



**12<sup>th</sup> International Conference on  
RELIABLE SOFTWARE TECHNOLOGIES**

**ADA-EUROPE 2007**

# **Final Program**



**Geneva, Switzerland, June 25–29, 2007**

<http://www.ada-europe.org/conference2007.html>

**Hes·SO**  
Haute Ecole Spécialisée  
de Suisse occidentale  
Fachhochschule Westschweiz  
University of Applied Sciences  
Western Switzerland



## PRESENTATION

In 2007, the 12th International Conference on Reliable Software Technologies takes place in Geneva, Switzerland, from 25 to 29 of June. The conference has a number of highlights including four invited talks, a full three days technical program of refereed papers, two sessions of industrial presentations, an industrial exhibition and two days of tutorials. The conference offers an international forum for researchers, developers and users of reliable software technologies. Presentation and discussions cover applied and theoretical work currently conducted to support the development and maintenance of software systems.

At the crossroads of important communication roads linking the Mediterranean Sea to the North of Europe, Geneva is a town of exchanges, ideas and trade.

In 1387, the Bishop of Geneva Adhémar Fabri granted his fellow citizens some liberty within the commune. He gave them the right to govern their city and encouraged the trading business by authorizing the practice of obtaining a loan, payable with an interest, which at the time, was severely condemned by the Church.

In the 16th century, came the Reformation: Jean Calvin was called to Geneva. He had the genius of elevating Geneva to the rank of a “Protestant Rome”.

Rousseau and Voltaire, two of the most important philosophers of the “Siècle des Lumières” (18th century) were living in Geneva. The writings of the first, “Citizen of Geneva”, inspired the French Revolution.

The international vocation of Geneva prospered again to excel during the 18th century due to important Protestant bankers. The 18th century also witnessed the expansion of the watch making and gold industry. Today, Geneva is considered as one of the most important trading places in the world.

From the science point of view, Geneva has two Universities: University of Geneva and University of Applied Sciences (HES-SO). Geneva hosts the European Organization for Nuclear Research (CERN), where the Web was born. In addition to the United Nations Office (UN), the International Telecommunication Union (ITU) and the International Organization for Standardization (ISO), among many others, are located in Geneva.

## OVERVIEW OF THE WEEK

	Morning	Late Morning	After Lunch	Afternoon
Monday June 25th Tutorials	Rod Chapman Security by Construction			
	William Bail An Overview of Model Driven Engineering		William Bail Verification and Validation for Reliable Software Systems	
	Tullio Vardanega CbyC: A UML2 profile enforcing the Ravenscar Computational Model		Matthew Heaney Object-Oriented Programming in Ada 2005	
Tuesday June 26th Sessions & Exhibition	Keynote Talk: Klaus D. Mueller-Glaser Challenges for reliable software design in automotive electronic control units	Ada 2005 & Real-Time Systems	Verification & Validation	Testing
			Vendor Session I	Vendor Session II
Wednesday June 27th Sessions & Exhibition	Keynote Talk: Gerard Berry Synchronous techniques for embedded systems	MDA & Real Time	Industrial Presentations	Industrial Presentations
Thursday June 28th Sessions & Exhibition	Keynote Talk: Ali Mili Perspectives on Next Generation Software Engineering	MDA & Applications	Keynote Talk: Liviu Iftode Observation Rooms for Program Execution Monitoring	Distributed Systems
				Ada 2005 General Purpose Programming
Friday June 29th Tutorials	Gerard Berry Synchronous Design of Embedded Systems: the Esterel/Scade Approach		Thomas Quinot and Jérôme Hugues Building interoperable applications with PolyORB	
	Jolita Ralyté Situational Method Engineering: Towards a Specific Method for Each System Development Project			



