

2010-2011 CSEG Distinguished Lecturer Tour Diary – Part 1

Satinder Chopra

Arcis Corporation, Calgary, Alberta, Canada

Every year the CSEG selects an individual as the Distinguished Lecturer (DL), who tours Canada to present a technical lecture at selected universities and professional societies. The DL tour is an active effort to promote communication between members of the different geoscientific communities in Canada, who may be from academia, industry, or government agencies like the Geological Survey of Canada (GSC). Historically the chosen DL candidate has alternated between one from academia and one from industry, as an ideal way of sharing knowledge or getting to know the different points of view and learning from them.

It was a distinct honour that the CSEG DL Committee chaired by Dr. Igor Morozov of the University of Saskatchewan bestowed on me by selecting me as the sixth CSEG Distinguished Lecturer for 2010-2011. I was notified of this decision in early summer, with the suggestion that I should have at least two topics for my DL talk, to give an option to the audiences at different tour locations. So I started thinking about the topics that I should be addressing within my favourite subject of seismic attributes. I came up with the first talk entitled '*Seismic attributes for fracture detection*', which has a geological component to it and is suitable for those locations that have a greater focus on geology. To the second talk I gave the title '*Extracting meaningful information from seismic attributes*', which discusses how a seismic interpreter can squeeze more out of seismic data by way of attributes.

I was given a list of 28 different locations which I was expected to contact, and visit those that showed interest in the topics that I had selected for my talks. As I looked down the list, the only place that I found familiar was Victoria, where I had spent some eleven months when I first came to Canada. Consequently, I decided to begin my DL tour by first visiting this familiar territory and so headed west to

Vancouver/Victoria on 15th November, 2010. My first stop was Simon Fraser University (SFU).

The Department of Earth Sciences at SFU Burnaby Campus is relatively new and has a strong focus on field-based research in environmental geosciences and traditional geology. The attendance for my talk was about 15-20 people comprising a few members of the faculty and students. Andrew Calvert, Professor of Geophysics and my contact and coordinator for my talk at SFU, introduced me to the audience. Andy had found fracture detection as the more appropriate topic for the geological audience and so I delivered that talk. There were some interesting questions from them ranging from, "Besides seismic attributes, what other technologies could help detect fractures?" to, "How it is possible to quantify fracture anisotropy in the subsurface and which technique is the best?" It was an interesting encounter with grad students for me after a long time away from the academic world.

Andy invited me and two of his students, Eric and Dragana, for lunch and took us to an East Indian Restaurant on SFU Campus. After having a leisurely meal and indulging in an informative chat, I headed to the Tsawwassen ferry terminal and took the ferry ride to Swartz Bay, Victoria. Though it had been raining since the morning in Vancouver, it stopped for my afternoon ferry ride. It brought back memories of the day when I had first set foot on Canadian soil with my family in 1997 at Vancouver airport, and had taken a ferry ride to Victoria. We had all enjoyed it then and this time it was no different for me.

After spending the night at Sidney Waterfront Inns and Suites, situated at a very picturesque spot by the seaside, the following morning I was picked up by my old colleagues Joe Henton and Michael Riedel, both working as research scientists at the Geological Survey of Canada (GSC), Pacific



Outside view at Sidney Waterfront Inn and Suites, Sidney, Victoria.



Joe and Michael at PGC, GSC, Sidney, Victoria.

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Geoscience Centre (PGC) at Sidney. It had been a long ten or twelve years since we had last met, and so it was nice catching up with them on our way to PGC. Their warmth and hospitality touched me throughout the day.

There were 25-30 people for my talk. Geoscience research at PGC is aimed at gaining a better understanding of the geological history, processes and hazards affecting Western Canada. It has a strong focus on research and monitoring of earthquakes, investigating the movement of the Earth's crust, exploration in the coastal marine environment and is also known for its gas hydrates research. Roy Hyndman, Senior Research Scientist at GSC, Sidney and also an Adjunct Professor at University of Victoria (UVic), is well-known for geophysical studies of Western Canada, Earthquakes, Tectonics, Marine gas hydrates and is an Honorary member of the CSEG, and a recipient of the J. Tuzo Wilson award. Roy was my supervisor when I was at UVic, and introduced me to the audience. Just before entering the Milne Room, the permanent location at PGC where the weekly seminar talks are held, Roy had picked up his copy of the RECORDER in the mail, and encouraged the audience to read it, mentioning that it contains many interesting articles as well as human interest information, especially the interviews. My talk here was on extracting more meaningful information using seismic attributes, and I could make out from the gestures and head nodding that the audience did find the information relevant and useful.

An interesting question that came up after the talk is if it is feasible to have a circular shooting pattern on land to avoid the acquisition footprint on seismic data. This was probably in response to the suppression of acquisition footprint that I had discussed in my talk. Such a shooting has often been adopted with offshore acquisition, particularly 3D VSP data. Such an acquisition geometry might have logistical implications with land data and would need more thought.

