

“Sun-Earth Day Celebration”

By Gene Grahek, Lead Docent, Cameron Park Rotary Community Observatory

The National Aeronautics and Space Administration (NASA) began outreach programs 11 years ago to educate the public on the Sun's relationship to Earth. This celebration culminates yearly on or near the vernal equinox each year. Although we commonly refer to the 2 equinoxes as the days where there is an equal amount of night and day, it is actually a point in time when the center of the Sun is in the same plane as the Earth's equator. Equinox is the correct term for the day when night and day are equal lengths but for our purposes, equinox will do just fine. This occurs two times each year with the vernal equinox occurring in the spring, around March 20th and the autumnal equinox around September 23rd. In our planet's southern hemisphere, the seasons are reversed as the vernal equinox marks the beginning of autumn.

Why is this important to us? Ancient civilizations including our own native Indians recognized the importance of the sun for their very existence. Temples and monuments were built aligning the rising sun on the equinoxes. They then knew the start of the planting season and celebrated a time of rebirth.

Although the Cameron Park Community Observatory will not be involved in spring planting, we will be celebrating Sun-Earth Day with an extended hours open house on Saturday, March 19, 2011. We will have solar telescopes available to safely view the sun and you will also be able to view our newest observatory addition. Thanks to the generous support of the Cameron Park Rotary Club, we now have a sky theatre where you can lay back and enjoy the night sky. In addition to the day's solar viewing and sky theatre tours, this will be a “rain or shine” event offering NASA podcasts especially created for Sun-Earth Day. Weather permitting; the observatory will be open for our usual spectacular night viewing on this evening.

As noted in previous Heavenly News solar articles, the sun is slowly coming out of its sunspot-cycle low. We are now beginning to see more sunspots along with other interesting solar features. On February 15th of this year the sun experienced its largest coronal mass ejection (CME) in 4 years spewing a large gas/radiation wave directly towards earth. Fortunately this caused nothing more than a temporary short-wave jamming in China and an increase in aurora borealis activity (visible in New York City).

Our Observatory uses two telescopes for safe solar viewing. To see sunspot activity we use a special solar filter over the lens of a typical night-viewing telescope which makes the sun appear as a yellowish ball. This special filter is made using high quality glass coated with many layers of nickel, chrome and stainless steel. Why am I telling you this? These high quality filters block out 99.999 % of the sun's entire spectrum of energy. This not only protects the telescope's delicate optics but more importantly your eyesight! We refer to this as a white light telescope.

The other telescope used is a highly specialized Hydrogen Alpha telescope made only to view the sun. This telescope is specifically designed to transmit a narrow bandwidth of light centered on the hydrogen alpha wavelength and makes the sun appear as an orange ball. Surface features such as prominences,

filaments and plage can easily be seen as well as the sun's apparent surface. Both telescope types will be used on Sun-Earth Day to observe the sun.

More Sun-Earth Day information can be obtained by visiting our website at communityobservatory.com. Additional information regarding solar viewing and Sun-Earth Day can be found at NASA's website <http://sunearthday.nasa.gov/>, and at <http://sohowww.nascom.nasa.gov/>.

Please visit us at the Observatory located behind Folsom Lake College, El Dorado Center in Placerville on Saturday, March 19, 2011 for Solar viewing starting at 4:30 PM until sunset, featuring NASA Sun-Earth Day podcasts and (weather permitting), evening viewing until 9:30 PM. For more information please go to www.communityobservatory.com. Let's all hope for clear skies!