



THE INTERNATIONAL EMERGENCY MANAGEMENT SOCIETY - TIEMS

Proceedings of the International Emergency Management Society  
(TIEMS)

28<sup>th</sup> TIEMS Annual Conference

***New Emergency Management in a Resilience Era  
Facing Health, Climate and Energy Challenges***

Edited by: Snjezana Knezic, Meen Bahadur Poudyal Chhetri and Roman Tandlich

6 – 10 December, 2021

**Proceedings of the International Emergency Management Society  
(TIEMS)  
28<sup>th</sup> TIEMS Annual Conference**

***"New Emergency Management in a Resilience Era Facing Health,  
Climate and Energy Challenges"***

**6 – 10 December, 2021**  
Virtual conference

**Organised by:**

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Executive Office Postal Address is: Østvangveien 29, 0588 Oslo, Norway

**Co-organized by:**

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## **Foreword from TIEMS President**

We planned the TIEMS 2021 Annual Conference to be a hybrid event, where we thought we could have a group present physically in Paris and have others listening and presenting on ZOOM. However, we foresaw already in beginning of September that it might be difficult to travel, because of the COVID19, and now when the new mutation, OMIKRON is spreading over Europe and the world, we seem to have made the right decision to make the TIEMS 2021 Annual Conference virtual.

The pandemic has now been with us for about two years, and it seems that we need to live with this for a long time. This has clearly shown the need for global cooperation and coordination are more important than ever before. By working together and sharing experiences and exchange views among the experts from different countries, we can learn from each other to develop better methods and systems and advocate for better policies in fighting pandemics and other emergencies, to be standardized and implemented all over the world.

The pandemic has shown TIEMS that we need to change the way we operate because of the pandemic, and actually, by using Zoom and other communication tools the past year, TIEMS has been more active than before. We have done monthly webinars on international models in emergency management in cooperation with Capacity Building International (CBI), and the TIEMS Board members have met more often than before in “real space”. TIEMS 2021 Annual Conference will be performed on ZOOM, and our partner CBI, with Kyle King and Viktoriia Dumanska will operate the conference tool and has done an excellent job in preparing the speakers for the conference, and I am very thankful for the excellent cooperation we have with them.

This new virtual experience for TIEMS, has also given us new opportunities, namely that more people can attend our conferences and webinars because of no expenses for travelling, and that the event is free of charge for participation. TIEMS annual conferences worldwide are platforms where all stakeholders can meet and exchange experiences and views and focus on different global and local important topics and issues in emergency and crisis management.

The final conference program for 2021 is complete with close to 60 presentations from authors coming from 21 countries. COVID19 will this year also be an important topic, but the variety of “hot” topics makes TIEMS 2021 Conference program one of the best ever.

TIEMS 2021 Virtual Annual Conference, is TIEMS 28<sup>th</sup> Anniversary conference, and since I have been with the organization since its establishment in Washington, D.C. in 1993, it is with great pleasure to recognize that TIEMS has grown to a worldwide, “mature” and recognized worldwide organization.

TIEMS 2021 Virtual Annual conference will give all an opportunity to attend, because they can attend from their home place if they have a computer and internet available. This will therefore form a good meeting place on ZOOM between the locals and international experts and give all the opportunity to learn from each other and exchange experiences and find better solutions, which can improve local and international preparedness for disastrous events and build more resilient societies worldwide.

TIEMS local organizing committee, TIEMS France Chapter/The French High Committee for National Resilience (HCFRN), is the host of this conference, and the members of the organizing committee have done an excellent job for preparing the conference, and I like to thank them for their good work, given the COVID19 challenges.

Both international and local presentations of high-quality form up a comprehensive program comprising 17 sessions with keynotes and paper presentations, and a panel debate on international certification in emergency and disaster management. This virtual conference program will certainly make the 5 days TIEMS 2021 Virtual Annual conference an important and a memorable event.

