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Society of Canadian Limnologists Société canadienne de Limnologie

Newsletter of the Society of Canadian Limnologists

This issue:

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Right: SCL student photo contest winner in the category "places". Photo credit: Prachi Deshpande, Wilfrid Laurier University. See our other winning photo on Page 4.



A temporary reprieve for the Experimental Lakes Area

By Jules Blais, President

Canada's aquatic science community has witnessed an eventful year for our world-renowned Experimental Lakes Area (ELA) in Northwestern Ontario. Following the federal government's decision to end its operations at ELA on March 31st 2013, several groups have stepped in to save the beleaguered facility, at least temporarily.

In particular, the International Institute for Sustainable Development, or IISD, under the direction of Scott Vaughn, has spent the past year in negotiations with the federal government to assume control of ELA. The IISD is an international organization committed to research in sustainable development around the world, and operates as a charitable organization receiving core funding from governments and a few private sponsors.

The SCL Executive sees IISD's central involvement in ELA operations as a positive development, although there is much uncertainty for ELA's future. Now that the Memorandum of Agreement between Canada and Ontario has expired as of September 1, whole-ecosystem experiments at ELA have been halted, at least temporarily. The eutrophication experiment of Lake 227 which has run continuously for 45 years has now stopped. Other worrisome signs are beginning to show in ELA's operations, especially in retaining staff with experience in conducting whole-ecosystem experiments. Only one senior scientist central to ELA and formerly working for the Department of Fisheries and Oceans (DFO) has now moved over to the IISD as a volunteer, after taking an early retirement from DFO. As negotiations continue to drag on, affected staffers who were once securely employed at ELA continue to apply for and gain employment elsewhere, putting ELA's institutional knowledge at risk.

ELA's transfer to the IISD also highlights a significant shift in Canada's support of research in the public interest. Even the earliest architects of modern democracy recognized that an informed public is the responsibility of any legitimate democracy. As Thomas Jefferson once said, only an informed public can be trusted with its own government. The dramatic cuts to scientific research, the muzzling of scientists, the

Continued from page 1

gutting of the Fisheries Act and other environmental regulations in two Omnibus budget bills means that charitable organizations like the IISD are now assuming more of the responsibility to keep Canadians informed of environmental threats.

As of this writing, no agreement is officially in place to transfer the ELA to the IISD, though the Government of Ontario has stepped up by committing up to \$2 Million per year in funding to support the ELA over the next five years to assist in the transfer, as has the Manitoba government with a \$900,000 commitment over 6 years. Ontario's participation is crucial to the future of ELA, not only because it is now the major funding source for the facility during this transition period, but it is also the legal guardian of the land that ELA occupies. Many of the legal hurdles in transferring the ELA to the new operator will need the participation of the Ontario government, from liability for site remediation, to allowing the application of potentially deleterious substances to lakes for research purposes, which will be necessary for experiments at ELA to resume. The Government of Ontario is an essential participant in ELA's future, and it is most fortunate that Premier Wynne has pledged a strong commitment to ELA at this critical juncture, though Ontario's election expected in 2015 could still change ELA's fortunes.

In order to maintain ELA as a public and independent research facility, the SCL Executive believes it will be critical for IISD and the new ELA to (1) retain ELA's scientific expertise by engaging the scientists who can properly operate the facility; (2) engage a technical advisory committee consisting of scientists from government, academia, and industry to advise on research directions and priorities; (3) secure long-term funding and partnerships above and beyond that announced by the governments of Ontario and Manitoba to ensure operations at ELA continue; and (4) guarantee that all research is done transparently in the public interest.

With many significant hurdles to climb, the SCL is encouraged to find organizations like the IISD and the provincial governments sharing our recognition of the importance of ELA to Canadian limnology and environmental water policies around the world. It is gratifying to see the significant efforts made this past year to preserve the ELA, and the support it has gained across this country and around the world. We are now anxious to see how ELA will evolve during this transition period, and we hope to see the IISD engaging the Canadian aquatic science community as it moves ELA forward.



ELA Scientist Paul Blanchfield (left) and Scott Vaughn, President and CEO of IISD (right) discuss ongoing experiments at the ELA. Photo credit: Matt McCandless

Introducing our new executive members



Vice President Francophone Alain Patoine Université de Moncton, campus de Shippagan (UMCS)

Jules Blais, President

It is my great pleasure to introduce two new members to the SCL Executive. Alain Patoine joins us as our new VP Francophone, and Alexandre Poulain joins us as our first Francophone Communications Officer.

