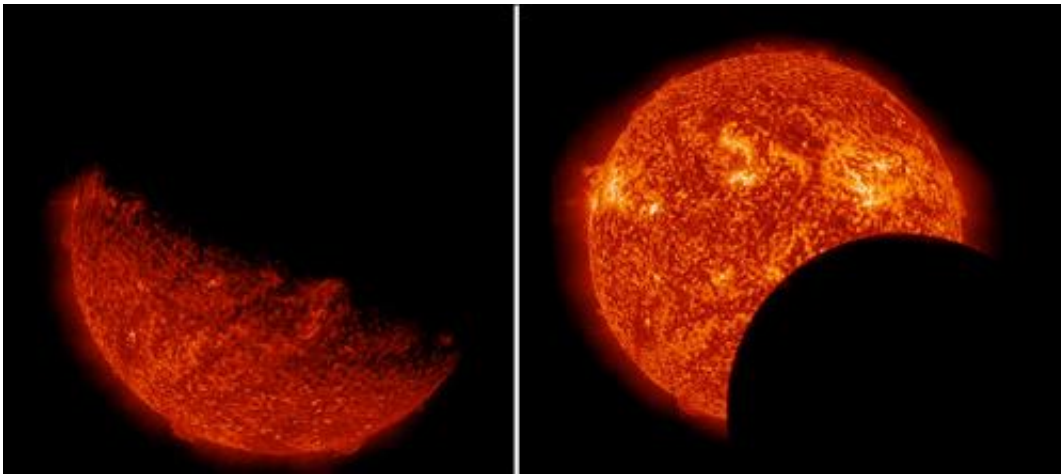# SDO observes Earth, lunar transits in same day

March 11 2013, by Karen C. Fox

Left: The view of the sun is partially obscured by Earth as seen by NASA's Solar Dynamics Observatory on Mar. 11, 2013, at 2:20 a.m. EDT. Credit: NASA/SDO Right: This image from NASA's Solar Dynamics Observatory on Mar. 11, 2013, at 8:00 a.m. EDT, shows the moon crossing in front of the sun. Credit: NASA/SDO

On March 2, 2013, NASA's Solar Dynamics Observatory (SDO) entered its semiannual eclipse season, a period of three weeks when Earth blocks its view of the sun for a period of time each day. On March 11, however, SDO was treated to two transits. Earth blocked SDO's view of the sun from about 2:15 to 3:45 a.m. EDT. Later in the same day, from around 7:30 to 8:45 a.m. EDT, the moon moved in front of the sun for a partial eclipse.

When Earth blocks the sun, the boundaries of Earth's shadow appear fuzzy, since SDO can see some light from the sun coming through Earth's atmosphere. The line of Earth appears almost straight, since Earth—from SDO's point of view—is so large compared to the sun.

The eclipse caused by the moon looks far different. Since the moon has no atmosphere, its curved shape can be seen clearly, and the line of its shadow is crisp and clean. Any spacecraft observing the sun from an orbit around Earth has to contend with such eclipses, but SDO's orbit is designed to minimize them as much as possible, with only two three-week eclipse seasons each year. The 2013 spring eclipse season continues until March 26. The fall season will begin on Sept. 2.

Provided by NASA's Goddard Space Flight Center