

The TISP Canada Courier #9



September 30, 2014

High School Students in the Big League? You bet!

For two students of Ontario and Québec the reward and recognition for their outstanding geoscience projects came with a ticket to present their work at an international symposium.

The High School Science Fair at the International Geoscience and Remote Sensing Symposium, IGARSS 2014, in Québec City this year was a “first” for all involved. The organizers of the Symposium, IEEE’s Geoscience and Remote Sensing Society and the Canadian Remote Sensing Society, had put this brand-new initiative in place to reach out and challenge future geoscience

researchers in our high schools. The recipients of this Science Fair Award were to join more than 1800 geoscientists from Canada and from around the world at their annual meeting. For award winners Victor Ling and William Gadoury this was the first opportunity to present their high school project work in the big league, along with the papers and posters and high-tech exhibits of renowned scientists in the field. And what an exciting meeting of the minds it turned out to be for Victor, William, and their older peers!

The two young students were selected for their outstanding geoscience-related project work. They were awarded an invitation to travel to and attend IGARSS 2014 and the 35th Canadian Remote Sensing Symposium at Québec City in July for four days, compliments of the Societies, accompanied by one adult. The scientists and organizers of the symposium had worked with the Québec Science Fair and Canada-wide Science Fair to select the winners. Participants of these science

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TISP Reports from the Regions

TISP-Canada relies on active participation from all regions of the country. These columns report on recent work and upcoming events as well as trials and accomplishments of TISP volunteers across Canada.

British Columbia

April saw the 8th annual popsicle stick bridge building competition in the West Kootenay region of BC and neighbouring Boundary and East Kootenay communities of Grand Forks, Christina Lake and Creston. Over 350 bridge building kits were distributed through elementary and home-school networks. Students

completed almost 200 of them and submitted them for testing. The major organizer was the West Kootenay Branch of the Association of Professional Engineers and Geoscientists of BC. The competition was held in conjunction with the West Kootenay Regional Science Fair at LV Rogers Secondary School in Nelson, BC on April 12, 2014.

During the two months before the competition, members of the Association held classroom presentations to Grade 3-4 classes in many of the region's 18 participating elementary schools. For local IEEE and TISP member Elroy Switlishoff volunteering for school presentations turned out to be an excellent learning opportunity as well, as he

explained civil and structural engineering concepts to nine and ten year olds.

By the way, the winning bridge failed at 190.8 kg of loading, and at least 12 bridges withstood loading of more than 100 kg!

For further information contact TISP Champion Elroy Switlishoff at elroys@telus.net.

Ontario

Wolfram Lunscher of the IEEE Ottawa Section promoted TISP during the annual Ottawa Robotics Competition at Longfields Davidson Heights high school on May 24 earlier this year. The competition featured 300 elementary and middle school students, teachers and parents. TISP information material was on hand for all. Thank you, Wolfram!

Alberta

Kartik Murari, TISP Champion of the IEEE Southern Alberta Section was joined this May by 35 Grade 5 students at Crossfield Elementary School for demonstrations of the "Making Electricity" learning module. According to credible reports, numerous lights went on!

For further information contact Kartik at kmurari@ucalgary.ca.



Photo credit: Denise Currie

Budding bridge building engineers of the Grade 3 class at Kinnaird Elementary School in Castlegar, BC, with TISP Champion and mentor Elroy Switlishoff, P.Eng.

TISP-Canada Mail Bag

TISP volunteer and Courier contributor Dave Hepburn received kudos in the mail.

Imagine the pleasant surprise when Dave Hepburn opened his mail box the other day to find a finely crafted letter from one of the winning participants at this year's Science and Engineering Fair in St. Catharines, Ontario. Dave had volunteered again his expertise and experience as a judge at the Fair and obviously left an impression on the young winner. Apparently Xavier is already looking forward to the meeting next year. And so is Dave. Many thanks to both of you! 📧



A note of appreciation to Dave Hepburn from the recipient of the IEEE Hamilton Section prize for Grades 5-6, Xavier West.

