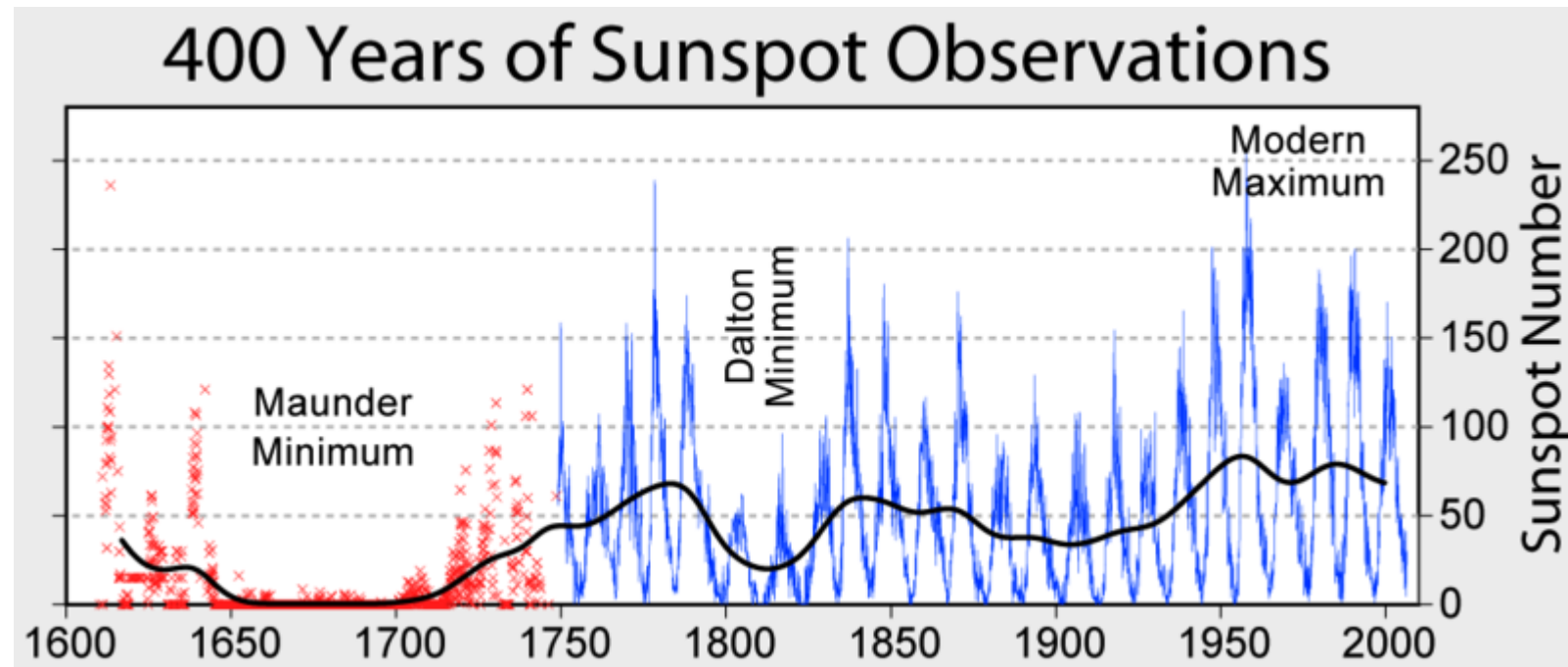


File:Sunspot Numbers.png

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Summary

This figure summarizes the 400 years of regular sunspot number observations. Since ~1749, continuous monthly averages of sunspot activity have been available and are shown here as reported by the Solar Influences Data Analysis Center, World Data Center for the Sunspot Index, at the Royal Observatory of Belgium. These figure are based on an average of measurements from many different observatories around the world. Prior to 1749, sporadic observations of sunspots are available. These were compiled and placed on consistent monthly framework by Hoyt & Schatten (1998a, 1998b).

The most prominent feature of this graph is the ~11 year solar magnetic cycle which is associated with the natural waxing and waning of solar activity.

On longer time scales, the sun has shown considerable variability, including the long Maunder Minimum when almost no sunspots were observed, the less severe Dalton Minimum, and increased sunspot activity during the last fifty years, known as the Modern Maximum. The causes for these variations are not well understood, but because sunspots and associated faculae affect the brightness of the sun, solar luminosity is lower during periods of low sunspot activity. It is widely believed that the low solar activity during the Maunder Minimum and earlier periods may be among the principal causes of the Little Ice Age. Similarly, the Modern Maximum is partly responsible for global warming, especially the temperature increases between 1900 and 1950. One study (Stott et al. 2003), argues that residual warming due to the sustained high level of activity since 1950 is responsible for 16 to 36% of recent warming.



Changes in carbon-14 concentration in the Earth's atmosphere, which serves as a long term proxy of solar activity. Note the present day is on the left-hand side of this figure.

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This figure was prepared by Robert A. Rohde and is part of the Global Warming Art project.

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- File:Solar-cycle-data-German.png
- File:Aktywność słoneczna.png
- File:Carbon14 with activity labels.svg

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