Solar Art in the Making

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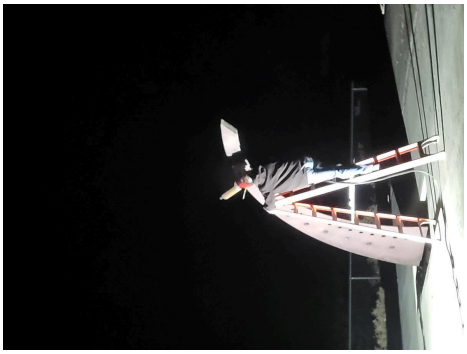
By Lisa Stoner, Coordinator for the Colorado Plateau and Basin and Range Dark Sky Cooperatives

Recording the seasonal path of the Sun on our tilted, moving Earth

The seasonal shadow trackers of Teasdale Community Park in Wayne County, Utahare one-quarter of the way through their astronomical journey and creation of a new solar kiosk – a place where residents and visitors can gather, experience, and admire the Earth's relationship with the Sun.

Solar tower at sunrise on the Winter Solstice, Teasdale Community Park

With the support of a state-funded Utah Outdoor Recreation Grant awarded last year, and matching funds donated by The Entrada Institute, a local non-profit organization, the community-led project began the installation of a solar kiosk, featuring a 15-foot tall, fin-shaped "gnomon," which was carefully positioned on the newly paved ADA-accessible pathway, and aligned precisely with Polaris, the North Star.



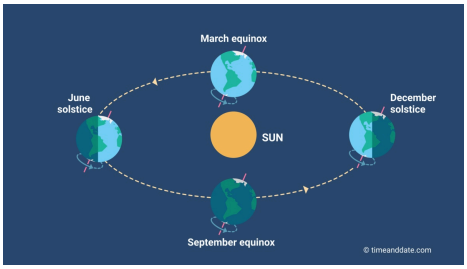
A pointer welded at night to the top of the tower is aligned directly with Polaris.

Although not a sundial itself, a gnomon is the part of a sundial that casts a shadow. This artistically conceived, steel-based monument was designed in preparation for the upcoming "astronomical" solar events, including the Winter and Summer Solstices, and Equinoxes in Spring and Fall. On December 21, 2023, a team of volunteers met at the newly erected monument to record the shadows made by the gnomon from sunrise to sunset, and for every 15 minutes in between. At every point, holes were drilled into the concrete to capture the long arc of the Sun's shadow as it appears on the Winter Solstice. This process will be repeated on March 19, June 21, September 22, 2024, to mark the solar path as seen on these annual astronomical anniversaries. Once the drilling is complete, using the holes as guides, narrow sections of concrete will be cut and removed, and replaced with colored cement to preserve the site as a seasonal reminder for years to come.

Teasdale is a gateway town near Capitol Reef National Park. Residents, Gary Pankow and Barb Walkush, along with a team of local community members, wanted a project that would focus on the sun. Pankow and Walkush are long-time night sky monitors, responsible for submitting annual Sky Quality Measurements (SQMs) for the neighboring International Dark Sky Community of Torrey, along with the towns of Teasdale and Grover, to DarkSky International to maintain Torrey's dark sky certification. In addition to the new ADA-accessible pathway and monument itself, the grant is also being used for interpretive signage to bring awareness to the importance of natural night skies, and information about the area's exceptional landscapes, wildlife, and rich cultural heritage.

December's Winter Solstice is when the northern half of the Earth is tilted furthest away from the sun, making it the "astronomical" first day of winter, and the shadow at "solar

noon" will be at its longest because of the Sun's low arc. Conversely, the shadow cast on the Summer Solstice will be at its shortest because of the Sun's high angle.



As the Earth completes its orbit around the Sun, seasons occur because the Earth's axis is tilted at an angle of about 23.4 degrees, causing the Earth to receive varying amounts of solar energy at different times of the year.
Credit: Timeanddate.com

Pankow says he is excited "for the residents and visitors of the area to see the tower solar and experience for themselves the Sun's influence on our tilted world." He expects the final product outlining the seasonal solar paths will resemble "something like the lines on a basketball court. Since this was a leap year, it will be interesting."

Citizen Scientists Wanted

Pankow and Walkush want to welcome anyone who wants to be part of the next seasonal step in this community project. On **March 19**, any citizen scientist interested in celebrating the first day of Spring are requested to come anytime between sunrise to sunset to help mark the points along the solar path and discover for themselves one of the mysteries of the cosmos, at the Teasdale Community Park. Future dates to help on this project will be on **June 20** and **September 22**.

The Winter Solstice group at solar noon under the solar fin.
Barb Walkush and Gary Pankow third and fourth from the left.
Credits for all photos: Gary Pankow and Barb Walkush

Learn More

- Teasdale Community Park
  - For questions or information about the project, contact: teasdalepark@gmail.com
- The Entrada Institute
  - A local non-profit organization in Torrey, Utah, dedicated to preserving and celebrating the natural, historical, and cultural heritage of the Colorado Plateau
- Utah Division of Outdoor Recreation – Grants & Planning
- The March Equinox