

10. Acknowledgements

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Training for impact-cratered terrains described here-in was part of larger geology curriculum. It was a pleasure to work with colleagues to develop that geology curriculum for the 2009 and 2013 classes of astronauts. Collaborating classroom and laboratory instructors of the 2009 class were Apollo 15 Commander David Scott, Apollo 17 Lunar Module Pilot Harrison Schmitt, Apollo Flight Director Gerry Griffin, James Head, Don Bogard, Andrea Mosie, Gary Lofgren, Carl Allen, astronaut Drew Feustel, Jeff Plescia, Rob Stewart, Alan Glazner, Paul Spudis, Mike Zolensky, Dean Eppler, William Stefanov, Cindy Evans, Jim Hansen, Jim Tucker, Robert Stern, Justin Wilkinson, Paula Bontempi, Fred Hörz, Roy Christoffersen, David McKay, and David Carrier. Collaborating classroom and laboratory instructors for the 2013 class were David Scott, Harrison Schmitt, James Head, Jeff Plescia, Sarah Noble, Ryan Ziegler, Andrea Mosie, Carl Allen, Roy Christoffersen, Jay Dickson, John Callas, Dawn Sumner, Mike Zolensky, Kevin Richter, Cecilla Satterwhite, and Paul Abell. Collaborating field instructors for the 2009 class were Kip Hodges, José Hurtado, Mark Helper, Dean Eppler, Phil Christiansen, Ron Greeley, Kellen Whipple, Alan Glazner, Kirt Kempter, Barbara Tewksbury, Pat Dickerson, Cindy Evans, Justin Wilkinson, and Fred Hörz. Collaborating field instructors for the 2013 class were Barbara Tewksbury, Kip Hodges, José Hurtado, Mark Helper, Chris Condit, Harrison Schmitt, Will Stefanov, Cindy Evans, Justin Wilkinson, and Dean Eppler. Collaborating field instructors for the special edition requested by senior astronauts in 2012 were Barbara Tewksbury, former astronaut geologist Jim Reilly, Kip Hodges, José Hurtado, Jim Skinner, Mark Helper, Chris Condit, and Harrison Schmitt.

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I had the good fortune of hearing virtually all of the Apollo Program's science PIs speak, in many cases multiple times. I had opportunities for scientific discussions with dozens of them on a fairly routine basis and I worked with several of them in their laboratories. I also had opportunities to hear from the moonwalking explorers themselves, many of whom still blazed with the curiosity that served them so well on the lunar surface. They peppered me with questions about the samples they collected and I analyzed. Opportunities like those abounded in my early career. Those lunar pioneers passed along a tremendous amount of knowledge, referring to me and colleagues of similar career status as 'the bridging generation.' They hoped that the knowledge they worked so hard to earn would be held and then utilized by the bridging generation when lunar exploration resumed. That moment is now. For those reasons, I hope the Artemis team finds this monograph useful.

I would like to end with a personal note. In March 1991, in the Ballroom at the NASA JSC Gilruth Center, I had the privilege of announcing the discovery of the Chicxulub impact crater; *i.e.*, the shock-metamorphic and impact melt evidence that proved the structure's impact origin; and the crater's link to the Cretaceous-Tertiary boundary mass extinction. That was a big moment in science. Gene Shoemaker, who led the Apollo 11 and 12 geology teams, and who

had been searching for the impact site himself, stood up in the audience after I finished speaking and said “By Virginia, you got it!” and was later quoted in *Time* magazine saying our team had found the “smoking canon.” If anything can eclipse that moment it will be the safe landing and return of well-trained Artemis astronauts with samples they collected in the ancient impact-cratered highlands of the lunar south polar region.

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