ISTSS began in Sweden in 2003 as the International Symposium on Catastrophic Tunnel Fires. This first symposium attracted more than 200 delegates and prompted a broadening of the scope to the 1st International Symposium on Tunnel Safety and Security (ISTSS), held in Washington DC and the 2nd ISTSS in Madrid. Global concern for improving tunnel safety and security and continued strong support for this event has lead to the 3rd ISTSS in Stockholm, Sweden.

Venue in Stockholm

Built in the early 1900’s Foresta was originally intended to be a private residence for Mrs. Wilhelmina Skogh, although it has always been much more. Reminiscent of a Germanic castle and set on a cliff at the entrance to the island of Lidingö in Stockholm, Foresta combines a dramatic setting and close proximity to the city center.

Foresta has been an important meeting place since 1910 when it was first opened and we feel confident that this venue will provide the perfect setting for the 3rd International Symposium on Tunnel Safety and Security.

Social activites

Cocktail Reception (Wednesday March 12)
Assorted canapés and hors d’oeuvres will be served from 7 pm in the exhibit hall to provide ample opportunity to visit our exhibits and discuss the poster presentations with their presenters.

Banquet (Thursday March 13)
Dinner will be served at 7 pm in the historic Millesgården adjacent to the conference Venue. Banquet tickets are in addition to the conference reservation. Should you wish to purchase a banquet ticket, and have not done so with your registration, please enquire at the registration desk onsite at the conference.
### 12 March 2008

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>08:00</td>
<td>Registration, Coffee &amp; Pastries</td>
</tr>
<tr>
<td>09:00</td>
<td>Opening Ceremony</td>
</tr>
</tbody>
</table>

**Keynote Speakers**  
Chair: Margaret Simonson, SP, Sweden

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
</tr>
</thead>
</table>
| 09:30 | Managing road tunnels safety: today’s challenge.  
*Didier Lacroix*, Centre d’Etudes des Tunnels, France |
| 10:00 | Magic numbers in tunnel fire safety.  
*Haukur Ingason*, SP Fire Technology, Sweden |
| 10:30 | Coffee break |

**Design**  
Chair: Anders Lönnemark, SP, Sweden

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
</tr>
</thead>
</table>
| 11:00 | The methodology for declaration of the traffic flow on motorways sections before and after expected obstacle – the tunnel.  
*Ulrich Zorin*, DARS, d.d., Slovenia |
| 11:20 | Assessment of the impact of jet flame hazard from hydrogen cars in road tunnels.  
*Yajue Wu*, Sheffield University, UK |
| 11:40 | L-surf: Large Scale Underground Research Facility on Safety and Security.  
*Felix Amberg*, Maximilian Wietek & Volker Wetzig, VSH Hagerbach Test Gallery Ltd., Switzerland |
| 12:00 | Fire testing of concrete and concrete protection systems for tunnels in Sweden – an overview.  
*Maria Hjohlman*, Lars Boström & Robert Jansson, SP Fire Technology, Sweden |
| 12:20 | Comparison of road tunnel design guidelines.  
*Hak Kuen Kim*, Korea National Rescue Services, Korea,  
*Anders Lönnemark, Haukur Ingason*, SP Fire Technology, Sweden |
| 12:40 | Lunch & Exhibits |

**Case Studies**  
Chair: Didier Lacroix, Centre D’Etudes des Tunnels, France

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
</tr>
</thead>
</table>
| 14:30 | The Burnley Tunnel fire – implications for current design practice.  
*Peter Johnson* & David Barber, ARUP Fire, Australia |
| 14:50 | Safety requirements & transport of dangerous goods through the 53 kilometer railway tunnel through the Alps between Lyon and Turin.  
*Jorrit Nieuwenhuis*, Art v/d Giessen,  
*Stefan Lezwijn* & Eddy Verbesselt ARCADIS Infra BV, The Netherlands |

### 13 March 2008

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>08:00</td>
<td>Registration, Coffee &amp; Pastries</td>
</tr>
</tbody>
</table>

