## James B. Pollack

## NASA Ames Hall of Fame

If he held no other distinction, James Pollack has one enjoyed by few others: a crater on Mars was named after him by the International Astronomical Union in 1995. He probably could not have received a more fitting honor. In almost twenty-five years at Ames, Pollack was always at the cutting edge of planetary science, a man who contributed volumes to humanity's understanding and appreciation of the Solar System and its family of amazing planets.

A key scientist in every major planetary mission mounted by NASA since 1971, including Mariner 9, Viking, Voyager, Pioneer Venus, Galileo, Mars Observer, and Cassini, Pollack did seminal work on all of the planets visited by these craft. His numerical modeling of planetary formation physics provided new insight into the formation of the Jovian planets (Jupiter, Saturn, Uranus and Neptune). By examining the scattering of radar signals through the rings of Saturn, Pollack helped to prove that they are composed of a mass of ice particles. He used Voyager data to analyze particulate sizes in the atmosphere of Saturn's moon, Titan, and to determine the internal heat budget of the giant planets.

Pollack was recognized as the world's preeminent authority on planetary atmospheres. His modeling of greenhouse-heating scenarios not only proved the cause of the furnace-like temperatures on the surface of Venus, but also provided new information on the effects of volcanic debris and the consequences of an asteroid impact on our own planet's ecosystem. Pollack's Mars atmospheric circulation model has proven an invaluable resource for NASA's Mars exploration efforts, from the Viking Project to Pathfinder and Global Surveyor. Much of his work was conducted through Ames' Kuiper Airborne Observatory. He authored or co-authored almost 300 publications, a body of contributions filling ten bound volumes.

Although James Pollack spent his life exploring our Solar System, he also helped to show us the complexity of Earth and the fragility of its life-sustaining ecosystem. His work in the field was so extensive it could be almost called a second career. Studying the greenhouse effect, ozone depletion and climactic change, Pollack demonstrated the sobering possibility that Earth could one day suffer the sulfuric acid rains and searing temperatures of Venus, or the dead eternal winter of Mars. He later extended his studies of Earth's atmosphere in collaboration with Carl Sagan and other colleagues to develop the nuclear winter scenario, a frightening extrapolation of the consequences of a global nuclear exchange. Published in the journal Science, the nuclear winter model fired the arms control movement of the 1980's and played a major role in encouraging U.S. and Soviet leaders to engage in serious disarmament talks. Pollack's contributions have shown that the study of other planets is not only valuable in and of itself, but also because of the new perspective it gives us of our own world.

Pollack also brought many bright new scientists to Ames and helped them establish their careers. Many researchers who got their start under Pollack's guidance have gone on to

distinguish themselves and Ames by their work. Pollack's vital contributions in this regard were recognized in 1986 when he was honored by Ames as a mentor of young scientists. Other major awards bestowed upon Pollack include the H. Julian Allen Award (twice), the NASA Exceptional Scientific Achievement Medal, the Leo Szilard Award of the American Physical Society, and the Gerald Kuiper Prize of the American Astronomical Society. In 1987 he was also named as an Ames Research Center Fellow, Ames' highest honor.

Someday, humans will walk on Mars, possibly even within Crater Pollack. Their presence on the red planet will owe much to the work of other explorers such as James Pollack, who devoted his life to studying other planets -- and helping us to appreciate and preserve our own Earth.