## TUTORIAL SCHEDULE

<b>Monday June 25<sup>th</sup></b>	T1	Morning	William Bail <i>An Overview of Model Driven Engineering</i>	Room A101
	T2	Morning	Tullio Vardanega <i>CbyC: A UML2 profile enforcing the Ravenscar Computational Model</i>	“Conference” room
	T3	Afternoon	William Bail <i>Verification and Validation for Reliable Software Systems</i>	Room A101
	T4	Afternoon	Matthew Heaney <i>Object Oriented Programming in Ada 2005</i>	“Conference” room
	T5	Full day	Rod Chapman <i>Security by Construction</i>	Room A102
<b>Friday June 29<sup>th</sup></b>	T6	Morning	Gerard Berry <i>Synchronous Design of Embedded Systems: the Esterel/Scade Approach</i>	Room A102
	T7	Afternoon	Thomas Quinot and Jérôme Hugues <i>Building interoperable applications with PolyORB</i>	Room A102
	T8	Full day	Jolita Ralyté <i>Situational Method Engineering: Towards a Specific Method for Each System Development Project</i>	Room A101

Morning tutorial sessions will start at 9:30 and end at 13:00. Afternoon sessions will start at 14:30 and end at 18:00. There will be coffee breaks at 11:00 - 11:30 and at 16:00 - 16:30. Lunch is included for those following all-day programs or two half-day tutorials on the same day.

## INVITED SPEAKERS

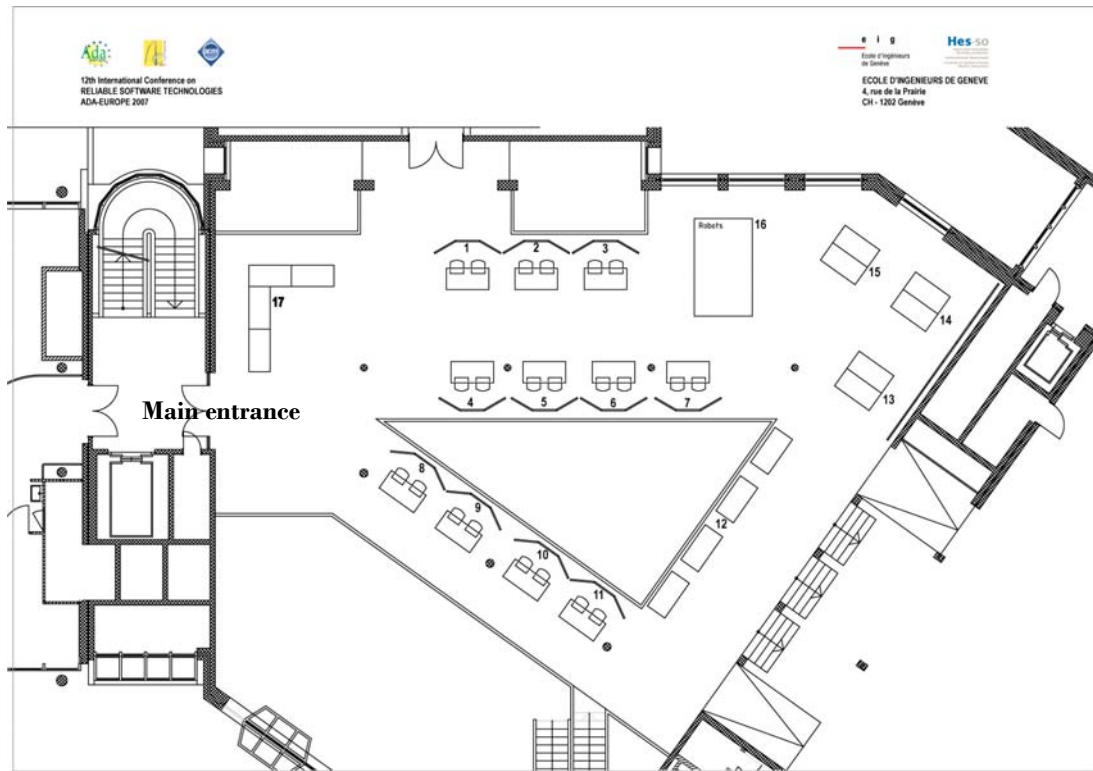
- “*Challenges for reliable software design in automotive electronic control units*”, Klaus D. Mueller-Glaser (University of Karlsruhe, Germany)
- “*Synchronous techniques for embedded systems*”, Gerard Berry (Esterel Technologies, France)
- “*Perspectives on Next Generation Software Engineering*”, Ali Mili (New Jersey Institute of Technology, USA)
- “*Observation Rooms for Program Execution Monitoring*”, Liviu Iftod (Rutgers University, USA)

## EXHIBITION

The exhibition will open in the mid-morning break on Tuesday and run continuously until the end of the afternoon break on Thursday. It will take place in the area located at the mezzanine of the building; above the main hall (see the plan below).

