

Solar System Exploration



David Kring



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Where are you from?

I was born in Indianapolis, Ind., and attended Perry Meridian High School. My teachers there gave me an opportunity to push beyond the standard curricula in science, math, economics, and government.

Describe the first time you made a personal connection with outer space.

As a child, I was spell-bound by the Apollo astronauts as they began to explore the [Moon](#). Their work inspired me so much. I look forward to a time when humans once again explore the Moon and beyond, because we need those types of events to inspire a new generation of students.

How did you end up working in the space program?

As an undergraduate student at Indiana University, I was given an opportunity to study [Apollo](#) samples from the Moon. This later led to Ph.D.-level studies at Harvard University. From there, I went to the University of Arizona where I spent nearly 17 years conducting NASA-sponsored research, as well as teaching students of my own. The experience I developed with samples from the Moon, [Mars](#) and [asteroids](#) has led to my current opportunity to help the nation develop a robotic and human exploration program that will carry us back to the Moon, and beyond.

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What is a Senior Staff Scientist/Principal Investigator?

As a senior staff scientist, I conduct basic scientific research of the planets, including contributions to NASA's Cosmochemistry Program, Planetary Geology and Geophysics Program, and Mars Fundamental Research Program. For example, as part of the Cosmochemistry Program, my team discovered a collision

between two asteroids that occurred before the Earth's Moon had even formed. Projects like this help us to build a picture of the formation of our solar system.

As part of the Mars Fundamental Research Program, my team used analyses of impact craters on [Earth](#) to predict that impact events on ancient Mars produced vast subsurface hydrothermal systems. This prediction has since been confirmed with spacecraft detection of mineralogical signatures of those systems. Since we know that life can evolve in these types of systems, they will be the focus of future exploration on Mars.

As principal investigator for the Center for Lunar Science and Exploration, I am responsible for a team of about 50 scientists who are exploring the origin and evolution of the Moon and its implications for the origin and evolution of the Earth. The team is also integrating scientific and exploration objectives with the development of hardware, tools and operational protocols that will be needed to explore the Moon and other planetary surfaces.

I also lead several training programs for undergraduate and graduate students, including work at Meteor Crater in Arizona, which is one of the world's most spectacular impact sites. I am also responsible for an education and public outreach program that is designed to inspire and help interested students develop career paths that enhance the scientific and technological capabilities of our nation.

Tell us about a favorite moment so far in your career.

One of the most extraordinary moments in my life was when our team discovered the Chicxulub impact crater and linked it to the extinction of the dinosaurs. That impact event caused a global calamity and demonstrated that impacting asteroids and [comets](#) can alter both the geologic and biologic evolution of a planet.

It is also important to point out that the discovery of the Chicxulub crater is an incredibly important outcome of space exploration. Specifically, the lessons I learned while studying impact events on the Moon set the stage for the discovery of Chicxulub. That linkage underscores a truism that is often forgotten: When we explore space, we are not leaving Earth behind; rather, we are also discovering more about ourselves and our home planet.

Who inspired you?

As noted above, the Apollo astronauts obviously inspired me. However, I have been shaped by dozens of people: family, neighbors, teachers, and government leaders. Collectively, they promoted an expectation and created a series of opportunities for me to successfully contribute to our nation's future.

What advice would you give to someone who wants to take the same career path as you?

Embrace the challenges your teachers give you and let your curiosity carry you to new places. Respect the guidance given you and be thankful for each opportunity. And, when you have succeeded, remember to turn to the next generation and help them achieve an even higher level of success.

What do you do for fun?

I am a planetary geologist whose first fascination is with his own planet Earth. I spend countless hours hiking through canyons, over mountains and across deserts, absorbing the wonder of it all and probing curiously those terrains to learn more about them.

If you were talking to a student interested in science and math or engineering, what advice would you give them?

There are elements of science, math and engineering that are simply fun. However, while you are developing the tools to become a professional, you will certainly bump into some challenging walls. You need to find the strength to persevere, because once you have mastered those capabilities, the world, indeed the Universe, will lie open to you and your exploration of it.

Editor's note: This article about Dr. Kring was posted on a NASA Featured People website for several years (e.g., at <http://solarsystem.nasa.gov/people/profile.cfm?Code=KringD>), but cycled off-line during a redesign of the NASA website. Because many students found the article helpful, we provide this PDF copy.