By Gabriel Dache, Science News Editor

WET Collaboration Begins Observations

IU Vir white dwarf under study

White dwarfs are stars in their final stages of life. They are extremely brilliant, usually much smaller that the Sun - because they are basically the cores of dead stars - and cool down and reduce their brightness with the passing of time, until they turn into brown dwarfs, star so faint that they cannot be spotted even with professional telescopes. Our Sun will become a white dwarf some day, in about 4 billion years or so, says Judi Provencal, assistant professor of physics and astronomy at the University of Delaware, director of the Delaware Asteroseismic Research Center and resident astronomer at Mt. Cuba Astronomical Observatory.An international collaboration between the world's biggest telescopes begins today a three-week-long observation of a star in the Virgo constellation, a white dwarf known as IU Vir. The goal of the study is to obtain continuous measurements of pulsating stars, objects which change their shape with the amount of energy radiated through their surface.The Whole Earth Telescope, or WET, which will conduct the observing run, first started its studies back in 1986 under the leadership of the University of Texas, which was then transferred to Iowa State University. However, three years ago, the WET coordination fell in the hands of the University of Delaware.Amongst some of the 20 separate observatories participating in the study, we can find the biggest telescope in the world, the Southern African Large Telescope, with a hexagonal segmented mirror of 10 by 11 meters able to observe stars one billion times fainter than the faintest star observable on the night sky with the naked eye. To give the comparison a more understandable scale of reference, try to imagine looking for the light of a single candle on the surface of the Moon form Earth.Until May 1st, all the telescopes on the WET will be pointed towards the IU Vir white dwarf. The data collected will be relayed directly to the University of Delaware to be analyzed. "Pulsating stars such as the white dwarf oscillate, and how they oscillate lets us determine what they look like inside. Let's say you have a silver bell, and you ring it. It will make a certain sound. Now you have an aluminum bell that is the same shape as the silver bell. If you ring it, iw won;t sound like the silver bell. It will have its own tome. Star do that, too. I like to thing of our work as listening to the 'music of the stars," Provencal explains.Due to the fact the white dwarfs are exposed cores of stars such as our Sun they present much interest to astronomers such as Provencal. Just by studying its oscillating frequency could lead to a model of stellar cores, therefore a better understanding of our Sun as well. Better still, white dwarfs can accurately indicate the age of the universe through their temperature. For example, the coldest white dwarf known is 2.500 degrees Celsius, meaning that it is 10 billion years old.

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