The papers will be included in TIEMS 2021 Annual Conference Proceedings, and some full papers will be peer reviewed and published in an international recognized journal. Many thanks go to Dr. Meen Chhetri and Dr Roman Tandlich for reviewing all papers and putting together an excellent program, and also giving good advice to the authors, seeing to it that all papers are of high quality. Many thanks also go to Dr. Snjezana Knezic for putting together the conference proceedings.

Welcome all to TIEMS 2021 Virtual Annual Conference.

Oslo 1<sup>st</sup> December 2021  
K. Harald Drager  
TIEMS President

### **Conference Chair**

Kåre Harald DRAGER, President of The International Emergency Management Society (TIEMS), Norway

### **Scientific Committee**

- Meen Bahadur Poudyal Chhetri, Nepal Center for the Disaster Management (NCDM), Nepal, **Chair of the committee**
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- Gilles Dusserre, IMT Mines Ales, France
- Young Jai Lee, Dongguk University, South Korea
- Serge Garrigues, Paris Defense Zone, France
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- Christian Sommade, French High Committee for the National Resilience (HCFRN or Resilience France), France
- Pierre Schaller, French National Fire academy, Ensosp, France
- Nazir Touleimat, The French Alternative Energies and Atomic Energy Commission or CEA, France
- Laurent Verneuil, Technical Institute of the Limoges University, France
- Roman Tandlich, Rhodes University, South Africa

## Local Organizing Committee

Haut comité français pour la résilience nationale - French High Committee for National Resilience "*Resilience France*", 162 rue du Faubourg Saint-Honoré, 75008 Paris, France  
[WWW.HCFRN.ORG](http://WWW.HCFRN.ORG)



Resilience France takes part in the TIEMS 2020 virtual Conference organized from 30th November to 4th December. Resilience France is a non-profit organization which helps its members to improve the security, safety and resilience of public and private organizations, regarding the major risks and threats. It contributes to the protection of populations and to the objective of national resilience. It is a platform for exchanges between the Government, parliamentary assemblies, local authorities, companies and experts on issues relating to security, safety and organizational and structural resilience.

Christian Sommade is the General Delegate of Resilience France (HCFRN).

## CONTENT

### OPENING AND WELCOME SESSION

**Jean – Paul Monet, TIEMS Regional Director for Europe, France**

*Welcome to TIEMS 2021 Virtual Annual Conference, Introduction of the Conference Program*

**Jean-Marie Le Guen, Former Minister in Charge of Relations with Parliament and President of HCFRN, France**

*Opening and Welcome*

**Christian Sommade, Délégué Général du Haut Comité Français pour la Résilience Nationale, France**

*Resilience Few Definitions*

**K. Harald Drager, TIEMS President, Norway**

*TIEMS Status – Present Activities and Future Plans*

### SESSION 1: Fire Disaster Prevention

**Eric Saylor**

[\*Quantifying the Negative Presentation\*](#)

**Dave Waterhouse, François Delorme**

[\*The Economic Benefit of Fire Prevention Presentation\*](#)

**Fahmida Saadia Rahman, W. Kathy Tannous, Lara Harvey, S. Gulay Avsar, Kingsley E. Agho, Nargess Ghassempour**

[\*Economic Costs of Residential Fire: A Systematic Review Presentation\*](#)

## **SESSION 2: COVID-19 Lessons Learned**

### **KEYNOTE:**

**Xiaotao Cheng, Guosheng Qu**

[\*New Characteristics of Food Risk and Emergency Capacity Strengthening Under Changing Environment\*](#)  
[Presentation](#)

**Chris Sagoe**

[\*Research Into the Potential Links Between Covid19, Misinformation and the "Mismedication" in the Kingdom of Lesotho\*](#)  
[Presentation](#)

**Meen Chhetri**

[\*Growing Need of International Cooperation in DRR\*](#)  
[Presentation](#)

## **SESSION 3: Public Emergency Communication**

**Kailash Gupta, Dharmendra Boolchandani, Caitlin Varquez**

[\*Fail-Proof and Frugal Ham Emergency Communication\*](#)  
[Presentation](#)