Kudos to our Volunteers

Two TISP volunteers received awards for their outstanding professional work.

Anis Haque, longtime TISP Canada supporter and senior instructor within the Department of Electrical and Computer Engineering at the Schulich School of Engineering, has been awarded the Minerva Education Award of Honour earlier this year. The award recognizes Anis' work in advancing health and safety education in post-secondary institutions in Canada.

Minerva Canada is a not-for-profit organization that promotes teaching safety, health and environmental management in post-secondary schools (<http://www.safetymanagementeducation.com/>). Anis has worked with Minerva Canada for several years, led three health and safety learning forums, and is working with students and colleagues to develop modules to teach electrical safety and nanotechnology.

In June, Dr. Anader Benyamin-Seeyar, TISP-Canada supporter and leader since its inception, received one of IEEE Canada's major service honours, the J.J. Archambault Eastern Canada Merit Award. As member of IEEE's Montreal Section, Anader received the Award in recognition of his long-standing volunteer commitment. The citation reads "For sustained dedication and reliable volunteer work for the Montreal Section." Needless to say that TISP-Canada also benefited tremendously from Anader's outstanding dedication over the past years.

Anis and Anader, your TISP-Canada colleagues and friends congratulate you on winning such prestigious awards. We are very proud of you! 📧

TISP-Canada Committee

Photo credit: D. Hepburn and X. West

Photo credit: IGARSS'14 / 35th CRSS



Victor Ling, one of the two winning students, presenting his work along many international exhibitors at IGARSS'14.

(High School Students, continued from page 1)

fairs are selected from regional competitions for the quality and originality of their research work conducted during the school year. The response of the Conseil du Développement du Loisir Scientifique du Québec and Youth Science Canada turned out to be enthusiastic, and the collaboration was outstanding.

In Ontario, Professor Ellsworth LeDrew from the University of Waterloo attended the Canada-wide Science Fair and selected as the winner the project entitled “Unlocking the Geology of Mars.” It was expertly researched and executed by Victor Ling, a Grade 12 student at Thames Valley Secondary School in Thames Valley, Ontario. Victor developed a method to interpret Marsian surface geology from a host of imagery that were taken from satellites orbiting the planet.

Dr. Danielle De Sève, a researcher with Hydro Québec, and Dr. Josée Lévesque from the Defence Research Establishment at Valcartier attended the

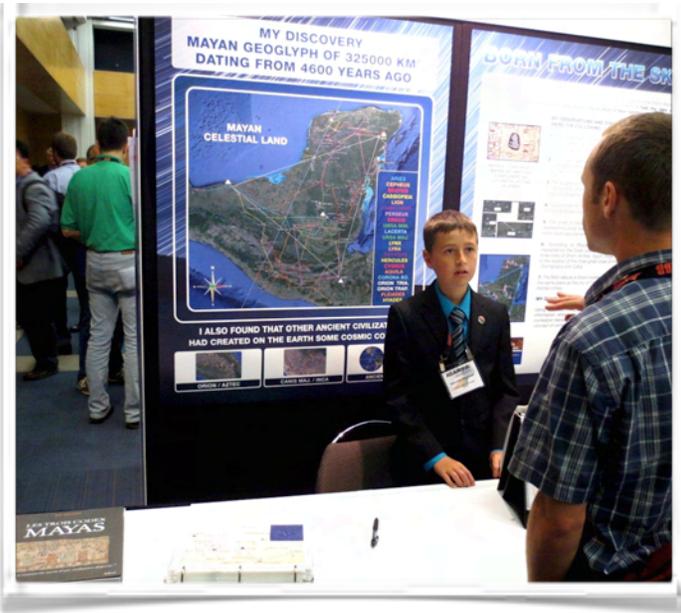


The posters and exhibits were frequented by more than 1800 symposium participants from Canada and around the world.

