

## Ralph J. Archuleta Distinguished Alumni

by Julianne Couch  
Alumnews Editor

Growing up in Reliance, Wyo., and attending high school in Rock Springs, Ralph Archuleta (B.S. '69 Physics) never considered seeking a four-year degree anywhere other than the University of Wyoming. It turned out to be the right path, since it led him to study physics at UW, graduate magna cum laude, and after a few stops along the way, gain international renown in the field of seismology.

Archuleta has gained a significant amount of professional and life experience since those days, but still recalls UW fondly. What he remembers most about his days in Laramie (in addition to the snow) is not necessarily the science he learned.

"What I remember most are the people. Classes weren't so large especially in science and I met some people early on who also came from small towns like Reliance. At UW you could meet people who shared similar values to yourself and at the same time were very different from you. UW allowed people to excel - it was the kind of place where a friend of mine from a town of 30 people could go on to become student body president. It gave people a chance to excel, but of course you had to take advantage of opportunities when they arrived."

He also remembers being incredibly naïve when he started UW, and now isn't sure if he knew then how naïve he really was. One thing he's pretty sure of - his classmates were just as naïve, and so they fit in well together. Although he never joined a social fraternity he was involved in several academic organizations such as Iron Skull. Even so, he remembers many old friends from UW, some of whom were in physics but just as many from other academic disciplines. He believes the nurturing environment at UW gave students the chance to meet others with whom they never would have crossed paths at a bigger school.

In addition to excelling academically in his science courses, Archuleta was enrolled in the Honors program, giving him an opportunity to study additional history, art, and other subjects outside the regular science curriculum.

"I'm so happy I was in Honors because I learned so much. When I travel around internationally now I get to see firsthand the things I learned about. You get so wrapped up in science that it



Ralph J. Archuleta (B.S. '69 Physics)

is all you do and you forget there are really great pieces of art in the world. Students in science should take humanities courses so you can see the things in person. When you go to Pompeii it doesn't have to be just to study ash flows."

Archuleta says his UW education prepared him well for a successful career. He began his studies in physics under Professor Hofmann at UW, then earned his master's at UC-San Diego. When he completed that training he spent some time working to gain experience. Then he decided to pursue his Ph.D. in Earth Sciences at UC-San Diego because the people there asked him to solve a certain fundamental problem in geophysics. Although he'd never taken a geology class in his life, he knew that "geophysics is physics applied to the earth." As Archuleta puts it, "It changed my life. All my previous training in math and physics came together and it was like an epiphany."

The National Research Council recognized Archuleta's ability as a geophysicist and awarded a year-long fellowship to support his work with the U.S. Geological Survey in Menlo Park, Calif. It was through his work there that he got involved in predicting ground motion from earthquakes and thinking about the damage they can cause. During that time he became interested in looking at ground motion, which is a central concept of his major research. After completing the fellowship, he continued working for the USGS as a professional researcher until 1984. At that time he took a post as an associate professor of seismology at UC-Santa Barbara.

Working with undergraduate and graduate students has added a whole new dimension to Archuleta the researcher. "Interaction with students is

humbling at times - you try to communicate something, but it is a two way street. Even when you think you are doing a good job you get varied results - you can't please everybody, but I like it a lot. Students are in classes because they want to be. It's not like high school where they take attendance. The students here are bright, if you can get them to start thinking they do well, but it is a matter of motivating them and asking yourself how will students respond to the material. I use lots of positive reinforcement. They don't respond well to intimidation or punishment. That doesn't work. It is better to reward by acknowledging their effort."

Each semester Archuleta takes on two or three graduate students, and teaches three undergraduate or graduate courses per year. One undergraduate class he developed called Geological Catastrophes recently earned Runner Up recognition in a student contest for the best class on campus, right behind Human Sexuality. "If you come in second to sex you must be pretty interesting," he reasons.

For many years Archuleta's friends asked him if he made the right decision when he left the USGS to go into teaching. In addition to researching, teaching means he has more responsibility for students and finding grant sources to support their education, from graduate school through Ph.D. Teaching has meant less time actively involved in his own research, and more time writing proposals and seeing his students excel in their own right. According to Archuleta, the more successful he has become as a researcher, the more time he spends caught up in the paperwork it creates. In spite of that, and in spite of the fact that he doesn't consider writing his strongest suit, he feels that going into teaching was the right choice for him. He is now a full professor, and also occasionally lectures at public schools and arranges for earthquake education materials to be incorporated in school curricula.

Of course, teaching doesn't fill all of his time. For example, he has served as president of the Seismological Society of America, which is the leading association of seismologists and earthquake engineers in the world. He has served on the National Research Council's committee for seismology. For the last ten years he has been in leadership positions with the Southern California Earthquake Center, a consortium of researchers from locales way beyond just Southern California. This group "throws you right into the heart of the research that is going on because you see all the points of view as you try to solve a very complex problem. We don't understand everything about earthquakes and how to mitigate them. But this is a very active research group with a lot of diversity. We're learning what

the important problems are and what it might take to solve them."

Recently, Archuleta was given a medal acknowledging his service to the nation of Slovakia. The commemorative medal for "100 Years of Seismology in Slovakia" was awarded by the Geophysical Institute of the Slovak Academy of Sciences in Bratislava.

"It was really nice because I'm still working with them. Our research has lots in common."

In addition to working with Slovakia, Archuleta has very strong collaborations with other colleagues in Japan, France, and Italy. "Earthquakes don't know anything about political boundaries. It is like doing forensics science because real tragedy has happened. You can't help but be aware of the fact that people have really been hurt. Even though we are out there with the instruments there has been a huge amount of suffering there. People are extremely kind because they know we are there to get information that might help the next time."

Being an expert in strong ground motion, Archuleta has been a consultant to many U.S. government agencies. For example, he has been a consultant to the National Regulatory Commission on the seismic design of the Diablo Canyon Power Plant, and a consultant to the Federal Energy Regulatory Commission and U.S. Bureau of Reclamation on seismic designs for major dams throughout the country.

Bruce P. Luyendyk, professor and chair of the Department of Geological Science at UC-Santa Barbara, was one of those to support Archuleta's nomination for this award. According to Luyendyk, "The impact of his research on his field is unquestionably great. Dr. Archuleta has been extremely successful in creating a highly active research group in earthquake engineering, particularly focusing on strong ground motion prediction. There is no question that he is the intellectual leader of this group and is responsible for basic ideas that lead to significant publications."

In spite of all the awards and public recognition Archuleta has received in his career, being named a UW Distinguished Alumni is near the top. "I was delighted. It is one of those things that brings such a smile. It was totally unexpected. It was such a shock that I had to dig out my old yearbooks to see what I could remember. Really, this is a distinct honor because I know so many good people who really have made contributions, especially this year's other award recipients."

The key to Archuleta's success can be summed up by his simple philosophy. "Start off in a good place that is nurturing and be ready for what comes." ❀

