



**ISF**
2023
INTERNATIONAL SPACE FORUM
AT MINISTERIAL LEVEL
THE CENTRAL AMERICA & CARIBBEAN CHAPTER

Organizers:



FINAL REPORT

5th International Space Forum at Ministerial Level – The Central America and Caribbean Chapter

"Space Science and Technology for Improving Regional Opportunities and better facing Local Challenges"

Panama City, Panama | 6 March 2023

Supported by:



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RELACIONES EXTERIORES





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1 ISF 2023 HIGHLIGHTS

The IAF International Space Forum at Ministerial Level (ISF) was launched in 2015 under the auspices of the IAF Vice President for Science and Academic Relations. The event aims at bringing together representatives from the Ministers responsible for space, science and education and Academia to encourage a global discussion and debate on the necessity of promoting a greater involvement of Universities into space activities.

After the first edition held in Trento, Italy, the two organizers of the event, the International Astronautical Federation (IAF) and the Italian Space Agency (ASI) decided to focus on specific regions to better address the particular needs of emerging space countries while counting on the support of local organizations and universities.

The ISF 2023 - The Central America and Caribbean Chapter, hosted by the Universidad Tecnológica de Panamá (UTP), follows three previous regional chapters held in Nairobi – the African Chapter (ISF 2017), Buenos Aires – the Latin American and Caribbean Chapter (ISF 2018), and Reggio Calabria – The Mediterranean Chapter (ISF 2019).

On the occasion of the ISF 2023, held on Monday 6 March 2023, almost 100 representatives gathered in Panama City to exchange and share experiences on the theme **“Space Science and Technology for improving regional opportunities and better facing local challenges”**.

For the whole day delegates from eight countries of the region and 26 Space Agencies, International organizations and local companies, discussed about the opportunities that the development of the space sector could bring to the region’s different societies.

Participants had the opportunity of presenting their experiences and the specific needs of their country while, at the same time, listening to three keynote speeches that, delivered by experts in their field, presented innovative solutions and points of view on the following topics:

- **Space for Food Safety**, presented by Adoniram Sanches, Sub-regional Coordinator for Mesoamerica, Food and Agriculture Organization (FAO)
- **Satellite Systems in Support of Emergency Management** by Raúl Kulichevsky, Executive and Technical Director, Comisión Nacional de Actividades Espaciales (CONAE)
- **Enhancing Water Monitoring and Blue Economy through Space** by Rodney Delgado Serrano, Director, Dirección Nacional de Ciencias Espaciales - Universidad Tecnológica de Panamá (UTP).

These and many more topics, were widely discussed during the Forum and were brought to light by the statements of the delegations. To give you all the opportunity of continuing with the reflection on those essential aspects, we have gathered in this booklet all the interventions made during the Forum as well as the final declaration, the Panama City Page. A document gathering the outcome of the Forum itself.

We trust that this report will further support the development of the new forms of regional cooperation and will serve as source of inspiration not only for the ISF 2023 representatives but the whole IAF community.



Clay MOWRY
 President
 International Astronautical Federation (IAF)



Giorgio SACCOCCIA
 President
 Italian Space Agency (ASI)



Omar Olmedo AIZPURÚA PINO
 Rector
 Universidad Tecnológica de Panamá (UTP)

2 LOCAL AUTHORITIES, PARTICIPATING COUNTRIES, AND INTERNATIONAL ORGANIZATIONS

LOCAL AUTHORITIES



Yill DEL CARMEN OTERO
 Vice-Minister for
 Multilateral Affairs and
 Cooperation,
 Ministry of Foreign
 Affairs,
 Panama



Eduardo ORTEGA-BARRÍA
 National Secretary,
 Panama National
 Secretary for Science,
 Technology and
 Innovation (SENACYT),
 Panama



Silvia DEL ROSARIO GIACOPPO
 President,
 Latin-American and
 Caribbean Parliament
 (Parlatino),
 Panama

COUNTRIES



BARBADOS



HONDURAS



COSTA RICA



NICARAGUA



DOMINICAN REPUBLIC



PANAMA



GUATEMALA



TRINIDAD AND TOBAGO

INTERNATIONAL ORGANIZATIONS & SPACE AGENCIES

Colombian Space Agency (AEC)



Sapienza University of Rome



Comisión Nacional de Actividades Espaciales (CONAE)



Latin American and Caribbean Space Agency (ALCE)



El Salvador Aerospace Institute (ESAI)



National Space Society Colombia





5th International Space Forum at Ministerial level
 – The Central America and Caribbean Chapter

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EURISY		Parlamento Latinoamericano y Caribeño (Parlatino)	
Food and Agriculture Organization of the United Nations (FAO)		SIDERALIS Foundation	
International Astronautical Federation (IAF)		Space Generation Advisory Council (SGAC)	
Istituto Italo Latino Americano (IILA)		University of Honduras	
Italian Space Agency (ASI)		Universidad Tecnológica de Panamá (UTP)	

OBSERVERS

Astralintu		Italian Embassy in Panama	
Dirección Nacional De Innovación, Panama		Ministry of the Presidency of the Republic of Panama	
Embassy of Mexico in Panama		Orbital Space, Costa Rica	
El Instituto de Investigaciones Científicas y Servicios de Alta Tecnología de Panamá (INDICASAT)		Telespazio Argentina	
Esri Panama		Embassy of Uruguay in Panama	

3 STATEMENTS OF PARTICIPATING COUNTRIES

Statement of Costa Rica

By Ingrid Picado Monge,
Ambassador, Embassy of Costa Rica in Panama



Good morning, allow me to extend the greetings to all of you.

