



January/February 2010 Scientist of the Month

Patricio Desjardins - Ph.D. Candidate, Department of Geological Sciences, University of Saskatchewan



Patricio (Pato) Desjardins is an Argentine geologist, and currently a Ph.D. candidate in the Department of Geological Sciences at the University of Saskatchewan. Pato was born in 1980 in Tucumán, northwestern Argentina. Pato has been passionate about nature since an early age, graduating as a geologist in 2005 and congratulated with the “Best Graduate Award”. While completing his undergraduate thesis, Pato studied rocks of western Argentina, from which he was able to publish two scientific papers in international journals.

Pato not only focused on academic aspects of geology as an undergraduate, he was also involved in science outreach projects in northern Argentina. With a group of friends, he founded the “El Mirador Group” in 2003, which focuses on inspiring creativity through geology and photography workshops in the Aboriginal community of Amaicha del Valle, Tucumán. During 2004/05 he was the leader of the “Tierra Viva” (Living Earth) Geology Workshops, the result of which was a geoturistic trail, along which rocks of different ages could be observed, described and interpreted. The objective of the trail is twofold: 1) to be a tourist destination, and 2) members of the workshops, who serve as guides, can generate an income for their families. A Spanish-language book (translated as “Journey to the Depths of Time”) was prepared and self-published by the members of the workshop. This field-size book is both a geology textbook and a story that incorporates an Aboriginal perspective. It is currently available for purchase in the community, and will be available to purchase on-line in both Spanish and English versions later this year (see website below).

Very soon after graduating as a geologist Pato was awarded a “New Faculty Award Scholarship” in order to pursue a Ph.D. project in the Department of Geological Sciences at the University of Saskatchewan. His project focused on rocks of Early Cambrian age in the Southern Rocky Mountains, formally included with the Gog Group. The main objective of his project is to enlighten the stratigraphy,

paleoenvironments and paleogeography of superbly exposed sandstones originally deposited on an ancient continental margin, thus adding new chapters to the history of the North American continent.

As a Ph.D. student, Pato has given presentations in a number of different countries. He is now in the final stages of his project, from which five scientific papers are being prepared. Pato also has been very involved in science outreach during the last four years in Canada. He has been an active and valuable volunteer and executive committee member of the graduate-student run group Let's Talk Science (LTS), giving class presentations in many elementary and high schools as well as preparing workshops for students and teachers related to geology. One of the most impacting projects he and his LTS colleagues have been involved with is a long-term project with Rossignol High School in the northern Saskatchewan community of Ile-a-la-Crosse. This project shortened the distance – and built relationships – between the north and the University of Saskatchewan in Saskatoon. The results of the project were presented by the students to the local elementary school, and a DVD was prepared showing the interaction between the LTS volunteers and the students. The project was recorded in order to benefit and inspire future educators. In recognition of his work with the communities of Ile-a-la-Crosse and Amaicha del Valle, Pato was awarded the University of Saskatchewan Appel Global Citizen Award in 2007.

As a graduate student, Pato teaches laboratories, and has also been invited on many occasions to be a guest lecturer in various geology courses. Next year, Pato is planning to return to Argentina with his wife Maria Victoria Fachal, where he hopes to join an oil and gas exploration team and continue to be involved in science outreach projects with the El Mirador Group.

For more information on the El Mirador Group, please go to:

www.elmiradordeamaicha.com.ar

What, or who, inspired your decision to become a scientist or to work in your area?

There were two people in particular who inspired me to study geology. The first was my mother, a geographer, who encouraged me to make a connection to nature. The second was Professor Gabriela Mángano, who I met in Argentina while I was doing my undergraduate work. She was so passionate about her work, and so inspirational! I followed her to Canada when she got a job at the University of Saskatchewan. In Argentina, once you start studies in a particular area, you must stick to that career. I chose to study geology before I was really sure what it was. Thankfully, my personality worked well with being a geologist, in that I constantly used my imagination and creativity to visualize the history of the rocks I studied. I was fortunate that I really liked sedimentology, which became my area of specialization.

What is the most interesting thing you have ever learned or discovered?

The power of teaching! I never knew that you could influence someone so much by giving them the opportunity to discover something they did not know, or never knew existed. Studying geology is like looking at the world from a different perspective. I have had some excellent teachers, but also have had the opportunity to be a teacher myself. What I learned from working with Aboriginal students in Argentina is that their culture has a strong connection to, and a profound respect of, the earth. Science and the geological perspective both intersect and run parallel with Aboriginal culture.

Of what accomplishments are you most proud?

There are two things that come to mind. Firstly, in my Ph.D. thesis, I have been able to present innovative and original ideas in an area which has up to this point, been little understood. I hiked more than 600 km over the last three years to better understand the geology of my area. To make an analogy, before it was like a wall; now we know the pieces that make up that wall. Secondly, my friends and I funded and published a geology book created with the students of the community Amaicha in Argentina. The students really wanted to learn and were willing to work hard, and together we created a book that they can claim as their own, as it integrates their culture. We all knew the book was going to be special. The book will help improve the quality of life for people in the community, as they have gained knowledge that they can use for economic gain by offering “geo-tours” of their area. They used their creativity in many ways, such as photography. The skills they learned will benefit them in other ways, too.

Were there any obstacles in your education or career, and how did you overcome them?

The first day I entered university, I knew that I wanted to come to Canada to do post-graduate work. (I had visited Saint John, New Brunswick when I was an exchange student in grade 12.) This was necessary in order to grow professionally. I knew I would have to study responsibly, to get good marks, and be ready for the opportunity to come to Canada when it came. As happy as I was to come to Canada, it can be difficult to live in a different country, away from your family. A recent challenge was that during a pickup soccer game, I snapped my Achilles tendon and couldn't do my last field season.

What is a typical (work) day like?

Answering emails always comes first! Right now, my focus is on writing up my Ph.D. thesis. This process includes reading/researching papers on my subject to get ideas, going back to the data and descriptions in my field notes, looking at photos, and thinking. When I have an idea, I write it down while making a hypothesis about how

the rocks were formed and what information they convey. I will then draw it, using computer software. Once I have my ideas clearly set out and can back it up with references, I then write my ideas out in words. My thesis is really a collection of published and unpublished papers. The last thing I do is to prepare the plates (photos) for publication. Other things I may do include looking at samples (rocks, thin sections, trace fossils) that add to my interpretation, teaching in undergraduate labs, and guest lecturing when my supervisor is away. I am also a scientific illustrator for publications on the side.

What advice do you have for future scientists?

Be open-minded to new theories and ideas. Realize that there are always new things to discover (e.g. new fossils that no-one else has discovered). Grow a relationship with your teachers and professors. Listen to and learn from their experience and evolve from there. Look to do something original. Study and never stop studying! Learning is fun!