Alain Patoine teaches and does research in New Brunswick at the Université de Moncton, campus de Shippagan (UMCS). There, he teaches ecosystem ecology in the Baccalauréat en gestion intégrée des zones côtières – the only francophone undergrad program of Integrated Coastal Zone Management (ICZM) in Canada. Because lakes are far from being a dominant element of the northeastern New Brunswick landscape, Alain has adapted his research to focus on estuaries. The relatively pristine coastal catchments allow him to address questions about the sensitivity of estuaries to climate variability and land use through paleo- and GIS-based approaches. As VP francophone, Alain intends to broaden SCL's membership to include all aquatic ecosystems, from inland lakes to coastal systems.

Following a PhD at Université de Montréal and a postdoctoral fellowship at the Massachusetts Institute of



Francophone Communications Officer Alexandre Poulain University of Ottawa

Technology, Alexandre Poulain accepted a position as Assistant Professor at the University of Ottawa. Alex is interested in how microbes sense, internalize and transform metals, particularly for detoxification purposes, as well as how this information can be applied to the development of novel analytical and remediation tools. His lab currently focuses on mercury. He uses a combination of stable isotope techniques and geochemical modelling coupled to the use of whole cell biosensors to determine the fate of metals in aquatic environments in temperate and Arctic ecosystems.

We are truly delighted to welcome these outstanding individuals to our SCL Executive. We also would like to thank Yves Prairie for his service as VP Francophone. Yves stepped down from this role in August so he could assume his new position as President of the International Society of Limnology, SIL. We wish Yves the best in his new role, and we are delighted to have such excellent Canadian representation in SIL with his new appointment.

Research highlight: The NSERC Canadian Network for Aquatic Ecosystem Services

By Don Jackson

Ecosystem services broadly encompass the goods and services that nature provides. Within the aquatic environment they can range from issues such as fisheries, nutrient recycling and flood mitigation to cultural or spiritual values. Many of these issues are major research topics within Canada, but also need to be considered as important factors in making numerous political, regulatory, and societal decisions (e.g. resource development, pipelines, urbanization). The importance of these issues in both aquatic and terrestrial systems has been highlighted previously (e.g. Millenium Ecosystem Assessment) and is the focus of a new United Nations organization, the Intergovernmental Platform on Biodiversity and Ecosystem Services, to which Canada and other nations must contribute.

The NSERC Canadian Network for Aquatic Ecosystem Services (CNAES; le réseau canadien du CRSNG sur les services des écosystèmes aquatiques (RCSEA)) is a collaborative research group including universities (UNB, UQAM, McGill, Trent, Toronto, Guelph, Waterloo, Western, Nipissing, Laurentian, and UBC), federal and provincial government agencies (NSERC Canada, Fisheries and Oceans Canada, NRCan-Canadian Forest Services, Alberta Innovates, Ministrère des Ressources naturelles et de la Faune, Ontario Ministry of the Environment, and Ontario Ministry of Natural Resources), and industrial partners (De Beers Canada, Detour Gold, Kongsberg Maritime). The five-year CNAES/RCSEA began in June 2012, was formally announced by the Government of Canada in Feb 2013, and is led and administered at the Department of Ecology and Evolutionary Biology at the University of Toronto. Among the 30 researchers involved, the Network already has 29 graduate students, four postdoctoral researchers and various technicians and undergraduate students.

Work within the CNAES/RCSEA involves the diverse types of aquatic ecosystems found across much of Canada. Three themes focus the research around



Sampling fish as part of the NSERC Canadian Network for Aquatic Ecosystem Services. Visit <u>www.cnaes.ca</u> for more information. Photo credit: Steve Vandermeer.