The coffee breaks are held in the same exhibition area. Breaks Tuesday–Thursday are one hour to allow the attendees a comfortable visit to the exhibition.

The exhibitors are: *AdaCore, Ellidiss Software, Telelogic, Praxis, Aonix, Green Hills Software, Programming Research BV, Rapita Systems and Hibachi* (project). Each exhibitor has a 20 minutes presentation slot during the vendor sessions (Tuesday afternoon).



Exhibition area (mezzanine)

- |                            |                         |                 |
|----------------------------|-------------------------|-----------------|
| 1. Programming research BV | 7. RCSO-ISYS (HES-SO)   | 13. LTD-EIG     |
| 2. Ellidiss Software       | 8. Praxis               | 14. LDI-EIG     |
| 3. Telelogic               | 9. Green Hills Software | 15. LII-EIG     |
| 4. Rapita Systems Ltd.     | 10. Aonix               | 16. LSN-EIG     |
| 5. AdaCore                 | 11. Hibachi project     | 17. Coffee area |
| 6. RCSO-TIC (HES-SO)       | 12. Internet area       |                 |

## MEETINGS

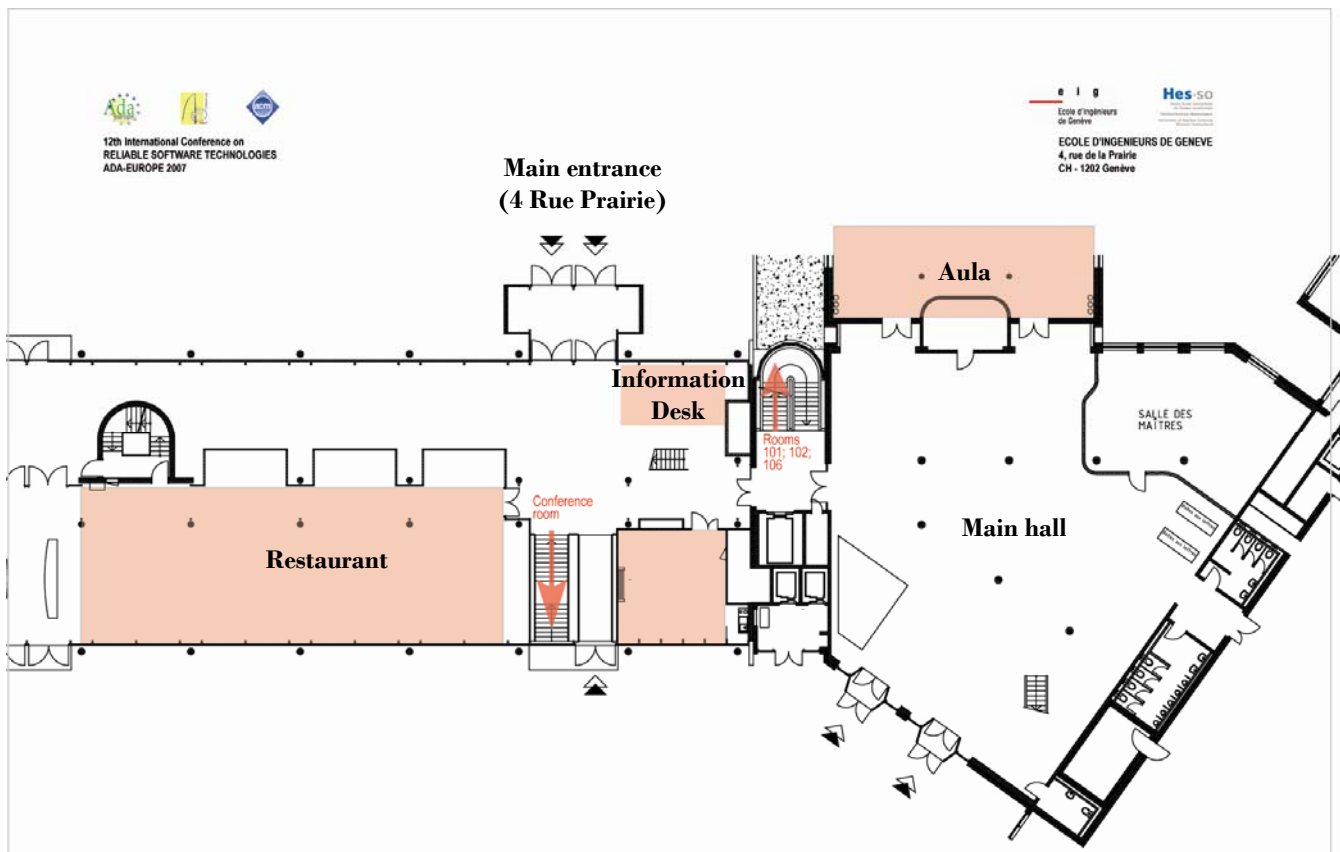
- **Ada-Europe General Assembly (open)**  
Tuesday 26th, 18:00-19:00  
Room: Salle de conférence
- **GNAT Academic Program (GAP) birds of a feather meeting (open)**  
Wednesday, 27th, 16:15-16:45  
Room: A101
- **ISO/IEC JTC1/SC22/WG9 (closed)**  
Friday 9th, 9:00-12:00  
Room: Salle de conférence
- **Ada-Europe Board (closed)**  
Monday 25th, Afternoon  
Thursday 28th, after end of conference  
Room: Salle de conférence

