ROBERT A. CRADDOCK

Education:

B.S. Geology, University of Georgia, Athens, GA, May 1985

M.S. Geology, Arizona State University, Tempe, AZ, December 1987

Ph.D. Environmental Sciences, University of Virginia, Charlottesville, VA, May 1999

Professional Experience:

1988-Present	Geologist, Center for Earth and Planetary Studies, National Air and Space Museum, Smithsonian Institution, Washington, DC
2000-Present	Assistant Curator, Department of Space History, National Air and Space Museum, Smithsonian Institution, Washington, DC
2003-2005	Science Advisor, Under Secretary for Science, Smithsonian Institution, Washington, DC
1988	Graduate Research Assistant, Department of Geology, Arizona State University, Tempe, AZ
1985-1987	Graduate Teaching Assistant Department of Geology, Arizona State University, Tempe, AZ

Work Experience:

As a geologist at the Center for Earth and Planetary Studies, Dr. Craddock conducts scientific research in the field of planetary geology with an emphasis on the origin and evolution of landforms on the Earth, Moon and Mars. By analyzing and synthesizing spacecraft remote sensing data, his research has addressed several significant scientific questions regarding the evolution of the martian surface and it early atmosphere. Specifically, his analyses of impact crater modification provided clues to the types of geologic processes that operated on early Mars. These results support a warm, wet climate capable of sustaining rainfall and surface runoff. As an investigator in NASA's Mars Data Analysis Program, his current research focuses on the morphometry of valley networks and the physical characteristics they share with terrestrial channel systems. He has conducted field investigations in central Australia where he has presented evidence for a vast fluvial landscape buried beneath the modern Simpson Desert. He has also used spacecraft data from the Moon to understand the history of the crater modification. As an assistant curator in the Department of Space History, Dr. Craddock is also responsible for documenting the planetary science collection at the National Air and Space Museum, acquiring new artifacts and planning exhibits on planetary science, including a new exhibit on the Mars Exploration Rovers. Recently he served as science advisor where he worked with the Under Secretary of Science in implementing recommendations made by the Smithsonian Science Commission.

Current Research Grants:

Principal Investigator, Ages and Characteristics of Martian Valley Networks. NASA Mars Data Analysis Program. (2003-2006) Awarded $120,000.

Principal Investigator, Analyses of Modified Impact Craters in the Martian Highlands. NASA Mars Data Analysis Program. (2006-2009) Awarded $93,739.

Professional Organizations:
American Astronomical Society, Division of Planetary Sciences
American Geophysical Union
Geological Society of America
Geological Society of Australia

Books:

Craddock, R.A., *The Apollo 11 Collection*, Chronicle Books, San Francisco, CA, October 2003. Winner of the American Association of Museums Award for Best Educational Resource, 2004.

Selected Publications:

Craddock, R.A., and A.D. Howard, The case for rainfall on a warm, wet early Mars, *Jour. Geophys. Res.,* 10.1029/2001JE001505, 2002.

Craddock, R.A., and A.D. Howard, Simulated degradation of lunar impact craters and a new method for age dating farside mare deposits, *Jour. Geophys. Res.*, **105**, 20,387-20,401, 2000.

Craddock, R.A., T.A. Maxwell, and A.D. Howard, Crater morphometry and modification in the Sinus Sabaeus and Margaritifer Sinus regions of Mars. *Jour. Geophys. Res*., **102**, 13,321-13,340, 1997.

Craddock, R.A., L.S. Crumpler, J.C. Aubele, and J.R. Zimbelman, Geology in the vicinity of the Viking 1 landing site and implications for the Mars Pathfinder mission, *Jour. Geophys. Res.,* **102**, 4161-4183, 1997.

Craddock, R.A., and T.A. Maxwell, Geomorphic evolution of the martian highlands through ancient fluvial processes. *Jour. Geophys. Res., 98*, 3453-3468, 1993.

Craddock, R.A., and T.A. Maxwell, Resurfacing of the martian highlands in the Amenthes and Tyrrhena region. *Jour. Geophys. Res.,* **95***,* 14,265-14,278, 1990.

Craddock, R.A., R. Greeley and P.R. Christensen, Evidence for an ancient impact basin in Daedalia Planum, Mars. *Jour. Geophys. Res.,* **95***,* 10,729-10,741, 1990.

Craddock, R.A., and R. Greeley , Thickness and volume of mare deposits in Tsiolkovsky, lunar farside. *Proc. Lunar Planet. Sci. Conf. 18th,* 331-337, 1988.

Hutchinson, M., R.A. Craddock and J. Stein, Topographic data reveal a buried fluvial landscape in the Simpson Desert, Australia, *Nature, in review*.

Irwin, R.P., III, A.D. Howard, R.A. Craddock, and J.M. Moore, An intense terminal epoch of widespread fluvial activity on early Mars: 2. Increased runoff and paleolake development, *J. Geophys. Res. Planets,* **110**, E12S15, doi:10.1029/2005JE002460.

Irwin, R.P., III, T.A. Maxwell, A.D. Howard, R.A. Craddock, and D.W. Leverington, A large paleolakes basin at the head of Ma'adim Vallis, Mars, *Science*, **296**, 2209-2212, 2002.

Presley, M.A. and R.A. Craddock, Thermal conductivity of particulate materials. 3. Natural samples and mixtures of particle sizes, *J. Geophys. Res. Planets, in press*.

Zimbelman, J.R., R.A. Craddock, R. Greeley, and R.O. Kuzmin Volatile history of Mangala Valles, Mars. *Jour. Geophys. Res.*, **97**, 18,309-18,317, 1992.