Roy treated me to lunch at the PGC Café and together with Joe and Michael we chatted about our varied experiences during the last 12 years and it was fun doing that. Post lunch my hosts Joe and Michael drove me to UVic, where I was scheduled to give a talk at 3:30 pm.

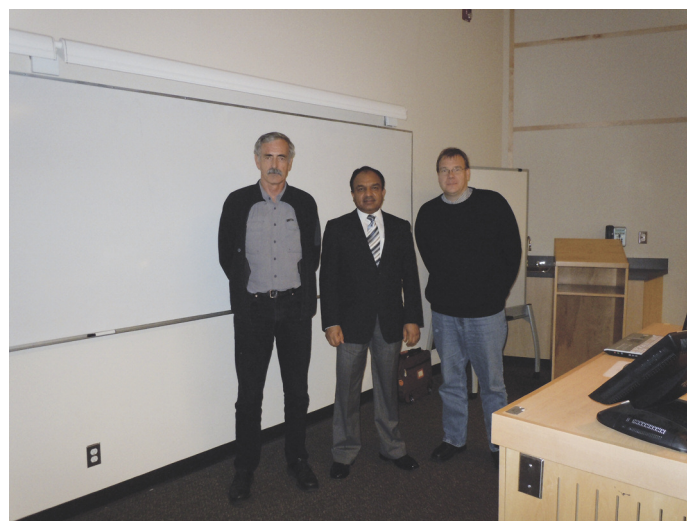


DL talk in progress at UVic.

Housed at the Bob Wright Centre on the UVic Campus, the School of Earth and Ocean Sciences is engaged in research in earth sciences, climate and oceanography. George Spence, Professor of Geophysics and my former co-supervisor at UVic, had coordinated this talk. As there was some time in between, George first introduced me to some of his grad students. I was impressed with the diverse problems they are working on as part of their research, for example the use of tomography and full-waveform inversion, as well as hydrates and slides to understand seismic structure of the Vancouver Island Margin, numerical modeling of glacial isostatic adjustments, controlled source seismic interpretation, and many others. Again there were about 15-20 people in attendance, and the enthusiastic audience had some questions for me as well.

After the talk, George was really kind to take me out for a quick dinner before dropping me off at Victoria airport. As I sat in the airplane and reminisced about the last two days, I felt overwhelmed by the warmth and affection of my hosts as well as their hospitality. I got back home that night with a feeling of satisfaction and happiness, concluding the first leg of my 2010-2011 CSEG DL tour.

For the second leg of my DL tour, I headed east, this time to the capital city of Ottawa on Nov 24th, where I had been invited to give talks at Carleton University and the Geological Survey of Canada. My key contact at Carleton was Brian Cousens, Associate Professor, who specializes in Geochemistry and Petrology, and Peter Bobrowsky, Senior Scientist, at GSC. I took the morning flight out of Calgary (in deep freeze (-27°C) that day) and reached Ottawa in the afternoon. This flight arrived late as for some reason it was delayed by an hour or so in Calgary itself. As Brian was teaching at that afternoon hour, he had arranged to have me picked up at the airport by his Ph. D. student, Thomas Mumford. It is about a 30 minute drive from the airport to downtown, and as we chatted on the way, I was given to understand that Ottawa is the second largest city in the province of Ontario and the fourth largest city in Canada. With a population of over 800,000 people, it lies on the Ottawa River, which forms a major waterway and the local boundary between Ontario and Quebec. I was dropped at Les Suites Hotel where I had made a reservation. After freshening up I decided to go out and have lunch. Just a block away



With George Spence and Michael Riedel just after my talk at UVic.

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from this hotel there is this well-known Rideau Street which has many restaurants on both sides, and I found one up to my liking. With my hungry stomach taken care of, I headed towards the Parliament Hill, which was a 15 minute walk from where I was. I had seen video coverage of this political establishment many times on TV, but it was certainly different seeing it in person. The main building has a majestic appearance with fine architecture. The adjoining buildings are equally good though somewhat smaller. The main building oversees the Ottawa River at the back, with a couple of bridges over the river to the city of Hull on the Quebec side. It was quite cold and windy that evening and equipped with just a jacket and no head gear, I decided to head back to the hotel after spending close to 45 minutes on Parliament Hill clicking pictures.

Brian picked me up at 10 am the following morning and took me to Carleton University for my first talk. As we chatted on the way and at his office later over a cup of coffee, I got to know more about the Earth Science Department at Carleton. This department offers B.Sc. programs in Earth Sciences and Computation Geophysics at the undergraduate level with an emphasis on testing classroom theory in the field. At the graduate level, the focus is on sedimentary basin analysis, geochemistry, tectonics, mineral deposits, applied geophysics petrology and radiogenic isotope geochemistry. Brian himself specializes in isotopic analysis of rocks and minerals and conducts field trips to locations where volcanic activity is brimming and arouses his curiosity, the last one being to Iceland. I met Claire Samson, the head of the Earth Sciences Department, who came across as a very pleasant lady, appreciative of my visit to Carleton.