## CONFERENCE VENUE

The conference will take place at the Engineering School of Geneva (Ecole d'Ingénieurs de Genève-EIG), 4 Rue Prairie, 1202, Geneva, Switzerland. The coordinates are: 46°12'34.30" N and 6°08'08.14" E. Check them with Google Earth.

Sessions will be held in the AULA (ground floor), "conference" room (salle de conférence, lower ground

floor) and room A106 (first floor). The exhibition and coffee breaks will be held in the area located at the mezzanine of the building; above the main hall. Lunches are in the restaurant (ground floor). Tutorials will be held in rooms A101, A102 (first floor) and the "conference" room (salle de conférence, lower ground floor).





## CONFERENCE SCHEDULE

	<b>Tuesday 26th</b>	<b>Wednesday 27th</b>	<b>Thursday 28th</b>
<b>9:00 - 10:00</b>	<p>Keynote Talk:  <b>Challenges for reliable software design in automotive electronic control units</b>  <i>Klaus D. Mueller-Glaser, University of Karlsruhe, Germany</i>            Chair: Fabrice Kordon            Room: AULA</p>	<p>Keynote Talk:  <b>Synchronous techniques for embedded systems</b>  <i>Gerard Berry, Esterel Technologies, France</i>            Chair: Erhard Plödereder            Room: AULA</p>	<p>Keynote Talk:  <b>Perspectives on Next Generation Software Engineering</b>  <i>Ali Mili, New Jersey Institute of Technology, USA</i>            Chair: Nabil Abdennadher            Room: AULA</p>
<b>10:00 - 11:00</b>	<b>Coffee &amp; Exhibition</b>	<b>Coffee &amp; Exhibition</b>	<b>Coffee &amp; Exhibition</b>
<b>11:00 - 11:30</b>	<p><b>Ada 2005 &amp; Real-Time Systems</b>            Chair: Dominik Madon            Room: AULA</p> <p>Real-Time Utilities for Ada 2005  <i>A. Wellings, A. Burns</i></p>	<p><b>MDA &amp; Real Time</b>            Chair: Andy Wellings            Room: AULA</p> <p>Correctness by Construction for High-Integrity Real-Time Systems: a Metamodel-driven Approach  <i>M. Bordin, T. Vardanega</i></p>	<p><b>MDA &amp; Applications</b>            Chair: Tullio Vardanega            Room: AULA</p> <p>Generating Distributed High Integrity Applications from their Architectural Description  <i>B. Zalila, I. Hamid, J. Hugues, L. Pautet</i></p>
<b>11:30 - 12:00</b>	<p>Handling temporal faults in Ada 2005  <i>J. A. Pulido, S. Urueña, J. Zamorano, J. A. de la Puente</i></p>	<p>A Metamodel-driven Process Featuring Advanced Model-based Timing Analysis  <i>M., Panunzio, T. Vardanega</i></p>	<p>Automatic Ada Code Generation Using a Model-Driven Engineering Approach  <i>D. Alonso, C. Vicente-Chicote, B. Alvarez, P. Sanchez, F. Losilla</i></p>
<b>12:00 - 12:30</b>	<p>Implementation of new Ada 2005 real-time services in MaRTE OS and GNAT  <i>M. Aldea-Rivas, J. F. Ruiz</i></p>	<p>ArchMDE approach for the development of Embedded Real Time Systems  <i>N. Elleuch, A. Khalfallah, S. Ben Ahmed</i></p>	<p>Towards User-Level extensibility of an Ada library : an experiment with Cheddar  <i>F. Singhoff, A. Plantec</i></p>
<b>12:30 - 14:00</b>	<b>Lunch &amp; Exhibition</b>	<b>Lunch &amp; Exhibition</b>	<b>Lunch &amp; Exhibition</b>