broad issues with the first one "Coupling the landscape, aquatic ecosystems, services, and environmental change in Canada's north" examining issues associated with the vast wetlands and large river systems of the north and addressing questions related to understanding biochemical cycling and hydrology, maintaining supply of clean water and freshwater foods for local communities under development and climate change, amongst other issues. Theme II is "Healthy forest and healthy aquatic ecosystems" and integrates catchment studies from across Canada capitalizing on gradients in natural and anthropogenic disturbances. It addresses issues such as how differences in the physical and biological environments affect the sustainability of aquatic ecosystem services (e.g. water purification, storage and flood control); will experimentally test mechanistic interactions among physical, chemical and biological responses to disturbance and how they affect ecosystem services; and combine ecological and socioeconomic perspectives to examine aspects of planning versus incentivized approaches to managing aquatic ecosystem services. Theme III is "Quantitative indicators & metrics of ecosystem services, health & function" and includes a series of projects focused around mainly lake ecosystems and their watersheds, but also those in the

other two themes, and near-shore marine ecosystems. This theme will develop largescale hydrologic models of rivers; characterize biomass size spectra of lakes, determine how they provide measures of ecosystem services (e.g. aquatic productivity and fish biomass), and how spectra change in response to stressors (climate, land use, invasive species); develop new approaches to assess ecosystem resilience; develop geospatial risk mapping of aquatic ecosystems in Canada; and evaluate the trade-offs of ecosystem services under disturbance gradients.

Overall our Network has laid out an ambitious program for the coming years. We welcome opportunities to work with others involved in aquatic ecosystem services research and to include new partners and researchers in the Network who have the potential to contribute and advance the CNAES/RCSEA objectives. We invite you to visit our website (www.cnaes.ca) to learn about us and contact researchers about specific projects if interested in further opportunities.

FAST FACTS:

WHO? The CNAES Research Team..
WHERE? Institutions across Canada.
WHAT? Investigating aquatic ecosystem services across three themes of research.
WHY? To provide a clearer understanding of the ways in which aquatic ecosystems respond to disturbance in order to improve management strategies of aquatic resources.

Right: SCL student photo contest winner in the category "people". Photo credit: Jacob Ziegler, McGill University.



New International Collaboration in Limnology

By Bill Taylor

The China-Canada Three Gorges Reservoir Water Science Centre opened officially on August 13, 2013 at Southwest University in Chongqing, China, at the upstream end of the Three Gorges Reservoir.

The Three Gorges Reservoir is one of the largest man-made freshwater bodies on earth: the impoundment completed at the end of 2009 submerged over 630 km² of land.The massive impacts of the Three Gorges Project (TGP) on the hydrology and ecology of the TGR and Yangtze River,the nutrient and contaminant fluxes to the coastal zone and regional climate are receiving increasing attention,both in China and worldwide. Given the scale and complexity of the environmental changes caused by the Three Gorges Reservoir, integrated, ecosystem-level studies are essential to assess and counteract the multiple threats to the ecology, water quality and ecosystem services of the Reservoir basin and the downstream reaches of the Yangtze River and adjacent coastal zone.

The China-Canada Water Science Centre will provide the expertise and infrastructure needed to implement a comprehensive water quality and ecological monitoring plan for the Three Gorges Reservoir, and will conduct multidisciplinary research in support of the sustainable management of the land and water resources in the Three Gorges basin and the downstream Yangtze River and adjacent coastal zone. Canadian participants present at the opening and involved in research at the Centre include Doug Haffner and Ken Drouillard from University of Windsor, Philippe Van Cappellen and Bill Taylor from University of Waterloo, and Tiequan Zhang and Chin Tan from Agriculture Canada. To read more about the



Some members of the international collaboration between Canadian and Chinese limnologists. Photo courtesy <u>www.ccttwcq.com</u>.

exciting kinds of work going on with this unique international collaboration, please visit the Centre website: <u>http://</u> <u>www.cctwcq.com</u>.

SCL student update

By Jorge Negrin Dastis and Erik Szkokan-Emilson

We are pleased to announce the winners of our 2013 photo contest. Prachi Deshpande from Wilfrid Laurier University won for her photo in the "people" category (page 4 of this newsletter) and Jacob Ziegler from McGill University won for his photo in the "places" category (newsletter cover). Each of our winners will receive a muchcoveted SCL mug, and their photos will be featured on the newly-designed society website, coming soon.

We continue to encourage all students to get involved in the society! You can follow us on twitter (@Can_Limnology), facebook (www.facebook.com/ SocietyOfCanadianLimnologists), and our student forum (sclforum.wordpress.com). Watch for the photo contest early next year for another chance to win great prizes! - Erik (@Erikjohnline) and Jorge (?)

Website update: Vincent Design (http://vincentdesign.ca/) has been secured to develop and design our new website. They have some great ideas and are enthusiastically building a site that reflects the needs of our society. Watch for it later this year! Something you'd like to see on the new website? Let us know: scl@uregina.ca

Now accepting nominations Due October 31st!

