Prime Meridian (146) September 30, 2021

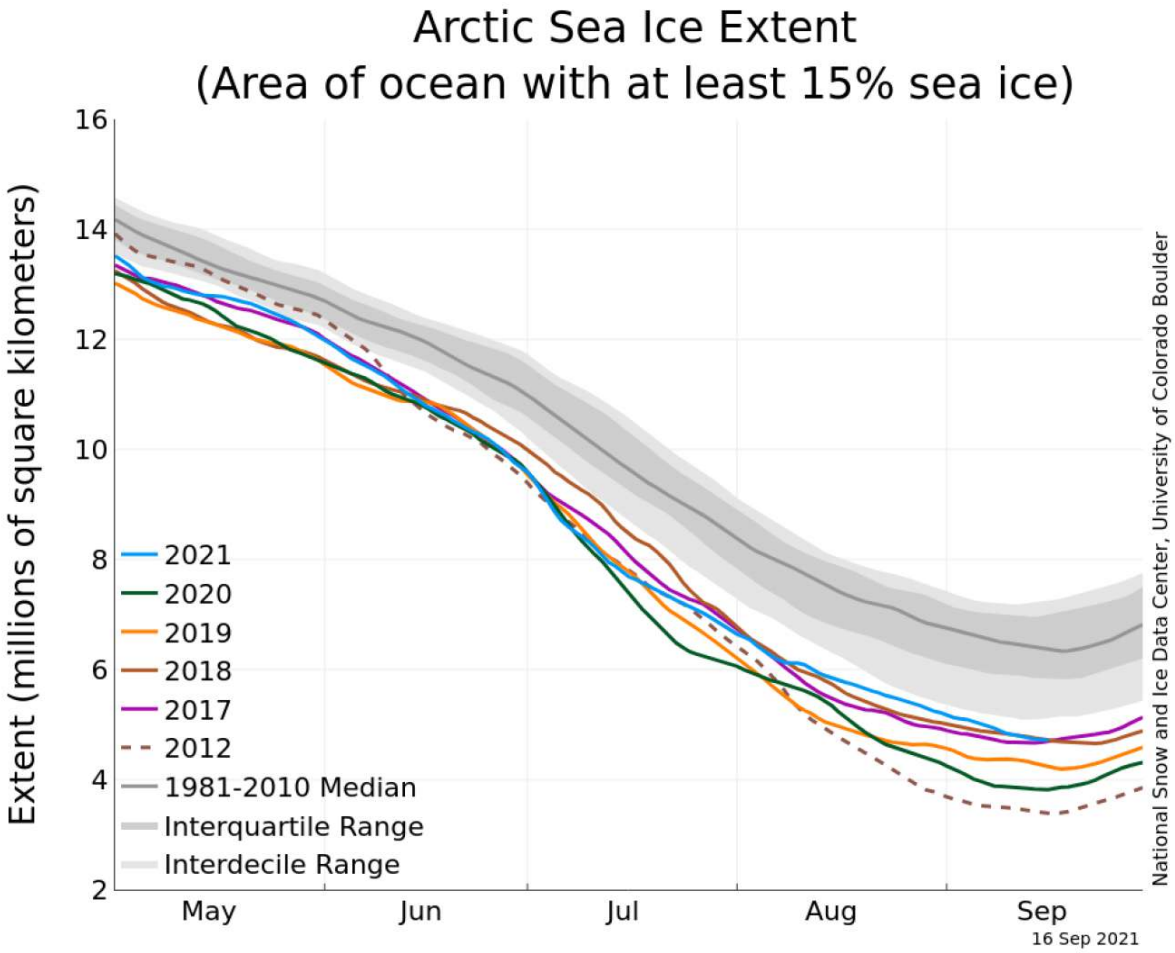
Climate and crossing the Equinox on September 22, 2021.

Autumn begins in the Northern Hemisphere and Spring in the Southern. The picture above was taken on Sept. 26, with sunshine now catching the snow at the South Pole. Apart from clouds, the Sun will remain visible in the sky during the next half a year.

