"It’s not too hot, not too cold, not too wet — everything is just right for life," Earth and Atmospheric Sciences professor Thomas Chacko explains when talking about his work. “One of the reasons the Earth is just right is the existence of continental crust.” Basically, the earth is what he calls “a Goldilocks planet” which is what sparked his fascination with geosciences.

“The Earth is the only body in our solar system that has large amounts of continental crust,” Chacko said. “So what is it about the Earth that it formed large amounts of this crust that can ride high and, through the weathering process, regulate CO2 levels, which is part of what makes Earth habitable?”

The answers lay in Precambrian rock dating back to between 500 million to more than four billion years ago, which makes working at the U of A something of a Goldilocks situation for this American-born geoscientist.

“I moved up here 28 years ago and for a geologist who is interested in early Earth history, Canada is the perfect place. The Canadian Shield is made up of Precambrian rock. It’s a natural laboratory up here. Canada has the oldest known rocks in the world,” he explains.

Chacko and his students and colleagues have been studying rocks around the Acasta River in the Northwest Territories that date back to the earliest part of the Precambrian period. Field work is crucial, Chacko says, to understand the relationships of different rock units in a given area. Once that’s been documented, some of the rocks travel back to campus for closer scrutiny in the lab.

That field work is crucial in another way too though — it also provides Chacko with another opportunity to bring future and emerging scholars into the fold. “The thrill of jointly uncovering new knowledge with students is not only deeply satisfying on a personal level, but goes a significant way in preparing the next generation of scholars.” Working alongside senior undergraduate and graduate students on research projects, allows him to combine and balance both teaching and research aspects of his job. As he puts it, “you’re not just a researcher or an educator — you’re both.”