Space Science

Hubble eyes stormy Jupiter

Earlier this month, NASA released this true-color image of Jupiter, taken by the Hubble telescope. The photo depicts the clouds in Jupiter's turbulent atmosphere, including a tent-like structure — never before imaged — above the Great Red Spot (white arrow).

Reta F. Beebe of New Mexico State University in Las Cruces suspects the tent evolved from a small storm originally located at the same latitude as the red spot — a hurricane system so big that its surface area exceeds that of Earth.

A collision with the massive spot pushed the small storm several degrees north of the hurricane, she speculates. "It's like crashing a Volkswagen into a semi," Beebe says.

Relocated at the edge of Jupiter's south equatorial belt, the westward-moving storm encountered winds blowing toward the east, which may have deformed the weather system into a tent shape, she reasons. Beebe suggests the tent feature may have previously appeared too faint to image.

The Hubble photograph — part of a sequence of 45 images taken in May — also depicts a pale oval (black arrow), one of several similarly shaped storms that formed about 1938.

The new images lack the resolution of photographs taken by the two Voyager spacecraft one Jovian year ago (about 12 Earth years), but they do provide enough detail for researchers to compare both image sets and track annual weather patterns on the planet. Beebe and her colleagues plan periodic Hubble surveys to monitor seasonal weather changes on Jupiter.

The Venusian landslide that wasn't

Forget that report about evidence of a recent landslide on Venus. Scientists now say they misinterpreted radar images taken by the Magellan spacecraft, which orbits the planet.
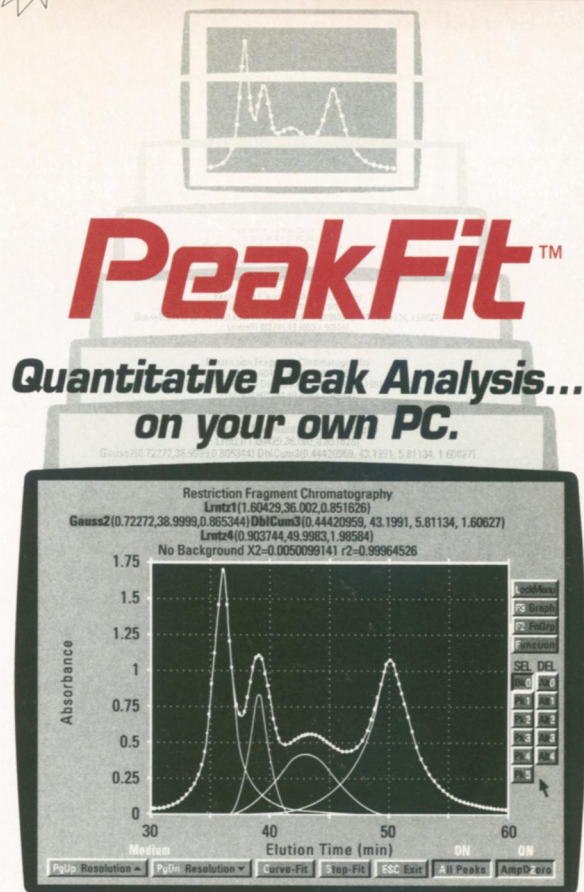
Comparing Magellan images of an inclined region associated with a plateau called Aphrodite Terra, recorded last November and again in July, researchers had found a striking difference. A bright line in the November image, thought to be a fracture, seemed to have evolved into a bright patch in the July picture. Scientists interpreted the bright area, often an indicator of rough terrain, as a massive heap of rocks that had fallen sometime in the previous eight months (SN: 9/7/91, p.149). The finding appeared to offer the first confirmation of current geological activity on a planet other than Earth.

Jeffrey Plaut of the Jet Propulsion Laboratory in Pasadena, Calif., who discovered the bright patch, now attributes the feature to image distortion. Such distortion occurs when the angle of the detector (relative to the vertical) is less than or equal to the incline of the steeply sloped area.

Such conditions prevailed both times that Magellan flew by Aphrodite Terra. In July, because Magellan's viewing angle was smaller than the area's incline, the craft orbited closer to the top of the hill than to the bottom. Thus it received radar echoes from the top sooner. This translated into an image in which the top appeared as if it were near the bottom. The patch may be an artifact of the misplaced signals, Plaut says.

Because Magellan's viewing angle last November matched the region's slope, echoes from the top and bottom arrived simultaneously. Researchers mistakenly interpreted the single bright line that these echoes formed as a fracture, Plaut says. Though radar still indicates the area contains a few fallen rocks, he says the rubble likely rolled down the slope long ago.