**Keynote Speakers**  
Chair: Ulf Wickström, SP, Sweden

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
</tr>
</thead>
</table>
| 09:00 | The use of CFD-FDS modeling for establishing performance criteria for water mist systems for very large fires in tunnels.  
*Jack Mawhinney*, Hughes Associates Inc., USA |
| 09:30 | Active and passive fire protection - which way should we go?  
*Alfred Haack*, STUVA, Germany |
| 10:00 | Coffee Break |

**Active fire protection**  
Chair: Jack Mawhinney, Hughes Associates Inc., USA

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
</tr>
</thead>
</table>
| 10:30 | Full-scale fire testing for road tunnel applications - evaluation of acceptable fire protection performance.  
*Maarit Tuomisaari*, Marioff Corporation Oy, Finland |
| 10:50 | Road tunnel protection by water mist systems - Implication of full scale fire test into a real project.  
*Stefan Kratzmeir*, FOGTEC Fire Protection, Germany |
11:10 Use of water mist sprays for firefighting in tunnels: test results at scale 1/3. 
**Eric Cesmat** (CSTB), **Xavier Ponticq** (CETU), Jean-Pierre Vantelon (CNRS) & Bruno Brousse

11:30 Break

11:50 Hotfoam: Fire suppression and structure protection for cargo train tunnels. 
**Anders Lönnermark**, SP Fire Technology, Sweden, **Peter Kristensen** & **Mats Helltegen**, Svenska Skum AB, **Magnus Bobert**, SP Fire Technology, Sweden

12:10 Reliability and availability of fire detection systems in road tunnels. 
**Stefan Bruegger**, Securiton, Switzerland

12:30 International road tunnel fire detection research project. 
**Kathleen Almand**, The Fire Protection Research Foundation, USA

12:50 Lunch & Exhibits

**Passive fire protection**

**Chair: Alfred Haack**, STUVA, Germany

14:30 Influence of polypropene fibres on fire spalling and material properties of concrete 
**Robert Jansson** & **Lars Boström**, SP Fire Technology, Sweden

14:50 Safety doors in the world’s longest tunnel – Test experience from selected prototypes. 
**Volkert Wetzig**, VSH Hagerbach Test Gallery Ltd., Switzerland

15:10 Making tunnels safer 
**Kees Both**, Effectis Nederland BV, The Netherlands

15:30 Coffee break

**Fire Fighting**

**Chair: Haukur Ingason**, SP, Sweden

15:50 Fire fighting access – A probabilistic approach. 
**Jimmy Jönsson**, Ove Arup & Partners SA, Spain

16:10 Incident management in a very long railway tunnel. 
**Christof Neumann**, Rudolf Bopp, Gerhard Harer, Manuel Burghart, Josef Koinig, ILF Consulting Engineers, Austria

16:30 Mobile tunnel ventilation for fire fighting. 
**Maria Kumm** & **Anders Bergqvist**, Mälardalen University & Stockholm Fire Brigade, Sweden

16:50 Tunnel Incident Management in Frankfurt am Main. 
**Jens Stiegel**, Frankfurt Fire Department, Germany

17:10 Close

19:00 Banquet
Safety and security for underground systems & tunnels

Profile
L-surF Services is a unique organisation with:

- an international expertise
- a multi-disciplinary expertise in safety & security
- a European distributed research infrastructure for tests

Products

Large scale tests
- Real tunnel in-situ tests
- Large and model scale testing
- Fire detection tests
- Fire protection of underground facilities
- Safety and security of tunnel and underground structures

Technical support to authorities & emergency services
- Protecting the environment against noise, vibrations and fumes caused by road & rail transport
- Environmental impact assessment
- Investigation after accidents
- Research activities
- Second opinion & review of safety concepts

Technical support to tunnel operators
- Design of tunnels and underground facilities
- Expertise to design and perform tests (including the tests required by the Directive 2004/54/CE)
- Research work related to safety during the construction and operation of tunnels

Contact: Olivier Salvi - Tel: +49.711.18.39 749 - email: olivier.salvi@lsurf-services.com
unique tunnel fire suppression system

- Uses ‘inside air’ hot combustion gases for foam generation
- Fast, reliable & cost effective
- Uniform foam distribution for rapid flame knockdown and swift cooling
- Minimal water consumption

APPLICATIONS:
- Rail, vehicle & cable tunnels
- Warehouse spaces
- Aircraft hangars
- Power generation & transformer stations

For further information, please contact:
Svenska Skum AB,
Box 674,
S-442 18, Kungälv,
Sweden

Svenska Skum BV,
Zaalbergweg 11 B,
2314 XS Leiden,
Netherlands
WSP Fire and Risk engineering is a global leader in the fire safety design of high-rise/hyper-tall buildings, large retail schemes, complex tunnel projects and transport interchanges.