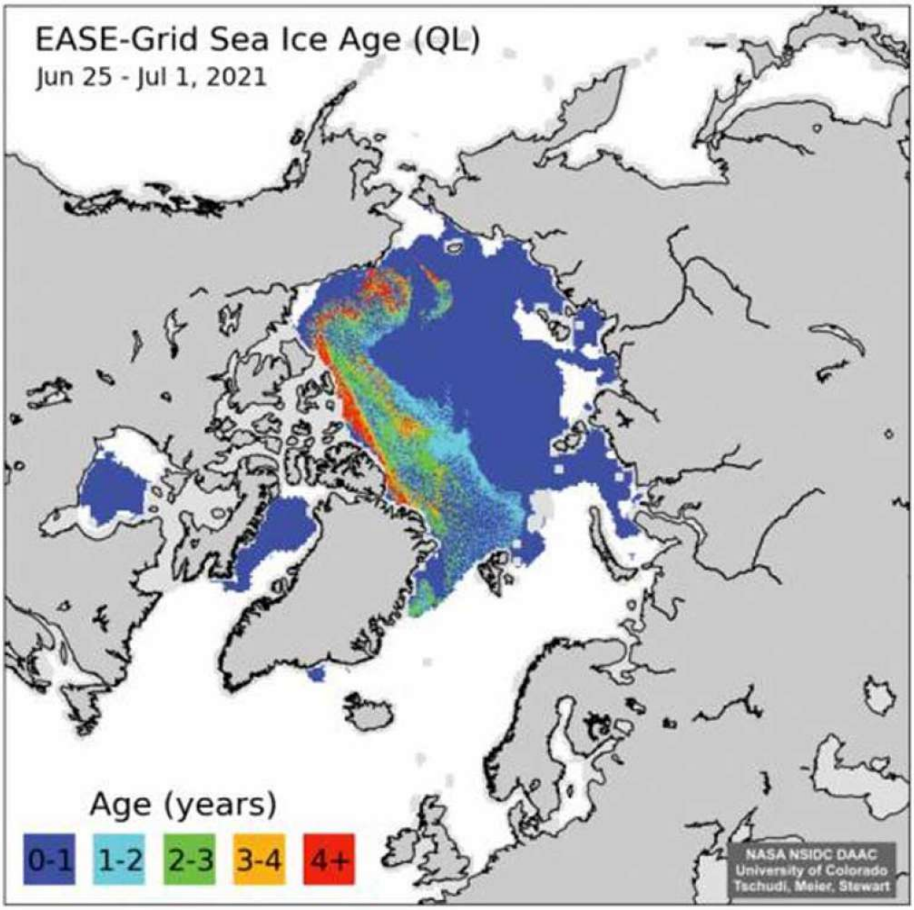
During the dark months, we have been watching the southern lights in the sky above the South Pole, and then, the stars faded as the sky grew brighter as we headed towards the spring.

In the far north of our planet, from Sept. 16 (right), the floating sea ice stopped shrinking and began to re-expand, as darker, colder, months set in. What did this year imply for the future?

Earth image: https://epic.gsfc.nasa.gov/?date=2021-09-16



What is going on in the Arctic? Don't imagine that the threat is over.

