



INTERNATIONAL ACADEMY OF ASTRONAUTICS
IAA CLIMATE CHANGE AND DISASTER
MANAGEMENT CONFERENCE

**SPACE SYSTEMS FOR THE BENEFIT OF EARTH AND
HUMANKIND**

Call for Papers



September 17, 2015
Mexico City, Mexico

INTRODUCTION:

Heads of Space Agencies and their delegations will gather, in company with policy makers, government representatives, distinguished scientists, and leading Academicians from all over the world, on Friday 18 September 2015 in Mexico City, for an unprecedented IAA Heads of Space Agencies Summit on Climate Change and Disaster Management to follow-on with the 2010 Summit Declaration. These renowned leaders from space-faring nations will engage in dialogue on topics of international concern, with the aim of providing an important message from the space community, just before the 21st UN Conference of Parties on Climate Change, to be held in Paris, France, from 30 November to 11 December 2015.

CALL FOR PAPERS:

As an introduction to the Summit, the International Academy of Astronautics (IAA) organizes on Thursday 17 September 2015, a Pre-Summit Climate Change and Disaster Management Conference: Space Systems for the Benefit of Earth and Humankind, that will invite authors to present papers in any of the following parallel sessions covering these topics: (1) Climate Change Challenges and Requirements for Space Systems, (2) Disaster Management Challenges and Requirements for Space Systems, (3) Technical Factors: Enabling Technologies and Operational Constraints, (4) Data Distribution and Sharing: Technical, Policy, and Legal Considerations, (5) Role of Private Sectors for Downstream Applications, and (6) Major Drivers and Challenges for International Cooperation, (7) How to Align Worldwide Space Systems for Common and Shared Solutions, (8) Space Telemedicine Applications for Mitigation of Pandemic, (9) Use of Space Systems for the Protection of Archeological Patrimony.

1) Climate Change Challenges and Requirements for Space Systems

The session will discuss the challenges and requirements for space systems and applications, for the purpose of climate change monitoring, mitigation, and adaptation. Papers are invited to address:

- Climate change monitoring: minimize gaps in the monitoring of the Essential Climate Variables, assure the continuity of infrastructures over long periods of time, etc.
- Climate change mitigation: direct measurement of GHG emissions from space and identification of sources, contribution to deforestation reduction (REDD+), verification of treaties, carbon impact reduction of ground activities (e.g. smart transports, management of renewable energies), etc.
- Adaptation to climate change: support to regional vulnerability analyses, prediction of extreme weather events, evaluation of long term impacts, etc.

2) Tackling Disaster Management with Space Systems

The session will discuss the challenges and requirements for space systems and applications, for the purpose of disaster prevention and management. Papers are invited to address:

- Use of space systems to analyze vulnerability to diverse categories of disasters: extreme weather events, earthquakes, pollutions, oil spilling, big fires, industrial disaster, etc.
- Warning: systems for anticipation and/or early detection of disasters, systems for early warning towards the authorities and public through secured communications, etc.
- Crisis management: integrated space-based and ground-based applications for situation assessment, early responders operations, recovery operations, etc.
- Capacity building and outreach activities, for an optimal use of satellite-based technologies for disaster management.

3) Designing Solutions : Concepts, Enabling Technologies, and Operational Constraints

The session will review, analyze, and recommend the most efficient solutions for climate monitoring/mitigation/adaptation and for disaster management. Key enabling technologies and major operational constraints will be discussed. Special emphasis will be placed on papers addressing the issue of access to space data and services by the emerging space countries. Papers are invited to address the following topics, among others:

- Instruments for Earth monitoring
- Emergence of low cost constellations
- Earth Observation based techniques for disaster response

- Communications networks for timely delivery of data products to stakeholders for disaster management.
- Operational constraints for climate monitoring: data quality, refreshment, archiving, distribution networks, etc.
- Operational constraints for disaster management: real time acquisition and quick processing, warning, distribution networks and telecommunications channels, etc.
- End-users training, in particular in emerging space countries

4) **Data Distribution and Sharing : Technical Challenges and Solutions**

This session will discuss the needs and technical solutions to enable a broad and easy distribution of space based data, for climate change and disaster management applications. Papers are invited to address:

