

# Astronomy Education Review

Volume 2, Sep 2003 - Jan 2004

Issue 2

## Build a Sundial and Join the Worldwide EarthDial Project

by **Woody Sullivan**

University of Washington

Posted: 12/05/03

The Astronomy Education Review, Issue 2, Volume 2:202-204, 2004

© 2003, Woody Sullivan. Copyright assigned to the Association of Universities for Research in Astronomy, Inc.

### The EarthDial Project

The EarthDial project links Webcam images of similar sundials built by schools, organizations, and individuals around the world. These Webcam images will then be linked to the Planetary Society Web site, where one will be able to view, in almost real time, sundials from around the world in all of the different time zones! As the eye sweeps across the images on this Web page, the Sun's shadow will sweep across the faces of the dials. Web site viewers will gain a palpable sense of how the Sun illuminates the round globe that is our Earth.

At any given time, half of the dials will be in darkness. Some will be in the southern hemisphere, where the Sun goes through the northern sky daily and the hour lines on sundials go in the opposite sense (counterclockwise). The shapes and angles of the lines on dials in the tropics will contrast greatly with those in Scandinavia. There will be a multitude of languages and cultural motifs on the various dials.

The EarthDial project is being conducted in conjunction with the MarsDials placed on NASA's Spirit and Opportunity rovers, which are now on their way to Mars and due to land in January 2004. Some aspects of the EarthDial design are similar to the MarsDials in order to heighten the connection between these sister planets, which will now have similar dials on their surfaces bearing the common motto "Two Worlds One Sun." The project will run for at least the duration of the rovers' missions on the surface of Mars, about six months.

The press release below explains the basic idea and background of the project, but much more information, including details of how to build your own EarthDial, are at <http://www.planetary.org/mars/earthdial.html>. Please spend some time with this page and its links—it's very complete. If you still have questions, send them to [earthdial@planetary.org](mailto:earthdial@planetary.org). Please join in and spread the word, especially to any colleagues overseas. Good luck!

---

For Immediate Release

Nov. 20, 2003

## **Mars Landers Create Opportunity for Web-linked Sundials Around the World**

Herbert Hoover reputedly wanted a car in every garage and a chicken in every pot. Woodruff Sullivan would settle for a sundial in every backyard. Sullivan, a University of Washington astronomy professor, is teaming up with television personality Bill Nye, "the science guy," and the Planetary Society on EarthDial, a project to get schools, community organizations, and individuals around the world to build their own sundials and display them on the Internet using 24-hour Webcams. Their hope is to have a broad sample of sundials from each time zone, illustrating the difference in shadows between the northern and southern hemispheres and the equator. The plan is to display the images together on a single Web site during the working life of two Mars landers, Spirit and Opportunity, that are scheduled to land on the red planet in January.

Both Spirit and Opportunity are equipped with sundials, referred to as MarsDials, that were largely designed and fabricated at the UW. They evolved from earlier Mars missions that were to land on Mars in 2002 but were postponed. In examining the plans for those missions, Nye noticed a small square and post that were to be used as a kind of test pattern to calibrate the spacecraft's color panoramic camera. He suggested that it could double as a sundial. Now he and Sullivan, a sundial expert, have devised what they call the EarthDial project in which they are providing sundial construction plans that are adaptable for any place on Earth. Though each EarthDial will have room outside the main circle for individual touches and expressions of local culture, everything within that circle is expected to be relatively uniform so that they will be similar to each other and representative of the MarsDials.

"We'll have all the dials around the Earth and the two dials on Mars with the same general design," Sullivan said. "And they will have the same motto—'Two Worlds, One Sun.'"

A big difference is that the motto, inscribed in English on the MarsDials, will be in the local language of each EarthDial built for the project. In addition, the MarsDials carry an inscription of "Mars 2004," while the EarthDials will be inscribed "Earth 2004," also in the local language.

The cost to individuals, schools, and groups undertaking an EarthDial project is likely to be around \$50 for building materials, plus the cost of acquiring and maintaining a Webcam with around-the-clock Internet connection that refreshes the image regularly. The EarthDials will be about 32 inches across, 10 times the size of the MarsDials. At any time, half of the EarthDials will be in darkness, Sullivan said, but displayed together on a Web page, they will provide a unique look at the world.

"You'll get a palpable sense of what time is on this globe," he said. "As your eye sweeps across the screen, you'll see the shadow angles changing just like the hands on a clock in different time zones."

The project is being conducted in partnership with the Planetary Society, an organization that encourages exploration of the solar system and the search for extraterrestrial life. The society will host the EarthDial Web site throughout the Spirit and Opportunity missions on the Martian surface. Sullivan expects that the project will prove to be a valuable education tool.

"Any teacher should be able to use this site for all kinds of interesting things having to do with timekeeping and with Earth as a planet," he said. Those who want to build their own EarthDials can find further information and construction plans at <http://www.planetary.org/mars/earthdial.html>.

For more information, contact Woody Sullivan at [woody@astro.washington.edu](mailto:woody@astro.washington.edu).

ÆR

202 - 204