Québec Science Fair and selected the winning project among various candidates. Thirteen year old William Gadoury of the Académie Antoine Manseau in Joliette, Québec, entitled his project “Born from the Sky.” He carried out a fascinating piece of research connecting the locations of ancient Mayan settlements and religious sites to the well-known constellations in the sky.

The IGARSS conference organizers helped Victor and William to set up a booth of their own, along with numerous illustrations of their work. Their projects were highlighted in the program as well, which added to a steady stream of traffic by curious symposium participants. William and Victor were well prepared; you could always count on engaging conversations and exchanges of ideas between them and the visitors of their booths.

Both students were excellent ambassadors of their schools and drew much attention to the exceptional talent and abilities of students in our schools. Their older peers had great praise for the work of the budding scientists.



William Gadoury, 13, is fielding questions from one of the many geoscientists regarding locations of ancient Mayan sites.



At the symposium banquet, William is recognized by his older peers and the organizing committee – a moment of great pride!

Photo credit: IGARSS'14 / 35th CRSS

The two High School Science Fair award winners very much appreciated their experience at the symposium. Looking back at their stay in Québec, Victor noted: “It was fun interacting with other researchers in fields such as geology or satellite image processing ... IGARSS was a very rewarding experience.”

William Gadoury seemed intent to make the most of his first experience in attending and presenting his project work at such a prestigious international event. He had the following comments: “This experience provided me with new knowledge in the fields of space research and space vehicles. Moreover, IGARSS showed me the importance of remote sensing in the day-to-day life, from security to meteorology, to forests, to oceans and to many more other fields.”

William was invited by Dr. De Sève to visit the Hydro Québec Research Institute and present his project there. The Canadian Space Agency invited him to visit CSA headquarters in Saint Hubert, Québec, and offered to provide for further

research two radar images of the Mayan territory from the Canadian RADARSAT-2 Earth observation satellite. Furthermore, he was invited to attend the meeting MAYA 2015, to be held in Austin, Texas. William also received several business cards from IGARSS participants willing to help him in his research and scientific work.

Overall, this new initiative was a great success for the high school students as well as for IGARSS 2014 and the 35th Canadian Remote Sensing Symposium. The Technical Program Committee has recommended that future symposia in Milan, Italy, and St. John’s, Newfoundland and Labrador, repeat the High School Science Fair contest and reach out to the next generation of geoscience researchers. 🏠

Jean-Marc Garneau and Dirk Werle

For further information on the symposia visit www.igarss2014.org/ and www.crss-sct.ca/. You can contact the authors at dwerle@ca.inter.net and jeanmarc.garneau@gmail.com

Have you visited the new www.tisp.ieee.ca yet?

Keeping one's presence on the Web up-to-date can be a challenging task. Over the past years TISP-Canada champions have contributed generously. Now our new web site is up and running!

After months of planning and preparation, TISP-Canada's presence on the Web has found a new virtual home at www.tisp.ieee.ca, thanks to the volunteer efforts of members from IEEE Canada's Southern Alberta Section.

The new format and content include more than half a dozen pages of useful information on the activities of Canadian Teacher In-Service Program. These pages cover a range of topics, including recent activities across the country, the composition of the TISP Canada Committee, the minutes of the

committee meetings, information on and for volunteers, a listing of our publications, including back copies of the TISP Canada Courier, and information for K-12 educators. We welcome your visit and your comments and suggestions!

For many educators and teachers engaging their students on topics related to engineering in the classroom IEEE's *TryEngineering.org* has been an indispensable "go-to" resource for pre-university students, teachers, parents, and school counselors around the world.

TISP
Teacher In-Service Program

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For Volunteers

Useful links
[IEEE](http://www.ieee.org)

Advancing science, engineering and mathematics among K-12 students in Canada.

What is IEEE?
The Institution of Electrical and Electronics Engineers (IEEE) was founded in 1884 by Edison, Westinghouse, Tesla and others. It is a strictly not-for-profit technical and professional society. Today it has over 400,000 members worldwide, with 16,000 in Canada.

