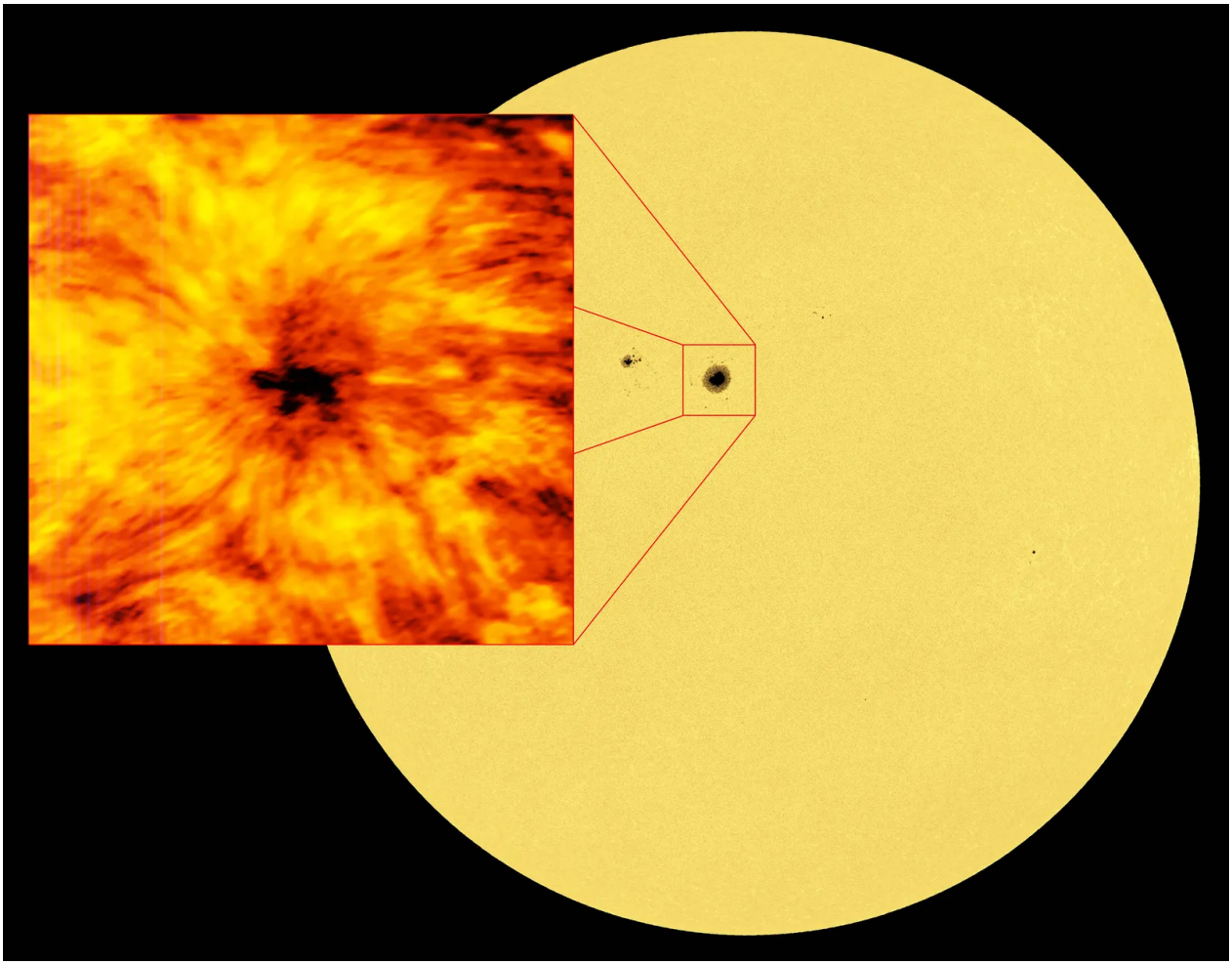
Sunspot

By Lennart Kiil



A sunspot on the Sun's surface and a close-up of it taken with the ALMA radio telescope. Sunspots are cooler areas with strong magnetic fields.

ALMA (ESO/NAOJ/NRAO), NASA. CC BY 4.0. Wikimedia Commons.

Area on the Sun that appears dark, because it is cooler than the rest of the surface.

Sunspots are caused by increased magnetic activity on the Sun, which lowers the temperature of the area by hindering the movement of heat from the Sun's interior to the surface.

The sunspots sometimes appear in large groups, but there is usually no more than 10 in a group. Sunspots may exist only a few hours or for months, while contracting and expanding. The Sun's rotation makes the sunspots move across the surface.

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The number of sunspots varies with a cyclic period of approximately 11 years. This period is called the sunspot cycle. The peak number of sunspots within the cycle generally reflects a period of high solar activity. A high number of sunspots is therefore positively correlated with stronger solar wind, which sends charged particles into the Earth's atmosphere. The sunspot cycles vary in intensity.

Generally scientists agree that recent climate changes have been caused by humans. However, some believe that the intensity of the sunspot cycles, and therefore the solar activity, determines the climate on Earth. According to this hypothesis, periods of high and low sun activity correlate with warm and cool climatic periods on Earth.

It is suggested by some, that the mechanism behind the correlation could be an effect on the formation of clouds.

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