- Requirements from the international communities: GEO, CEOS, Climate scientists, Disaster Charter, countries
- Data calibration, validation, technical standards and protocols for exchanges, interoperability
- Distribution networks and processes for climate data sharing
- Distribution networks and processes for disaster management : early warning, crisis, recovery

5) **Data Distribution and Sharing : Policy and Legal Considerations**

This session will discuss the policies and legal tools to enable a broad and easy distribution of space based data, for climate change and disaster management applications. Papers are invited to address:

- Which kinds of data shall be considered “global public goods” and be available for free?
- Which economical schemes for free access to data: who pays for the infrastructures?, access to data from private operators, ...
- Intellectual property rights, ownership and use of the data : local or global
- Legal mechanisms to share and distribute the data : space law, other regulations (e.g. protection against cyber criminality)

6) **Role of Private Sectors for Downstream Applications**

The session will discuss the potential involvement and role of private actors, in particular the operators of downstream applications, addressing or interfacing with the climate change and disaster management issues. Papers are invited to address:

- Capabilities offered by the private operators infrastructures for climate change data generation and downstream applications
- Capabilities offered by the private operators infrastructures for disaster management
- Business models and legal frameworks for the involvement of private operators

7) **How to Align Worldwide Space Systems for Common and Shared Solutions**

Climate change and disaster management are issues for all mankind, and request a broad set of space systems which cannot be all provided by a single nation stand alone. International cooperation is already engaged through organizations like GEO or CEOS, which aim at optimizing the coherence of the systems provided by each space faring nation. But the increase of the needs as well as the criticality of climate and disaster topics request to change the momentum and go towards a more efficient and integrated international cooperation, for the benefit of all nations. Papers are invited to address:

- On-going international programs and initiatives on space for climate monitoring and disasters management, achievements, successes, and issues
- National/Regional/International level networking of stakeholders in climate monitoring and disaster management
- Paths for increased international cooperation

8) **Space Telemedicine Applications for Mitigation of Pandemic**

World globalization and the development of more resistant and aggressive viruses increase the probability of occurrence of severe large scale pandemics. Papers are invited to address how the use of space-based telemedicine, and other crisis applications, could support the efficient management of pandemic crises.

9) Use of Space Systems for the Protection of Archeological Patrimony

Beside the human fatalities and the severe impacts on infrastructures and economies, the consequences of natural or man-caused disasters could also affect the humankind patrimony represented by archeological sites in various countries of the world. Space systems are already recognized for their efficient support in the search for new archeological discoveries. Papers are invited to discuss how the mix of the space technologies used for archeology, with those used for vulnerability analyses for disaster assessment, might become an efficient means for the protection of the archeological patrimony against disasters.

The sessions will also present relevant results from the following conferences:

- The IAA-IISL-KSTE-ISRO-International Conference on Climate Change and Disaster Management, February 26-28, 2015, Trivandrum, India.
- The IAA 50th Anniversary Celebration Symposium on Climate Change and Green Systems, August 30-31, 2010, Nagoya, Japan.
- The 2nd International Symposium on Space & Global Security of Humanity, July 05-08, 2010 Riga, Latvia.
- The IAA Symposium on Space & Global Security of Humanity, November 02-04, 2009, Limassol, Cyprus.

Call for Papers

Abstracts must be written in English on a single A4 page with the title, author's name affiliation and complete address. They should indicate to which topic of the Conference they are proposed. Abstracts shall be sent by e-mail to conference@iaaemail.org, before **July 15, 2015 deadline**. Final papers and presentations shall be in English, which will be the official language of the Conference.

Registration

For registration and website of the conference please visit:

<http://climatdisast.iaaweb.org>

Registration will include both the Climate Change and Disaster Management Conference (17 September 2015) and the Heads of Space Agencies Summit (18 September 2015).

Venue

Conference Venue: Mexico City, Mexico

Local Committee of the Conference:

Agencia Espacial Mexicana, Av, Insurgentes Sur 1685, piso 3y13, Colonia Guadalupe Inn, D. Alvaro Obregon, 01020 Mexico, Mexico

Conference Organizer:

International Academy of Astronautics (IAA)
6 rue Galilée, BP 1268-16, 75766 Paris Cedex 16
Tel: +331 47 23 82 15
Fax: +331 47 23 82 16
sgeneral@iaaemail.org

**Please send your abstract to
conference@iaaemail.org
before July 15, 2015 deadline**