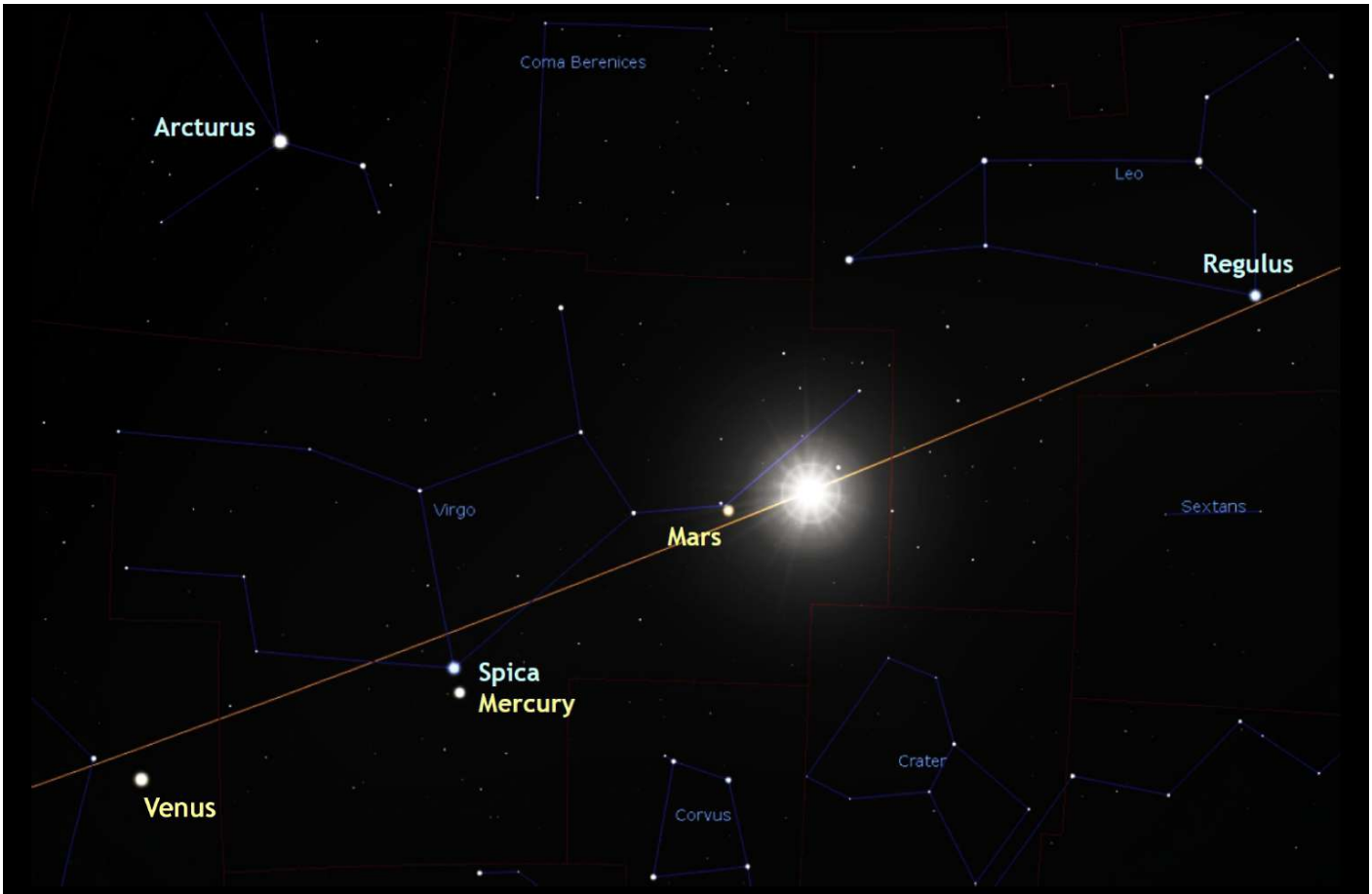


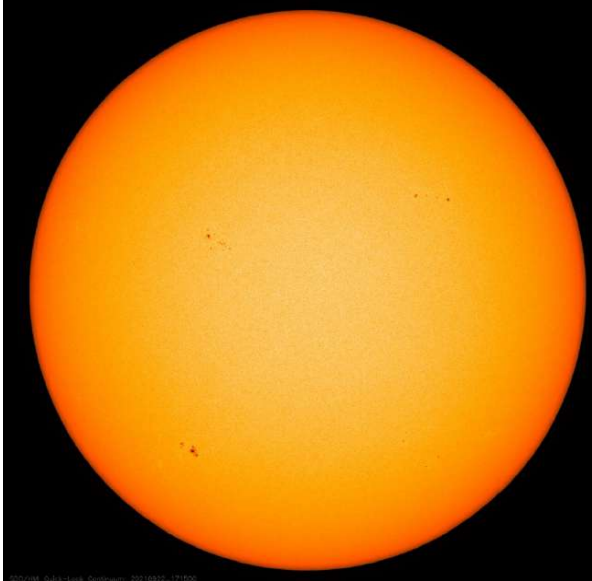
Despite some fears that dramatic shrinking of sea ice, back in the summer of 2012, could imply a rapid loss of floating sea ice, and major changes in Earth's climate, we have escaped that fate - so far.

This year's smallest extent of sea ice was on Sept. 16 and covered 4.72 million square km (1.33 million square km greater than that in 2012). It was 12th lowest extent of sea ice since the satellite record began in 1979.

