



Institution of Engineering and Technology

# IET Ottawa

## JANUARY 2008 Newsletter

Web Site: [www.iee-ottawa.org](http://www.iee-ottawa.org)

Branch email address: [ottawa@iee.org](mailto:ottawa@iee.org)

Secretary: Hudson Egbert,

### January Technical Meeting:

**“MEOSAR - 21st Century Satellite System for Search and Rescue”**

**Courtside B Room, RA Centre, 2451 Riverside Drive**

**Tuesday 22 January, 2008, 6.30 pm for optional dinner - 8.00 pm for the meeting**

The Cospas-Sarsat satellite system for search and rescue, which Canada co-founded, has been operating for 25 years and helped save over 22,000 lives worldwide. Cospas-Sarsat will be enhancing the satellite service for SAR forces and users of 406 MHz distress beacons in coming years. Learn about the history of the Cospas-Sarsat system, what it is today, and where Canada and its international partners are taking it in the future with the development of the new MEOSAR system.

Jim King is a Director at Industry Canada's Communications Research Centre in Ottawa, where he manages a team that works on various Canadian and international satellite programs. He has over 25 years experience in Cospas-Sarsat, including 10 years working at the Cospas-Sarsat Secretariat in London, England.

Since the early 1980s, Jim participated in the development; launch and testing of the first Sarsat Leosar satellites, then the Geosar satellite enhancements in the 1990s and continues to work on the new Meosar enhancements to fly on future navigation satellites.

He has written many papers on Cospas-Sarsat, including a chapter in a new book about Space, and has chaired several international meetings.

Jim has a Bachelor's degree in Electrical Engineering from the University of Saskatchewan and a Master's degree in Engineering, specializing in satellite communications, from the University of Ottawa.

Optional pub supper in the adjacent Field House restaurant at 6.30 pm.

The presentation is open to all. Please reserve (state if dinner is required) by contacting Hugh Reekie [max-com@allstream.net](mailto:max-com@allstream.net) or phone 613-728-5343.

Park in the East lot of the RA Centre and enter by the corner door. Dinner reservations appreciated by 18 Jan, but walk-in dinners without reservations are acceptable.

#### How to get there:

The RA Centre is located near Bronson and Riverside Drive.

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### Electric Vehicles – a “short” report”

**Prepared by Hugh Reekie, Ottawa Branch**

Two meetings were held in December; the first, advertised in this IET Newsletter, was an evening on 4th December about electric vehicles, at the RA Centre. Instead of a pub supper a sandwich snack was offered, and then two short presentations were given by Darryl McMahon of the Electric Vehicle Council of Ottawa - on the past and future of both electric and hydrogen powered vehicles. But most of the time was spent watching the

movie ‘Who Killed the Electric car?’ Attendance was 55, and a detailed report will appear in the next newsletter. However, you can see some pictures of the event on our web site. Go to [www.ieee-ottawa.org](http://www.ieee-ottawa.org) - and look at the photos. Both the web site updates and the photos were produced by Chair Martyn Delbridge.

**Report on the December 11<sup>th</sup>. 2007 Technical Meeting**  
**“What’s up at Google? – a presentation by Neil Fraser”**

**Prepared by Hugh Reekie, Ottawa Branch**

The Ottawa engineering community was fortunate to have a technical speaker from Google, who gave a talk on 11th December: Neil Fraser was raised in Ottawa and he was visiting for a week. The short lead time (10 days) precluded notices via the usual IET printed newsletter; our apologies. Funded by IET and sponsored by the IET Ottawa Network and two IEEE Ottawa Chapters, AESS and CompSoc, publicity went out by half a dozen email lists.

Neil offered an informal presentation, and permitted questions “on the fly”. He presently works on the “Google Docs” project and is creating new code for different languages. Queried about file security concerns, Neil explained that their software creates documents stored only on Google servers; but security is very strict, and confidential company documents are stored in the same way.

Google’s web search service is not just very fast, exposing good sites at the top of the list, but is rarely slow or inoperative.

Google has many search-engine servers all over the world, to ensure speed. Sophisticated algorithms are used to prioritize the resulting URL list. One of their income streams is from selling their search service. This requires search code to be installed on a client’s premises, for satisfactory search speeds for internal client documents. Google has security concerns about access to this proprietary software. Another income source is web advertising on search results pages; only relevant advertisements are displayed.

Great care is taken when installing search servers, some in non-Google buildings. A photo of an old installation was discussed: the hardware often excludes cabinets, and hard drives are exposed, to improve cooling – sometimes a problem. The tour of their headquarters showed photos of many visiting VIPs; two of note were of Vint Cerf, regarded as a prime force in the creation of the Internet and of Linus Torvalds from Finland – the creator of Linux.