By Jules Blais We are now taking **nominations**

for the 2014 Frank Rigler Award, the highest honour given by the Society of Canadian Limnologists. It was first presented in 1984 to recognize and honor major achievements in the field of limnology by Canadians or those working in Canada. Emphasis in selection is given to established aquatic scientists whose work is recognized for its influence and importance. The winner of this award will give an overview on their research during the plenary session of the annual meeting of SCL/CCFFR. The meeting this year will be in Yellowknife, NWT from January 3-5, 2014. Nomination packages should include a letter detailing why the candidate should be considered, and a current CV including a list of publications. We are also taking **nominations**

for the 2014 Robert H. Peters Award, which recognizes the best aquatic sciences paper published in the preceding year (2013) by a Canadian student or a student working in Canada. The student must be first author on the publication. The recipient will receive their award at our May 2014 meeting in Montreal, where they will present their work during the Young Investigators Symposium. Nomination packages should include a letter explaining why the student is deserving of this award, and a pdf of the publication to be considered for the award.

Please send your nominations and suggestions to scl@uregina.ca no later than Oct, 31, 2014.





PAGSE update

By Martha Guy, Past-President, SCL

My first year as the chair of the Partnership Group for Science and Engineering PAGSE has passed quickly. I've learned a lot, made mistakes, and learned more about the issues common to the whole science and engineering research community. I continue to ensure SCL's viewpoint and concerns are included in all discussion.

As for what we've been doing, PAGSE's submission to the House of Commons Standing Committee on Finance Pre-budget Consultations this year focussed on asking the government to:

• Invest \$15M to fund basic research at universities, particularly through the Discovery Grants Program;

• Increase targeted funding for both postgraduate and postdoctoral fellowships in the areas of health, natural sciences and engineering to ensure more Canadians are equipped to meet future labour market needs and gain experience in industrially-relevant research, development and commercialization; and

• Create a unified national institute on big data and advanced analytics to cope with the large volume of information we generate and record.

This request covers three areas

Top: 2013 Rigler Award recipient Ray Hesslein, Emeritus Scientist, Fisheries and Oceans Canada, being presented with the award by Jules Blais, SCL President. His talk: "40 years of carbon research at the Experimental Lakes Area."

Bottom: 2013 Peters Award winner, Zofia Taranu, (PhD candidate, Queen's University), for her paper Taranu *et al.* 2012. Predicting cyanobacterial dynamics in the face of global change: the importance of scale and environmental context. Global Change Biology 18: 3477-3490.

touching all of the science and engineering research community. The next step is to take these suggestions around to speak to senior managers and MPs to ensure our voice is being heard.

I hope to be at the Yellowknife meeting and look forward to discussing/ debating PAGSE's activities with you.

Do YOU have a story to share? Consider contributing to the next issue of *The Current*. Send ideas, photos or contributions to <u>scl@uregina.ca</u>. We look forward to hearing from you!

Upcoming SCL meetings in 2014

By Alison Derry

CCFFR/SCL 2014, Yellowknife, NWT

Jan 3-5 (meeting hashtag #FishH20)

Abstract submission deadline: October 18, 2014

Clemens-Rigler Travel award deadline: October 18, 2014

This meeting will have a northern focus, with themes on Aquatic Sciences for Resource Development, Northern Science and Management Advances, and the use of traditional knowledge in managing aquatic resources, as well as additional general sessions. Exciting plans for both the reception and banquet evenings are up on the website. Don't miss what will be a unique and exciting meeting, and we look forward to seeing you there!

Genomes to/aux Biomes 2014, Montreal, QC May 25–29

(meeting hashtag #GenBio2014; @GenomesBiomes on Twitter)

McGill University, the Université de Québec à Montréal (UQAM), the Université de Montréal, Concordia University and the University of Sherbrooke are pleased to host the 1st joint meeting of the Society of Canadian Limnologists (SCL), the Canadian Society of Ecology & Evolution (CSEE), and the Canadian Society of Zoology (CSZ) on May 25-29 in the heart of downtown Montreal, Quebec.