Worrying, however, is the continuing loss of older, thicker and more stable sea ice (left).

Check out online data from the USA's National Snow and Ice Data Center.





Autumnal Equinox: September 22, 2021.

The view above is modified from *Stellarium*, showing the Sun, planets and stars seen at around mid-day with the Earth's obscuring atmosphere removed. The Northern Hemisphere is heading down through nights that are longer than the days. At left top we see our star, the Sun rising from among the trees at New Ash Green, Kent, during the morning.

Safety: Do not look at the Sun with your eyes, or through cameras, binoculars or telescopes. If you want to find out how to observe the Sun, please check out an experienced astronomical organisation online and find out how to observe the Sun, avoiding dangers.

The Sun is now moving into a more active phase, and we are no longer looking at a spotless Sun. The image of the Sun at lower left was obtained from NASA's Solar Dynamics Observatory satellite. Continuous updates across the spectrum can be found online:

https://sdo.gsfc.nasa.gov/

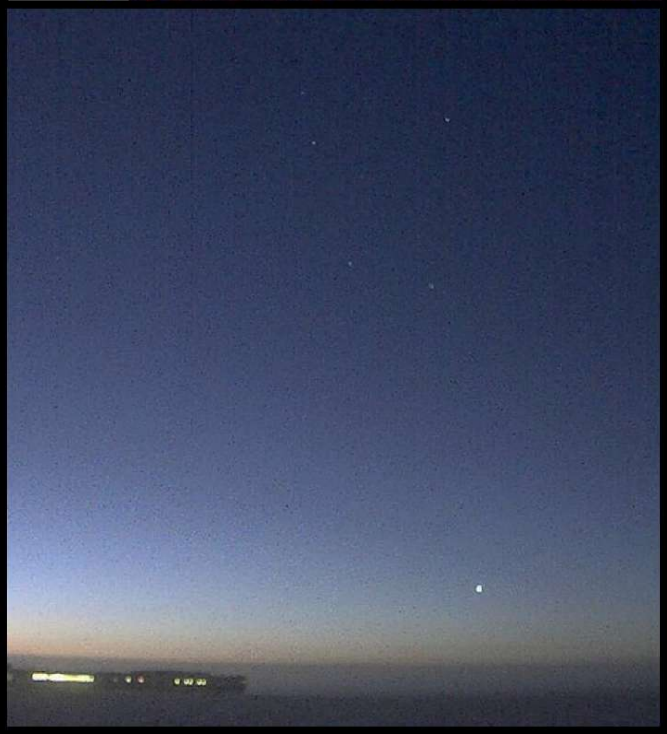
A daily image of the Sun can be found on the SpaceWeather.com website:

https://www.spaceweather.com/

The South Pole emerged from night, through twilight and into daylight.

Watching the sky from a webcam at the Amundsen-Scott South Pole Station, is a way of reminding us of the passage of the seasons and the rolling by of the years on Planet Earth. The images from the page show the aurora australis glimmering in the polar night. Top and left to right, May and June, 2021. The pictures below are from July, 2021.