**Stéphane Grynszpan, Aurélie Rossi, Christian Fluhr**

*Geo-Chronolocated Critical Events Alerts*  
[Presentation](#)

**Kailash Gupta, Caitlin Varquez**

[\*Ham Club Station at Malaviya National Institute of Technology, Jaipur, India\*](#)  
[Presentation](#)

## **SESSION 4: Emergency Management Technology**

**N. Vinod Chandra Menon**

[\*Information Technology Enabled Tools for Strengthening Multi-Hazard Preparedness and Emergency Response\*](#)  
[Presentation](#)

**Didier Soto, Lucille Alonso, Abla-Mimi Edjossan-Sossou, Michael Gonzva, Fang-Yu Hu, Philippe Sohounou, Camille Vignote, Nicolas Ziv, Karim Selouane**

[\*The Resilience Performance Assessment \(RPA\), an Innovative Solution to Measure the Balance Between Adaptation and Mitigation Investments for Infrastructures, Buildings and Territories\*](#)  
[Presentation](#)

**Jakub Ryzenko, Anna Kobierzycka**

[\*PI Case Study: Experiences of Using Drones and Manned Aviation in Crisis Operations on the Basis of Las2021 State Fire Service Exercise\*](#)  
[Presentation](#)



## **SESSION 5: Decision Support**

### **KEYNOTE**

**Jeffrey Stern**

*How FEMA's Emergency Management Institute Address Health, Climate and Energy Challenges*

**Snjezana Knezic, Martina Baucic**

[Emergency Decision Support System Platform: E-Citijens Project Presentation](#)

**Shayla Clarke, David Williams**

[Limited English Proficiency Preparedness Fieldwork Presentation](#)

## **SESSION 6: Resilience**

**Thomas Robertson**

[AI Risks and Emergency Management Presentation](#)

**Efraim Laor**

[Earthquakes and Sustainable Infrastructure: Neodeterministic \(NDSHA\) Approach Guarantees Prevention Rather than Cure](#)

**Dukhi Sah**

[Sustainable Approaches to Infrastructures in Resilience Era Presentation](#)

## **SESSION 7: Preparedness, Response and Resilience**

**Kyle King**

[Projecting Resilience – Climate Security Implications for National Security Presentation](#)

**Abbas Abu Shama Abdel Mahmoud**

[Personal Experience of Lecturing Emergency Management in the Safety and Security Higher Education Sphere Presentation](#)

**Pär Eriksson**

[Creating Winds of Change – Adapting and Transforming the Crisis Management System Using Exercises Presentation](#)

## **SESSION 8: Ethics, Resilience and Awareness**

**Chidinma Iheanetu, Roman Tandlich, Felix Donkor, Iveta Zvercova, Martin Krause**  
[\*Citizen Science as an Ethical and Multi-Disciplinary Approach for Disaster Risk Management and Implications for Education of Humanity During Covid19 Presentation\*](#)

**Amelie Grangeat, Alessandro Lazari**  
[\*Citizen's Resilience and Public Warning Systems Presentation\*](#)

**Michel Bour, Damien Ballereau**  
[\*Boosting Citizens' Awareness with the Support of Fire and Rescue Practitioners to Accelerate Implementation of the Sendai Framework Presentation\*](#)

## **SESSION 9: Public Service and Education**

### **KEYNOTE**

**Steve Recca**

[\*Leveraging Risk Assessments in a Complex, Multi-Hazard Environment Presentation\*](#)

**Eunice P. Vhiriri, Roman Tandlich, Richard K. Laubscher, Yoland Irwin,**  
[\*Roles Of Public Service and Private Stakeholders in the 2017-2018 Listeriosis Epidemic in South Africa: An Ethical Conjecture Presentation\*](#)

**Joe Leitmann**

[\*Reimagining Preparedness, Response and Resilience in The Post-Covid World Presentation\*](#)