	Tuesday 26th		Wednesday 27th	Thursday 28th	
<div>14:00 - 14:30</div> <div>14:30 - 15:00</div> <div>15:00 - 15:30</div> <div>15:30 - 16:00</div>	<div>Verification &amp; Validation</div> <div>Chair: <i>Klaus D. Mueller-Glaser</i></div> <div>Room: A106</div>	<div>Vendor Session I</div> <div>Chair: <i>Alan Marriott</i></div> <div>Room: Conference</div>	<div>Industrial Presentations #I</div> <div>Chair: Rod Chapman</div> <div>Room: AULA</div> <div>The NIST SAMATE Project and Reliable Software</div> <div><i>P. Black</i></div> <div>How Static Analysis can Increase Reliability and Readability of C, C++ and Java</div> <div><i>R. Groenboom</i></div> <div>Practical Application of Static Analysis for Embedded Systems</div> <div><i>David N. Kleidermacher</i></div> <div>Template Driven in UML Ada95</div> <div><i>W. Glaister</i></div>	<div>Keynote Talk:</div> <div>Observation Rooms for Program Execution Monitoring</div> <div><i>Liviu Iftode, Rutgers University, USA</i></div> <div>Chair: Didier Buchs</div> <div>Room: AULA</div>	
	<div>Enhancing Dependability of Component-based Systems</div> <div><i>A. Lanoix, D. Hatebur, M. Heisel, J. Souquieres</i></div>	See details below		<div>Coffee &amp; Exhibition</div>	
	<div>On Detecting Double Literal Faults in Boolean Expressions</div> <div><i>M. Lau, Y. Liu, T. Chen, Y. Yu</i></div>		<div>Distributed Systems</div> <div>Chair: Luís Miguel Pinho</div> <div>Room: A106</div>	<div>Ada 2005 General Purpose Programming</div> <div>Chair: Jérôme Hugues</div> <div>Room: Conference</div>	
	<div>Static Detection of Livelocks in Ada Multitasking Programs</div> <div><i>J. Blieberger, B. Burgstaller, R. Mittermayr</i></div>		<div>Modelling remote concurrency with Ada. Case study of symmetric non-deterministic rendez-vous.</div> <div><i>C. Kaiser, C. Pajault, J.F. Peyre</i></div>	<div>SANCTA: An Ada 2005 general-purpose architecture for mobile robotics research</div> <div><i>A. Mosteo, L. Montano</i></div>	
<div>16:00 – 16:30</div> <div>16:30 – 17:00</div>	<div>Coffee &amp; Exhibition</div>		<div>Coffee &amp; Exhibition</div>		
<div>Closing Session &amp; Awards</div>					
<div>17:00 – 17:30</div> <div>17:30 – 18:00</div>	<div>Testing</div> <div>Chair: Claude Evequoz</div> <div>Room: A106</div>	<div>Vendor Session II</div> <div>Chair:Neville Rowden</div> <div>Room: Conference</div>	<div>Industrial Presentations #II</div> <div>Chair: Frank van den Beuken</div> <div>Room: AULA</div> <div>Identifying Opportunities for Worse-Case Execution Time Reduction in an Avionics System</div> <div><i>G. Bernat, M. Bennett</i></div> <div>Towards Certification of Object-Oriented Code with the GNAT Compiler</div> <div><i>J. Miranda</i></div>		
	<div>Towards the Testing of Power-Aware Software Applications for Wireless Sensor Networks</div> <div><i>W. K. Chan, T. Y. Chen, S. C. Cheung, T. H. Tse, Z. Zhang</i></div>	See details below			
<div>An Intermediate Representation Approach to Reducing Test Suites for Retargeted Compilers</div> <div><i>H. Seok Chae, G. Woo, H. Jang</i></div>					
<div>18:00 – 18:30</div> <div>18:30 – 19:00</div>	<div>Ada-Europe General Assembly</div>		<div>Secure Software-Download as part of a complex business process.</div> <div><i>L. Hanke, I. Furgel</i></div> <div>ISO Central Secretariat, Keith Brannon (10 minutes presentation)</div>		
	<div>Reception</div>		<div>Banquet</div>		