Key Dates - Mark Your Calendar:

December 1st, 2013: Opening Call for presentation and registration



March 3rd, 2014: Deadline to submit presentation and early bird registration deadline

May 25-29, 2014: GENOMES TO/AUX BIOMES MONTREAL 2014

Call for SCL Plenary and Symposium Speaker Nominations for Genomes to Biomes Montreal 2014

SCL is pleased to sponsor a full-day special SCL symposium at the Genomes to Biomes Montreal 2014 meeting. As part of this symposium, we will have 6 invited symposium speakers and one plenary speaker who will highlight Canadian research in the aquatic sciences.

The theme of our symposium is: **"From lakes to coastal zones: integrating aquatic ecosystems at different scales"**

Who would YOU like to see at the symposium?

This is a big, broad theme! Please send us your nominations for who you would like to have as highlights in the symposium. Please send nominations to Alison (<u>derry.alison@uqam.ca</u>) or Mike (<u>scl@uregina.ca</u>).

And, of course, there will also be many other concurrent theme sessions on each of the days that will cover the broad diversity of research conducted by SCL scientists.



Recognizing our members

Congratulations to our members for recent recognition of their efforts!

Andrew Paterson (Ontario Ministry of the

Environment) won the 2013 Kallemeyn Award for "outstanding professional achievements in scientific research or resource management in the Lake of the Woods and Rainy River Basins". **Jacob (Jaap) Kalff,** emeritus professor at McGill University, was awarded the Naumann-Thienemann Medal from the International Society of Limnology at the recent SIL meetings in Budapest. This medal is the life-team achievement award from SIL.

Michael Paterson, Chief Scientist at the Experimental Lakes Area, was named a Senior Fellow at the International Institute for Sustainable Development.

John Smol, Queen's University, was made an Officer in the Order of Canada this year.

Upcoming meetings

(meeting websites hyperlinked where available)

SCL meetings

- 2014 (with CCFFR/SWS) Yellowknife, NWT January 3–5
- 2014 (with CSEE, CSZ) Montreal, QC (May 25–29)

Other meetings

- **2013** Entomological Societies of Canada and Ontario (150th anniversary) Oct 20-23, Guelph, ON
- 2014 Joint Aquatic Sciences Meeting (ASLO/SFS/SWS/ PSA) May 18-23, Portland, OR
- **2014** Meeting of the International Association of Great Lakes Research, May 26–30, Hamilton, ON
- **2014** American Society of Ichthyologists and Herpetologists, July 30 to Sept 3, Chatanooga, TN
- 2014 99th Annual Meeting of the ESA, August 10-15, Sacramento, CA
- 2014 144th Annual Meeting of AFS, Aug. 17–24, Quebec City, QC 😥

Recent citings

We like to recognize recent publications (past 6–12 months) by our members in the peer-reviewed literature. To share a publication for the next issue, send it to **scl@uregina.ca**.

Al-Ansari A.M., Atkinson S.K., Doyle J.R., Trudeau V.L., Blais J.M. 2013. **Dynamics of uptake and elimination of 17a-ethinylestradiol in male goldfish** (*Carassius auratus*). Aquatic Toxicology, 132-133: 134-140.

Bocaniov, S.A., Barton, D.R., Schiff, S.L., Smith, R.E.H. 2013. Impact of tributary DOM and nutrient inputs on the nearshore ecology of a large, oligotrophic lake (Georgian Bay, Lake Huron, Canada). Aquatic Sciences 75(2): 321-332. http://dx.doi.org/10.1007/s00027-012-0276-1.

Cattaneo, A. Hudon, C., Vis, C., Gagnon, P. 2013. Hydrological control of filamentous green algae in a large fluvial lake (Lake Saint-Pierre, St. Lawrence River, Canada). J Great Lakes Res 39: 409-419. http:// dx.doi.org/10.1016/j.jglr.2013.06.005.

Derry, A.M., Kestrup, A.M., Hendry, A.P. 2013. **Considering potential plastic and genetic/maternal effects on demographic subsidies: Native species persistence with detrimental exotics.** Functional Ecology (in press). Published online: May 21, 2013. DOI 10.1111/1365-2435.12105.

