebula is visible as a pink spot right of center.

This time exposure was taken in the direction opposite to Edmonton. Many faint stars and even nebulae are readily apparent against the background of the Milky Way and its easily seen star clouds. This photo closely represents the naked eye impression of the sky from this site. (Note the unlit cone-head farmyard light at bottom, enabling this photo.)



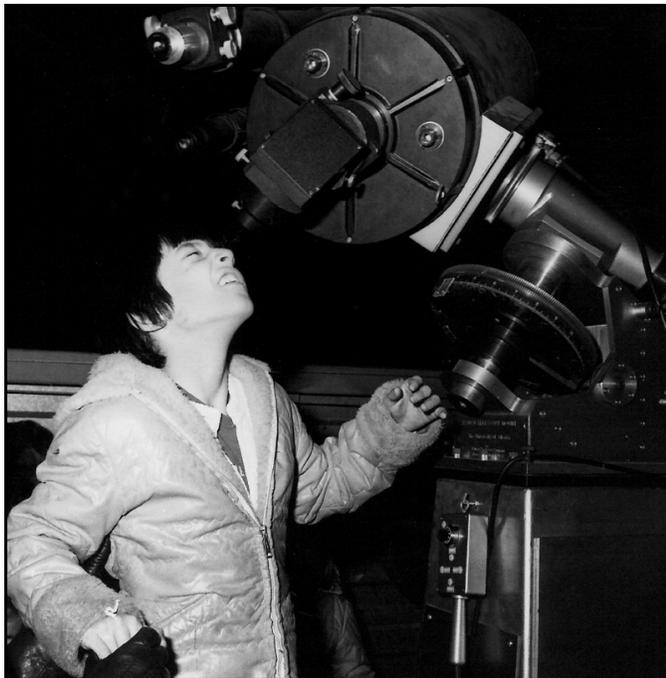


Light Waste – Effects on Astronomy & Star Gazing

Rev. 2016-07-12



This time exposure photo was created by a camera attached to a telescope tracking the stars. Easily recognized is the well-known 'Big Dipper' which is part of the large constellation called the "Big Bear or Ursa Major." Note the large number of dim stars which appear because the sky was unpolluted and the film unfogged by light waste. How many stars in the Big Dipper are visible from your town or city?



A young astronomer is awestruck by a view of the universe through a telescope. However, light waste has drastically limited the numbers and types of objects observable from city locations. Only the brightest objects are now visible. Sadly, most of the world's people have grown up under badly polluted skies, never experiencing the magic and wonder of a myriad stars on a black velvet sky.

The science of astronomy is the world's oldest science, originating in a time when men first observed, wondered about and counted the stars with the naked eye. However, as our towns and cities have grown and light pollution has increased, we can no longer see most of the visible stars and other astronomical objects. Even in the country, wasted city light casts a pale glow over the heavens, masking its wonders and beauty.

Getting data is a problem too. Time exposure photos, necessary to record these distant wonders, are limited by the time it takes for the sky glow to fog film and digital images. With shorter exposures necessary, dim objects can no longer be recorded and detail is lost.

Astronomy and star lovers have suffered. With the inability to see through polluted skies, fewer people now have an interest in the science, hobby, profession or enjoyable star gazing.

It is time to reverse the light waste trend, cut the loss of wasted energy and bring the beauty and wonder of the stars back to people in our communities.