## VENDOR SESSIONS

<b>Tuesday, 26th June, 2007 Vendor Sessions</b>	<b>Title/Presenter</b>	<b>Company</b>
14:00 - 14:20	AADL and HRT-UML - Mission Critical Support <i>Tony Elliston</i>	Ellidiss Software
14:20 - 14:40	What's new with SPARK? <i>Rod Chapman</i>	Praxis
14:40 - 15:00	Application of Virtualization for Improved Software and Reliability <i>David Kleidermacher</i>	Green Hills Software
15:00 - 15:20	An Insight into 12 Months of GNAT Pro Developments <i>Michaël Friess</i>	AdaCore
15:20 - 15:40	Hibachi: A Vendor-Neutral Ada Plugin for Eclipse <i>Tom Grosman</i>	Hibachi/Eclipse project
15:40 - 16:00	Correlation Between Coding Standards Compliance and Software Quality <i>Frank van den Beuken</i>	Programming Research BV
<b>Coffee and Exhibition</b>		
16:40 - 17:00	How Long does your Software Take to Run? Worst-Case Execution Time Analysis using RapiTime. <i>Guillem Bernat</i>	Rapita Systems Ltd.
17:00 - 17:20	Real-Time RAVEN for VxWorks 653: Bringing Safety to Hard Real-Time Applications <i>Patrícia Langle</i>	Aonix
17:20 - 17:40	MDD for Developing Ada Applications <i>Colin Coates</i>	Telelogic
17:40 - 18:00	Fluid Computing: Reliability for mobile devices through real-time state replication <i>Marcel Graf</i>	IBM





## GUIDE TO THE SOCIAL PROGRAM

### Reception

The welcome reception will be held on Tuesday 26th June (20:00 - 21:30). It will take place in the World Meteorological Organization building (<http://www.wmo.ch/>), “*Mont Blanc*” area (9th floor) which offers a beautiful sight of Geneva: views of Leman Lake, old town, Mont Blanc and the Alps, Botanical garden, United Nations, etc. You will discover one of the most famous buildings of Geneva.

Additional tickets for the reception can be purchased at the registration desk.