My talk was arranged in a modern, well-equipped lecture room. Claire had asked Dariush Motazedian, Associate Professor and Engineering Seismologist to introduce me, which he did very nicely. There were about 20-25 people in attendance, including some faculty members. My talk went off well and as apprised later, was well-received by the audience.

Ottawa has two universities, namely Carleton University and University of Ottawa. An interesting aspect is that the Ottawa-Carleton Geoscience Centre there offers students the unique opportunity to take courses at both Carleton University and the

University of Ottawa. This definitely helps students who come with varying undergraduate experiences. The Centre on behalf of both universities invites speakers for talks such as the CSEG DL and so the students at both the universities benefit from them.

After my talk I got the opportunity to chat with some faculty members. Claire specifically asked me to thank the CSEG for sponsoring and sending me to Carleton, as they find it very useful to get the industry perspective to their studies and teaching. I talked to Dariush a little more and he shared with me his experiences and about the work that his students are doing. I was particularly impressed with the shallow shear wave studies that he has carried out with Jim Hunter of GSC using data from 30 000 wells and mapped seismic site classes for the city of Ottawa based on near-surface shear wave velocity. This must have been a very laborious task, nevertheless very interesting and useful.

As I finished at Carleton, Brian gave me a ride to the GSC office for my next talk at the Logan Club. This club was founded in 1887 and named after Sir William Logan, the founder and first director of the Geological Survey of Canada. It serves as a forum for the GSC staff as well as invited speakers to discuss earth science topics. I met Peter Bobrowsky there, as he had coordinated my talk. The GSC has its main central office in Ottawa with other offices scattered across the country. Besides serving to increase awareness in earth sciences, this office produces information material which is available at their bookstore. It was a small audience here (~ 10) for my talk and I was told that it is probably because the seismic focus at this office is limited. However, the group was enthusiastic and had some interesting questions, including how the eigenstructure coherence algorithm works and how seismic attributes could help in complex areas where seismic data might have imaging problems or seismic reflections may not be as continuous or the overall quality of the data may not be good. After the question session, Peter gifted me a T-shirt with a GSC emblem and a plaque for my talk, which would certainly add to my collection.

I finished at the GSC on an encouraging note and took a taxi to the airport. The return late-evening flight was on time and the 4 hours on the airplane provided me ample time to reflect on the day's



Parliament Hill, Ottawa.




Behind Parliament Hill overlooking Ottawa River.

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proceedings, appreciate the hospitality and warmth extended to me, as well as the interaction I had with different people. All these thoughts made me feel good and somewhere along the flight drew me into light dreams. I got up when the air-cabin crew made the announcement that we are about to land at Calgary. It was again an enjoyable and successful trip on many counts.

I am now looking forward to my next DL trip in mid January 2011, after the examinations and holidays, when the students are again back for the next session at their universities. I will share my DL tour experiences after that in part 2 of this tour diary. 



Beginning the talk at Carleton University, Ottawa.



Talk in progress at Carleton University, Ottawa.

CSEG Distinguished Lecturers

YEAR	LECTURER	AFFILIATION	WEBSITE LINK
2005-2006	Michael Enachescu	At the time Memorial University, Newfoundland	Abstract: http://www.cseg.ca/publications/recorder/2006/02feb/feb2006-structural-setting.pdf
		Presently MGM Energy, Calgary	Profile: http://www.cseg.ca/publications/recorder/1998/09sep/sep98-profile.pdf
2006-2007	Brian Russell	At the time Hampson-Russell, Calgary	Abstract: http://www.cseg.ca/events/luncheons/2006/12dec/20061218-Russell.cfm
		Presently CGGVeritas, Calgary	Interview: http://www.cseg.ca/publications/recorder/2009/04apr/Apr2009-Interview-Hampson-and-Russell.pdf
2007-2008	Gerhard Pratt	At the time Queen's University	Abstract: http://www.cseg.ca/education/lecture-tour/2008-lecture-tour.cfm
		Presently University of Western Ontario	Interview: http://www.cseg.ca/publications/recorder/2008/06jun/jun2008-interview-pratt.pdf
2008-2009	Ron Clowes	University of British Columbia, Vancouver	Abstract: http://www.cseg.ca/education/lecture-tour/2009-lecture-tour.cfm
			Interview: http://www.cseg.ca/publications/recorder/2009/06jun/Jun2009-Interview-Clowes.pdf
2009-2010	Richard Smith	Laurentian University, Greater Sudbury, Ontario	Abstract: http://www.cseg.ca/education/lecture-tour/2010-lecture-tour.cfm
2010-2011	Satinder Chopra	Arcis Corporation, Calgary	Abstract: http://www.cseg.ca/education/lecture-tour/2011-lecture-tour.cfm
			Interview: http://www.cseg.ca/publications/recorder/2009/03mar/Mar2009-Interview-Chopra.pdf