What is TISP?
The Teacher In-Service Program (TISP) connects IEEE volunteers with pre-university educators and students. Our volunteers share their real-world experiences, and demonstrate engineering, science and mathematics concepts.

Why TISP?
There is much concern about Canada's international ranking among the OECD

TISP in Canada / IEEE Region 7

- Active Section in IEEE Region 7, no specific TISP initiatives to-date.
- Active Section in IEEE Region 7, involved in various TISP initiatives.

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Message from the Incoming TISP-Canada Chair

Earlier this year, Dr. Anis Haque from the University of Calgary in Alberta took over as Chair of the TISP-Canada Committee. He will be leading its activities over the next two years.

I am very excited about my new volunteer job as TISP-Canada chair. I took over this position from my esteemed colleague Dr. Anader Benyamin-Seeyar in the spring of this year, hoping that my experience as an educator will keep me in good stead. I have been teaching science and engineering for more than two decades at several universities and gained valuable insights about my students' abilities while they learned about science and engineering. In my experience, many students came to science and engineering programs with outstanding high school grades, but sadly ended up without obtaining the desired

degrees. I also had students whose conventional grade point average was less than stellar, but they had great passion for these subjects. I had been trying hard over the years to encourage and motivate pre-university students to take science and engineering programs. So, when I attended the first Canadian Teacher In-Service Program workshop in Montreal in 2009, I was very excited to find a forum for K-12 science outreach in Canada. I have been volunteering with TISP ever since. I think over the past five years we have made tremendous progress.

During the first half of 2014, TISP has already reached 1563 students, 466 educators, 1213 parents and 171 other volunteers across Canada. Our TISP-Canada volunteers and champions have collaborated with universities, professional engineering associations, teachers associations, school district boards and other like-minded nonprofit organizations. We are considered as one of the most active groups within IEEE Canada. In my new role, the top priority will be to enhance the TISP activities from coast to coast. TISP-Canada is fortunate to have excellent volunteers who want to help and improve the future of science, engineering and math education in our country. My thanks go to the volunteers for their dedication, and I want to encourage them to keep up the good work! 🏠

Anis Haque

Feel free to get in touch with Anis about any TISP-Canada activities at anis@ucalgary.ca.



Photo credit: A. Haque

Anis Haque, Chair of TISP-Canada, discussing projects with the next generation of young scientists and engineers.

Some Guidelines for Contributors

Articles and news items are welcome and should be sent via email to the Editors.

The *TISP Canada Courier* accepts feature articles up to a length of 1000 words with suitable illustration material. Smaller news items should not exceed 500 words in length. Notices for upcoming events should be submitted in a timely fashion keeping in mind the quarterly publication schedule of the Newsletter.

Although the editors will usually consult with contributors regarding any significant change to material submitted, the *TISP Canada Courier* reserves the right to publish such material with any change(s) necessary to meet space requirements, or as otherwise deemed necessary.

This electronic newsletter is issued quarterly by TISP Canada of IEEE Region 7. Current issues and back issues are freely available and may be retrieved at www.tisp.ieee.ca/publications.html.

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The editorial content of this newsletter does not represent official positions of the IEEE or its organizational units.



IEEE and TISP

The Teacher In-Service Program provides a forum for IEEE volunteers to demonstrate engineering, science and mathematics concepts by sharing their real-world experiences with local pre-university educators. IEEE offers workshops for its volunteers on how to provide in-service programs.

Part of the IEEE mandate is to address declining interest of students in engineering. IEEE needs to help raise everybody's awareness of technology. The "TryEngineering" initiative involves IEEE, IBM and the New York Hall of Science. To-date, *TryEngineering.org* lesson plans have been downloaded more than 3 million times. The site has various great features, including a search for accredited university and college programs in many countries, including Canada. Portals on *TryComputing.org* and *TryNano.org* have also been launched.

More information is available at www.ieee.org/education_careers/education/preuniversity/tispt