### Conference Banquet

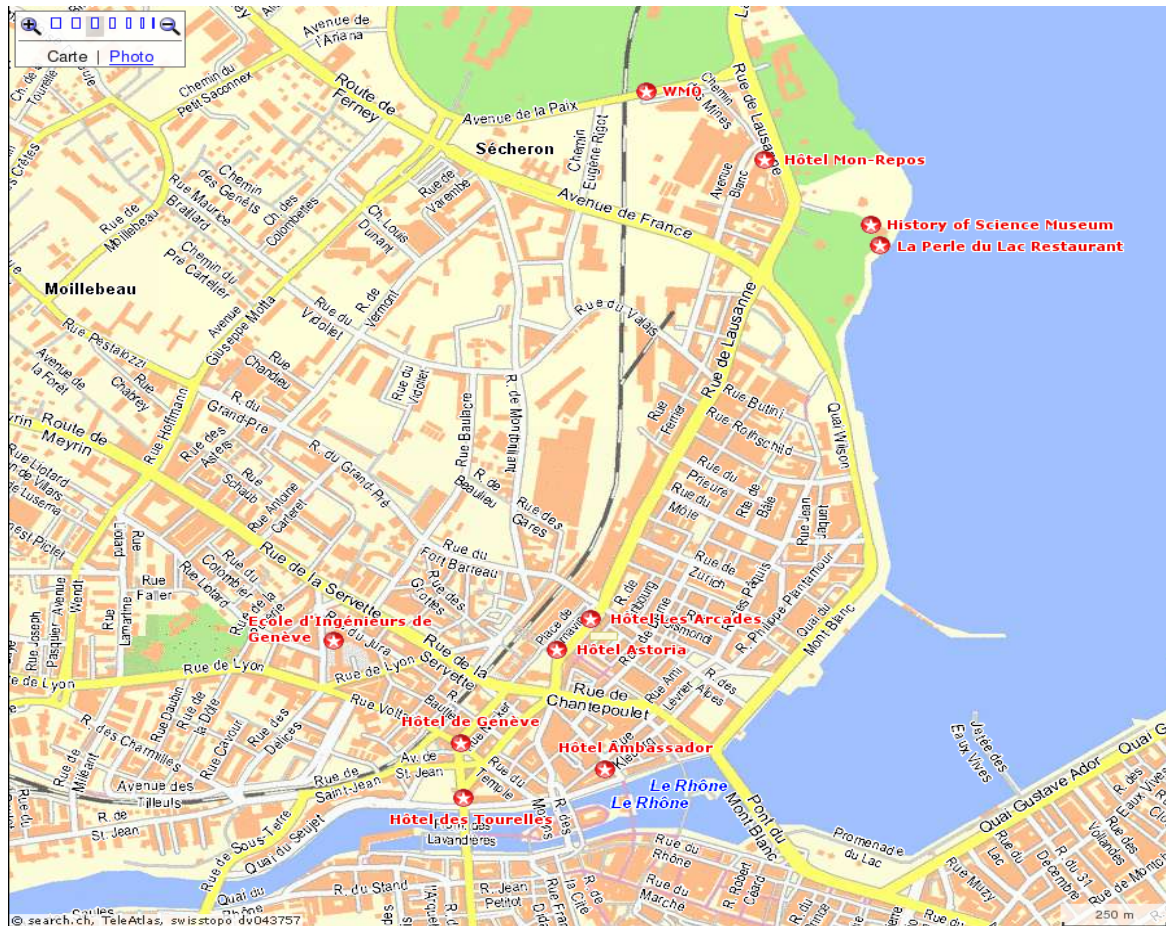
The banquet will take place on Wednesday in one of the best known and most elegant restaurants in Geneva: *La Perle du Lac* (*The Pearl of the Lake*). Located close to the lake, in the Park “*Mon Repos*”, this restaurant, built in 1930, has a superb view on the city and the *Mont Blanc*. We will have dinner in the *Orangerie* room, on the ground floor.



Before dinner, we will have an aperitif in the History of Sciences Museum (musée d'histoires des sciences) which is one minute walk from the restaurant *La Perle du Lac*. This Museum houses a collection of old scientific instruments invented by different scientists who lived in Geneva between the 17th and 19th century. A guided tour will be offered. Additional tickets for the banquet can be purchased at registration.



## CITY CENTER MAP



- Conference venue: Ecole d'Ingénieurs de Genève, 4 Rue Prairie, 1202, Geneva
- Reception (Tuesday 26th June): WMO, 7bis, avenue de la Paix, 1211 Geneva
- Banquet (Wednesday 27<sup>th</sup> June): History of Science Museum and *La Perle du Lac* Restaurant, 126 Rue de Lausanne, 1202, Geneva.
- Hotels close to the conference venue: Hôtel Ambassador, Hôtel Mon-Repos, Hôtel Les Arcades, Hôtel Astoria, Hôtel des Tourelles and Hôtel de Genève.





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The organizers thank the exhibitors and supporters of the conference:



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