Our dedicated team is part of a global network with some 100 qualified and experienced fire and risk engineers. We have specialist practices in Stockholm, Oslo, London, Manchester, Johannesburg, Hong Kong, Melbourne, Dubai and Singapore supporting projects around the world through our network of teams based in the UK, Europe, Middle East, China, the USA, Australia, New Zealand and South Africa. Our global team of specialists has a track record for delivering innovation in fire engineering design on major projects around the world.

WSP is a global company that offers qualified consultancy services for the public sector and the environment. With more than 250 offices around the world, and 8,000 employees, WSP is one of the largest consulting companies in Europe, and amongst the ten largest in the world. Operations are concentrated primarily in Great Britain and Sweden, but also extend to the rest of Europe, the United States, Australia, Africa and Asia. In Sweden, WSP is a nationwide consultancy company employing 2,000 people.
Protecting People & Property

WATER MIST FIRE PROTECTION SOLUTIONS FOR ROAD AND RAIL TUNNELS

The water mist fire protection systems have proven their high efficiency against different kinds of fires in terms of cooling, radiant heat blocking and suppression performance. With regards to the challenge in tunnel fire protection, the modern water mist systems can offer usable, durable technology to improve safety not only for passengers but also tunnel infrastructure hence ensuring safer traffic continuity. Water mist system efficiency for large fires in tunnels has been proven by full-scale fire test programs. The results of these extensive test programs can be used for design criteria for different sized and shaped tunnels even for the traffic tunnels with the heavy goods vehicles.

Read more about the HI-FOG system at www.marioff.com.
See the light

A Revolution in Rebreathers

The new Scott BioPak 240 Revolution four-hour closed circuit breathing apparatus (CCBA) offers

- a patented solid CO₂ scrubbing system enabling rapid deployment and turnaround
- a quick-change (in use) cooling system
- four hour duration for long term use
- the lowest breathing resistance of any CCBA for easy, natural breathing
- a slim, ergonomic design for greater comfort and lighter weight
- numerous safety features
- rugged, durable construction
- lowest cost of ownership available in CCBA’s

Scott BioPak 240 Revolution - the CCBA of choice

For more information please call Tel: +358 (0)6 3244 543 (or 544) or email scott.sales.fin@tycoint.com quoting reference ISTSS208

Progressive Safety Solutions
The 4th International Symposium on Tunnel Safety and Security will be held in Frankfurt, Germany, 17-19th March, 2010.

Call for papers

Instructions to Authors
The language of the symposium is English.

Authors are invited to submit a manuscript or poster for presentation. Manuscripts and posters will be reviewed on the basis of an extended abstract of not more than 2 pages. Acceptance for presentation and publication will be based on scientific quality and significance.

The manuscripts accepted for presentation at the symposium will be published as Proceedings of the Symposium.

Manuscript abstracts should be submitted to the Secretariat by email (istss2010@sp.se) by 1st June 2009, poster abstracts by the 1st October 2009. All submissions should be in Microsoft Word (.doc) format, typed single-spaced on A4 white paper with 25 mm margins. Please use one-column format and 12 pt text.

Abstracts should contain the following details: Title, Authors, Affiliation/Organisation of the Authors, Content.

A document template and sample abstract will be available on the Symposium website (www.sp.se/fire/ISTSS2010) from August 2008.

Manuscript authors will be informed of the decision of the Scientific Review Board by 1st November 2009. Successful authors will be sent full instructions on formatting and submission of their papers in due time.

Symposium venue
The 4th ISTSS will be held in Frankfurt am Main. The preliminary venue is the Frankfurt am Main Fire and Rescue Services Headquarters.

More information will be posted on the Symposium website closer late 2008.

Multipurpose hall

Fire and Rescue Services Headquarters