

for the network. Scientists at 12 ocean- and climate-research centers around the world currently use Argo data in their analyses and forecasts. —S.P.

ASTRONOMY

A dwarf with a disk

The Hubble Space Telescope has examined in unprecedented detail a ring of debris around a star that could be the nearest and youngest known home for planets outside the solar system. Researchers described the findings during a NASA briefing last month.

The disk surrounding the young star, called AU Microscopii, is the product of collisions between unseen planets and the debris left over from their formation, researchers say. A central hole in the disk, found by Hubble and other telescopes, may have been cleared by a massive planet.

Residing just 32 light-years from Earth, AU Microscopii is the first red dwarf star found to have a debris disk. "Understanding the evolution of [red dwarf] disks may tell us about how the majority of planetary systems evolve," comments Paul Kalas of the University of California, Berkeley. Red dwarfs are among the most common stars in the Milky Way. Kalas' team reported the disk's discovery early last year.

Using Hubble's Advanced Camera for Surveys, a team led by John Krist of NASA's Jet Propulsion Laboratory in Pasadena, Calif., found a

warp in the disk at a distance from the star of about 50 times the Earth-sun distance. The warp could be from the tug of an outlying planet.

The warp and other traits of AU Microscopii's disk resemble those of the disk surrounding a much more massive star, Beta Pictoris, in the same star cluster. The similarity suggests that the disk surrounding Beta Pictoris, first observed 20 years ago, isn't a freak



Instrument-
es drift with
and transmit data
every 10 days.

of nature but is typical of young debris disks, says Michael Liu of the University of Hawaii in Honolulu. —R.C.

BIOLOGY

Plants: Importance of being economic

The pulse of the real estate market in a given area turns out to be a powerful indicator of how many exotic plant species have invaded

the neighborhood, say two researchers. The hotter the market, the greater the risk to native species from invaders, according to their computer models.

Adding economic factors to a simpler model of alien-plant invasion enhanced the model's predictive power, report Brad W. Taylor of University of Wyoming in Laramie and Rebecca Irwin of Dartmouth College in Hanover, N.H., in the Dec. 21, 2004 *Proceedings of the National Academy of Sciences*.

The researchers created two models for predicting the number of non-native plant species in a given U.S. state. The simpler model used just U.S. census data plus several ecological factors, such as latitude and the number of native plant species.

The second model incorporated that information plus a measure of economic intensity known as real estate gross state product. It combines such indicators as the amount of new construction and land clearing and numbers of developers, land buyers, and sellers.

The economics-enhanced model predicted 75 percent of the state-by-state variation in plant invasions. The plain population-ecological model predicted only 68 percent, the researchers report. Such models, the researchers say, could be useful for understanding the risk factors for species invasions. —S.M.

ASTRONOMY

Ring robber

The Cassini spacecraft has caught a thief on camera. Images show Saturn's moon Prometheus stealing particles from the planet's F ring. This multistranded, kinked ring is flanked by 102-kilometer-wide Prometheus and another moon, Pandora.

The thievery and the detailed view of kinks in the F ring were recorded by Cassini on Oct. 29, 2004, when it was 782,000 km from the moon. NASA released the images on Dec. 3.

The nearly 2-hour sequence of 44 pictures shows Prometheus pulling particles from the F ring while appearing connected to the ring by a faint streak of material. The moon's elongated orbit intersects the F ring, and scientists have long suspected that it picked up ring particles with each transit, notes Cassini researcher Carolyn Porco of the Space Science Institute in Boulder, Colo. Computer models and observations suggest that the moon's gravity—as well as Pandora's—deflects particles from their normal orbits and can generate large waves or knots within the ring.

The interaction between Prometheus and the F ring may provide a better understanding of the interplay between other Saturnian moons and rings. —R.C.