Green, E.L., Grgicak-Mannion, A., Ciborowski, J.J.H., Corkum, L.D. 2013. Spatial and temporal variation in the distribution of burrowing mayfly nymphs (Ephemeroptera: *Hexagenia limbata* and *H. rigida*) in western Lake Erie. J Great Lakes Res 39: 280-286. http:// dx.doi.org/10.1016/j.jglr.2013.03.013. Korosi J.B., Irvine G., Skierszkan E.K., Doyle J.R., Kimpe L.E., Janvier J., Blais J.M. 2013. Localized enrichment of polycyclic aromatic hydrocarbons in soil and lake sediments linked to in-situ bitumen extraction near Cold Lake, Alberta. Environmental Pollution 182: 307-315. http://dx.doi.org/10.1016/j.envpol.2013.07.012

Kovalenko, K.E., Ciborowski, J.J.H., Daly, C., Dixon, D.G., Farwell,A.J., Foote, A.L., Frederick, K.R., Gardner Costa, J.M., Kennedy, K., Liber, K., Roy,M.C., C. Slama, A., Smits J.E.G. 2013. **Food web structure in oil sands reclaimed wetlands.** Ecological Applications 23:1048–1060 <u>http://</u> dx.doi.org/10.1890/12-1279.1.

Nürnberg, G.K., LaZerte, B.D., Loh, P.S., Molot, L.A., 2013. Quantification of internal phosphorus load in large, partially polymictic and mesotrophic Lake Simcoe, Ontario. J Great Lakes Res 39, 271–279. http://dx.doi.org/ 10.1016/j.jglr.2013.03.017

Nürnberg, G.K., Molot, L.A., O'Connor, E., Jarjanazi, H., Winter, J.G., Young, J.D., 2013. Evidence for internal phosphorus loading, hypoxia and effects on phytoplankton in partially polymictic Lake Simcoe, Ontario. J Great Lakes Res 39, 259–270. http://dx.doi.org/ 10.1016/j.jglr.2013.03.016

Rennie, M.D., Evans, D.O. and Young, J.D. **Increased dependance on nearshore benthic resources in the Lake Simcoe ecosystem after dreissenid invasion.** Inland waters 3: 297-310. DOI: 10.5268/IW-3.2.540

Rosamond, M.S. Thuss, S.J., Schiff, S.L.. 2012. **Dependence** of riverine nitrous oxide emissions on dissolved oxygen levels. Nature Geoscience 5: 715-718. <u>http://</u>dx.doi.org/10.1038/ngeo1556.

Snider, D.M., Venkiteswaran, J.J., Schiff, S.L., Spoelstra, J. 2013. **A new mechanistic model of** δ^{18} **O-N₂O formation by denitrification.** Geochimica et Cosmochimica Acta 11:102-115. <u>http://dx.doi.org/10.1016/</u> j.gca.2013.03.003

Vandergucht, D.M., Sereda, J.M., Davies, J-M., Hudson, J.J. 2013. **A comparison of phosphorus deficiency indicators with steady state phosphate in lakes.** Water Research 47: 1816-1826. http://dx.doi.org/10.1016/j.watres. 2013.01.004

Venkiteswaran, J.J., Schiff, S.L., St. Louis, V.L., Matthews, C.J.D., Boudreau, N.M., Joyce, E.M., Beaty, K.G., Bodaly, R.A. 2013. **Processes affecting greenhouse gas production in experimental boreal reservoirs.** Global Biogeochemical Cycles 27: 567-577. http://dx.doi.org/ 10.1002/gbc.20046 (F) FIN

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Society Société of Canadian canadienne de Limnologists Limnologie

67th Canadian Conference for Fisheries Research / Conference Canadienne de la Recerche sur les Peches *In conjunction with the* Society of Canadian Limnologists

FIRST CALL for ABSTRACTS

The themes for CCFFR/SCL 2014 are

- 1. Aquatic Sciences for Resource Development
- 2. Northern Science and Management Advances
- 3. Management of Aquatic Resources through Aboriginal and Local Knowledge
- 4. CCFFR General Session
- 5. SCL General Session

Your ABSTRACT will be a WORD document, *.doc (not .docx please) listing:

- 1. Lead Author (we assume you will be presenting)
- 2. *Title*: The maximum title length is 90 characters (including spaces)
- 3. Oral Presentation or Poster (pick one)
- 4. Session Number: Best suited for your talk/poster (1 through 5)
- 5. Your Institution/Affiliation
- 6. Your Email Address
- 7. *Student* or *Other*
- 8. Additional Authors and Institutions/Affiliations
- 9. ABSTRACT: 150 words (the auto-reader will cut off automatically at 151)

EMAIL your abstract as,

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e.g., "4_GagaL_ccffr2014.doc"

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