## **SESSION 10: Panel on International Certifications in Emergency Management**

**K. Harald Drager**

[\*TIEMS International Certifications – TQC & TQAC – Status and Future Plans Presentation\*](#)

**N. Vinod Chandra Menon**

[\*Emerging Trends in International Certifications in Emergency Management Presentation\*](#)

**Larry Porter**

[\*Validation of Quality Emergency Management Academic Programs Through Assessment and Accreditation Presentation\*](#)

**IMPETUS DAY, SESSIONS 11, 12, 13 and 14:**

**Matthieu Branlat**

[\*Key Results from H2020 Project IMPETUS  
Presentation\*](#)

**Jelena Radošević, Krunoslav Katić, Mišo Mudrić**

[\*IMPETUS Public Opinion Survey on Ethical Issues of Smart City Technologies  
Presentation\*](#)

**Sandro Bologna**

[\*Is Your Smart City a Resilient City?  
Presentation\*](#)

**Nesrine Kaaniche, Joaquin Garcia-Alfaro**

[\*Privacy-Preserving Challenges for Urban Safety  
Presentation\*](#)

**Martina Ragosta, Matthieu Branlat, Giulia Canilli, Bruno Bonomini**

[\*Validate Sensitive Technologies in Realistic Operational Environment  
Presentation\*](#)

**Tor Olav Grøtan, Andrea Vik Bjarkø, Osman Mohammad Ibrahim,  
Ian Simon Gjetrang**

[\*Public Safety in Smart Cities - A \(Transitional\) Resilience Perspective  
Presentation\*](#)

**Radu Popescu**

[\*Platform Architecture for IMPETUS  
Presentation\*](#)

**Paolo Mignone, Anisetti Marco, Claudio Ardagna, Costantino Mele, Alessandro  
Balestrucci, Chiara Braghin, Ernesto Damiani, Antongiaco Polimeno,  
Donato Malerba, Michelangelo Ceci**

[\*Big Data Ingestion and Analytics for Physical Threat Intelligence  
Presentation\*](#)

**Joaquín Luzón Tuells, Berta Biescas**

[\*Ethical Challenges in the Social Media AI-Driven Threat Detection for Cities and Citizens  
Presentation\*](#)

**Joe Levy**

[\*IMPETUS EU Project Weapon Detection Tool  
Presentation\*](#)

**Keren Saint-Hilaire, Joaquin Garcia-Alfaro**

[\*Ontology-Based Attack Graph Enrichment  
Presentation\*](#)

**Paolo Mocellin, Matteo Bottin, Chiara Vianello, Giulio Rosati, Giuseppe Maschio**  
[\*An Approach to a Safe Egress from Public Spaces Driven by Risk Principles Presentation\*](#)

## **SESSION 15: COVID19 Modeling and Opportunities**

### **KEYNOTE**

**Duncan Shaw, David Powell**  
[\*Operationalising Local Resilience Capabilities\*](#)

**Qu Guosheng**  
[\*Capacity Buildings of USARs in China Presentation\*](#)

**Chaim Rafalowski**  
[\*Pandemic – New Opportunities for Emergency Medical Services Presentation\*](#)

## **SESSION 16: Environment, Trauma and International Crisis**

**Charles Kelly**  
[\*Bigger Ships, More Containers: An Emerging Environmental Disaster Presentation\*](#)

**Johnston Wong, Candy Zhou**  
[\*Trauma-Informed Responses to Emergencies in the Digital Era Presentation\*](#)

**Kyle King**  
[\*The 2021 TIEMS Webinar Series: Community Engagement Presentation\*](#)

## **SESSION 17: Urban and Public Safety**

**Ze Zhao Liu, Wei Wang, Rui Ma**  
[\*Threshold Effect for Regional Emergency Management: An Assessment by the System Simulation Approach in China Presentation\*](#)

**Simona Cavallini**  
[\*A Conceptual Framework to Assess and Measure Security and Safety in Urban Areas Presentation\*](#)

**George Markowsky**  
[\*Modeling the Delta Variant of Covid-19 Presentation\*](#)