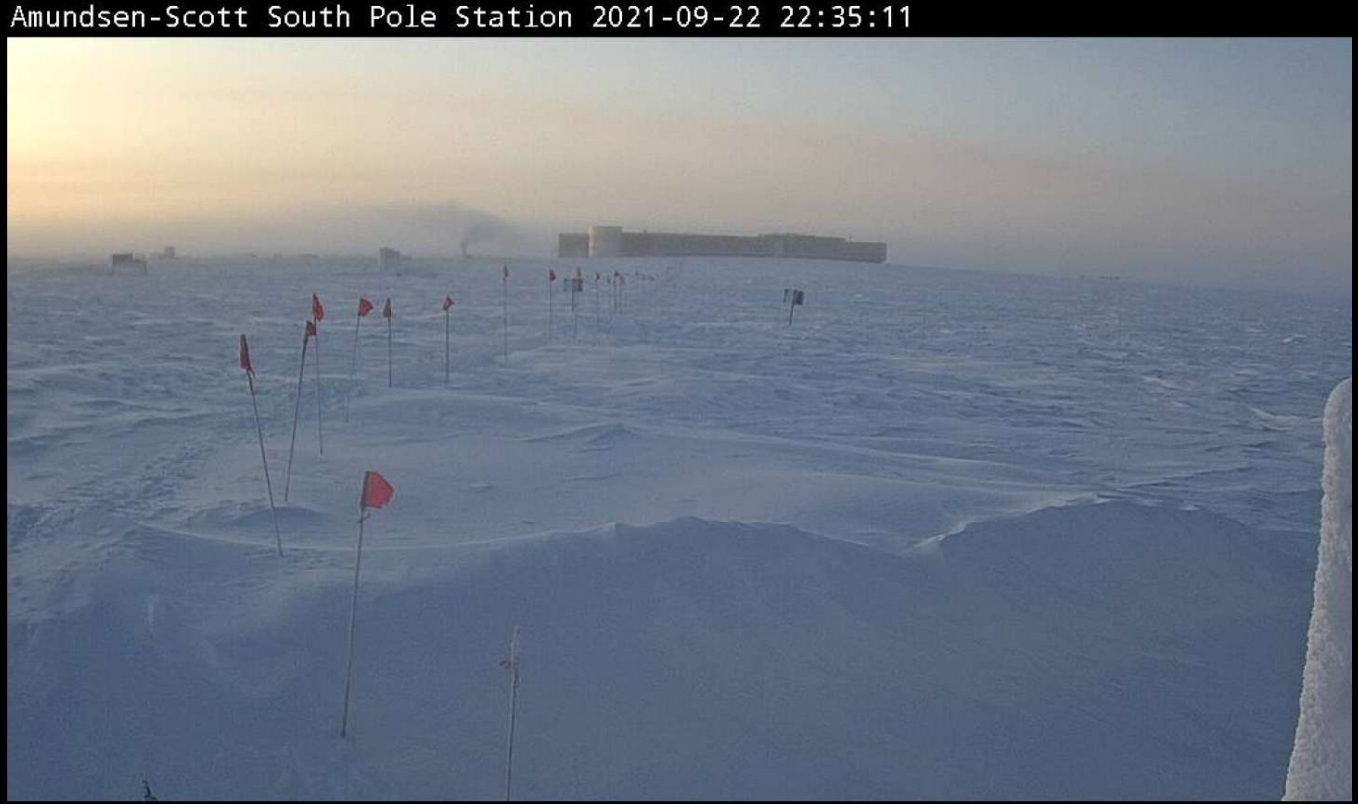
The webcam is on the roof of the USA's National Science Foundation's Atmospheric Rearch Observatory (ARO), which houses the Clean Air Facility operated by the Earth System Research Laboratories (ESRL) of the National Oceanic and Atmospheric Administration (NOAA).



The views at top show the aurora during August 2021. Left: The brightest stars, forming a quadrilateral, are the distant stars of Corvus. Right: On the left hand side of the image we see Scorpius, whose brightest star is the giant Antares at 554 light years. On the upper left, we can see the smudge of the Milky Way, and beyond that, the stars of Sagitarius.

The view at centre left shows (if you look carefully) the stars of Corvus overhead, and the planet Venus, bright and close to the horizon. August 24, 2021.

Below: By the South's Spring Equimox, on September 22, 2021, the Sun was above the horizon at the South Pole (it is some 2.835 km above Sea Level).



Above: On September 22, 2021, the day of the Northern Hemisphere's Autumnal Equinox, the Sun beamed down from a clear sky. Work had been carried out in fields at Ash, Kent, where stubble had been cut and piled up and burned.

Prime Meridian.

Prime Meridian is published by the Ecospheres Project, a research and media collaboration. It follows global environmental issues alongside the cycle of the seasons in South East England.

It steps back to look at the Earth in its astronomical context. It also pursues the search for other habitable worlds, an area of research that promises to open new vistas on our understand of how our living Earth belongs in the larger picture.

Editor: Dr Martin J. Heath. Editorial assistance: Penelope Stanford and Dr Laurance R. Doyle.

Many thanks for support and assistance: Palash Dave, Lienkie Diedericks, Laura Elworthy, Elizabeth Gornall, Nadia Mahmud-Salvisberg, Kelly ben-Maimon, Veronica Mariqueo, Marolin Watson, Ashleigh Wise, and thanks also to an anonymous review.

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