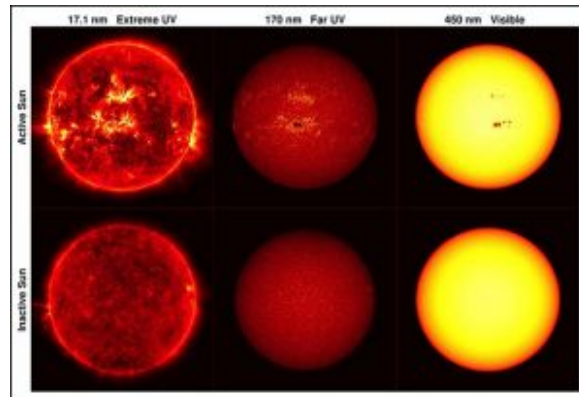


# “Better Data for Modeling the Sun’s Influence on Climate”



NASA’s Solar Dynamics Observatory satellite took these images of the Sun at three different wavelengths. The top row shows the Sun on 2 February 2014 during an active phase with several sunspots. The bottom row shows the Sun on 3 March 2018 during a period of low solar activity with no sunspots. The left-hand images were taken in the extreme UV wavelength region (17.1 nm), the center images were taken in the far UV region (170 nm), and the right-hand images were taken in the visible region (450 nm). Dark sunspots cause a small decrease in irradiance in the visible band, but

they increase irradiance in the ultraviolet bands. Scientists wonder how solar activity across wavelengths influences climate. PHOTO CREDIT: NASA

**Several international initiatives are working to stitch together data describing solar forcing of Earth's climate. Their objective is to improve understanding of climate response to solar variability.**

“Compared to other stars, our Sun is a remarkably steady source of light and heat, but its output does vary. Solar light, heat, and particle streams drive weather and atmospheric chemistry, but how (and how much) does the Sun's variability affect the climate here on Earth? The role of solar variability in recent global warming is not just a bone of contention; it is also a question of overriding importance for the scientific understanding of our Sun and of climate change.

“Scientists simulate historical and future climates by setting up a suite of initial conditions and seeing how these conditions change when various factors, called forcings, are applied. For example, how does Earth's surface temperature change if it receives more or less heat from the Sun? How do the streams of ionized particles that make up the solar wind affect certain weather patterns on Earth? Data sets compiled from historical records provide the necessary information for model forcing, so ensuring that these data sets provide accurate, relevant information is key to producing realistic climate model scenarios.

“Recently, a series of initiatives brought together scientists

working on different aspects of this highly multidisciplinary issue. These efforts shared several common objectives, including better estimates of solar forcing and identifying and quantifying the uncertainties in these estimates.”

[Read the entire article by T. Dudok de Wit, B. Funke, M. Haberreiter, and K. Matthesonline posted September 4, 2018 at eos.org.](#)

link submitted by David Mitchell