Another of Neil’s tasks is to be a key advisor on some communications/internet anomalies, and he usually carries a pager. He uses a Mac at home, his desk machine runs on Linux, and his portable uses a Microsoft OS. In this way he can understand many user difficulties. With two others, he is an official Google representative on a “Satisfaction, Customer service” web page.

One example of a technical problem was the major “38 minute cyclic crash” that was investigated. When a search server gets overloaded, it is pre-programmed to off-load its new requests to an adjacent machine. On one occasion a server crashed, and passed on subsequent requests to the west; this overloaded the second server which in turn tried to find an “offload destination”. As the one to the east was down, (busy re-booting) the traffic was passed further west. A detailed inspection showed that this westward “pass on” went all around the world, subsequently finding rebooted (and correctly running) servers every time, only to overload them again. The 38 minutes, as it turned out, was the cycle time for this phenomenon to encircle the globe!

Neil mentioned many non-internet activities with which Google is involved; these include support for a space exploration competition, for new methods to create low-cost clean energy, and for a fleet of Plug-in Hybrid cars, which are fully instrumented; their performance data can be seen by anyone on the Internet.

Google does many things differently from other companies. Neil passed around a printed “café list” showing the 17 places to have a meal at Google. All locations were thematic, including “low carbon” and “all local produce” as well as the usual ethnic choices. Meals are free, bike loaners are available at all sites, and the company’s shuttle buses have Wi-Fi service: all these increase employee happiness and productivity.

Engineers at Google are encouraged to spend 20% of their time on interesting self-selected projects. Neil often commutes from his apartment in downtown San Francisco to his desk in Mountain View by bike, on Wednesdays. It takes him 4 hours and he starts at 6am. Recently he rigged up a web cam on his handlebars - pre-programmed to take an image every 3 seconds. The resultant movie shows a “mach-one equivalent” ride down the Bay peninsula!

There were 20 in attendance for the pub supper and 50 at the meeting - all in a very relaxed atmosphere. Neil’s presentation finished at 9.30, but there had to be a final stop to all the ensuing questions – some were asked by the two teenagers present – at 9.50 pm. If it were not for the snowy night, the room would have been crammed, as there were a dozen no-shows. Our thanks go to Neil for an excellent, very interesting presentation, full of “the insights of Google”.

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**Chairman’s Column – Web Page, our 40<sup>th</sup>. Anniversary and the New Year**

**Web Page**

I encourage members to visit the Ottawa Network web page at [www.iee-ottawa.org](http://www.iee-ottawa.org). It has recently been updated and now includes:

1) A link to the Activities page – The Activities page is always kept up-to-date by Hugh Reekie and gives information about forthcoming local talks or site visits. It includes details of venues, starting times, speakers and optional dinners or pub visits.

2) Newsletters – If you can’t find your latest copy or simply want to read a review of an event you missed you’ll find 12 month’s worth of newsletters here.

3) Some photos of recent events – Show up to an event and possibly see yourself on this web page.

4) Committee List – if you want to contact a committee member their phone numbers and e-mail addresses can be found here.

Some possible future enhancements to this web page might be:

1) Selected committee meeting minutes – For members who are interested in what the committee is up to or who might be considering joining the committee.

2) An archive – A repository of “old stuff”. Just for the record.

If anyone has any suggestions for additional items for the IET Ottawa web page I would be very pleased to hear from them.

#### 40th Anniversary

This year we are celebrating the 40th anniversary of the IET Ottawa Network (albeit that it was called the “IEE Ottawa Branch” for most of that time). If any member has any stories, anecdotes or reminiscences about the Branch or its members then again I would be very interested to hear these. Please put them in an e-mail to me and include any old photos, if you have them. I’ll “plonk” everything received on the web page and if we get enough material we’ll turn it into a report for the IET Member News.

#### Happy New Year

I hope this newsletter finds you all well; another year older, wiser and at least a penny richer. In my case three out of four isn’t bad. (I must have missed the financial management lectures at University.)

Happy New year to all! I hope to see you this year at a local event and maybe you’ll surf on by and take a look at the web page at [www.iee-ottawa.org](http://www.iee-ottawa.org).

- - - Martyn Delbridge Chair

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#### The 2007/2008 Ottawa Network Committee consists of:

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#### YOUR EMAIL ADDRESS

For some time we have been sending notices to members by Email. This is to save the cost of paper and postage, but also provide updates and reminders that you would not receive in time from Canada Post. You are receiving this paper copy of the newsletter because we do not have your Email address. If you wish to receive notices and newsletters by Email, please send your Email address to [jvines@iee.org](mailto:jvines@iee.org)

**Note:** If you change your home address, telephone number or Email address, please inform the IET in London. The change may be made by letter or sending an Email to [membership@theiet.org](mailto:membership@theiet.org), or by entering the change directly via the IET WEB page. Notification to [jvines@iee.org](mailto:jvines@iee.org) will also help locally.

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