My delegation welcomes the organization of such an important forum that addresses priority issues for my country such as, among others, climate change, protection and preservation of the environment through space technologies, mitigation of natural disasters, human health. Their approach to these issues in the proposed program presents a unique opportunity to seek solutions for our region, which emanate from a wide agenda of technical cooperation with global reach.

Distinguished delegates,

At the national level, Costa Rican institutions continue to work on administrative arrangements to provide resources, operational capacity and a strategic plan to the Costa Rican Space Agency. We proposed as the goal of having a self-sustaining Agency after the first 5 years of public financing, able to influence the promotion of national development from the exploration of outer space, hand in hand with the other governing bodies.

This new player in the Costa Rican social fabric has the task ahead of intertwining with the national economy and becoming one of its engines, for this, the country feels optimistic about strengthening public-private partnerships and highlighting the strengths of its aerospace cluster in terms of innovation and space applications, taking advantage of its geographical position, percentage of biodiversity and highly qualified personnel.

We are prepared to continue generating a systematic attraction of companies with high added value, which are to join the growing Costa Rican Aerospace Cluster, located especially in the coastal province of Guanacaste, in the north of the country. In Costa Rica, this industry benefits from the declaration of public interest granted to the National Clusters Program, to improve linkages and employment at national and territorial level, as well as productivity, competitiveness, and innovation.

In November 2022, thanks to the Musa project, which is a joint initiative between the venture "Orbital Space Technologies", the Tecnológico de Costa Rica, the Central American Association of Aeronautics and Space, together with the Swedish Space Corporation, the country managed to place in space for the second time in national history, a satellite produced in Costa Rica and by Costa Rican. Among the objectives of this effort, it aims to seek a treatment against the fungus Fusarium, which affects banana plantations in the Latin American region.

Costa Rica sees space exploration as an ideal space for the growth and professional fulfilment of current and future generations. A space where the national intellectual and academic potential can be developed. We will continue to support the development of space initiatives with special interest in inspiring young talent, and basing our strategy on equality, diversity and inclusion, promoting the participation of young people, women and girls in space sciences.

Costa Rica managed in successfully designing its long-term planning strategy in 2022, with the creation of the National Strategic Plan 2050, thanks to the efforts of the Ministry of Planning and Economic Policy, the governing body for national planning. Through this exercise, various aerospace initiatives were strongly linked as components of national development.

Within this framework, the aerospace sector was designed as a space for public intervention in the fields of education and culture, as well as in international relations, covered by the Ministry of Foreign Affairs. In the latter case, scientific, technological and aerospace diplomacy were formally converted in instruments for the country's action abroad and for its foreign policy.





Distinguished delegates,

The incorporation of outer space in the report of the Secretary General of the United Nations "Our Common Agenda" allows us to continue addressing our priorities from a renewed perspective. We welcome the widely accepted definition of space as a global public good, which is linked to its essence as a protected space for peaceful uses.

Costa Rica considers that the implementation of the proposals found in this agenda could benefit from a more concrete multisectoral implementation mechanism, which allows us to outline the way in which the Summit of the Future of 2024 will include space with an absolute approach to peaceful uses and a development engine, in line with the Space 2030 Agenda.

From our point of view, space pollution is an issue that deserves greater commitments from both the industry and the International Community. We believe that there should be greater international responsibility with a more attentive management of disposal of space debris' disposal. We do not consider it sustainable in the long term to continue littering our further space, space exploration must be environmentally responsible.

This forum is a propitious moment for us as a region to reiterate the invitation for the most developed space countries to reflect on the importance of preventing an arms race in outer space and on the placement of weapons of any kind in space, and urge them to actively contribute to peaceful space exploration, to the exchange of mutual signals of goodwill, which lead to an increase in trust between the parties, as well as the promotion of transparency measures.

Finally, we must emphasize that space belongs to all of us equally and therefore all Countries, without any discrimination, and regardless of their degree of technical-scientific or economic development, have the right to access space under conditions of equality for carrying out exclusively peaceful activities.

Thank you so much.

Statement of Honduras

By Javier Mejuto-Gonzalez,

**Head of Archeoastronomy and Cultural Astronomy Department,
Space Sciences Faculty, National Autonomous University of Honduras**



Warm greetings from Honduras to all Ministers and High Authorities of Central America and the Caribbean. Special thanks to the Organising Committee of this event and to the people of Panama for their leadership and hospitality in hosting this important Forum.

Within the framework of the Government Plan for the Refoundation of Honduras 2022-2026, led by President Xiomara Castro Sarmiento, the prioritisation in investment, training and general development of Science, Technology and Innovation is fundamental. We consider this to be a pillar for true sovereign economic and social development.

We consider that Space Science and Technology is fundamental in a transversal way, to face with tangible solutions and tools the problems faced by our country and the region in terms of climate change, territorial planning, risk management, epidemics, natural disasters, access and quality of telecommunications, among others. And above all, providing elements that focus on the prevention and forecasting of these problems.

We also consider that they are essential for strengthening the promotion of the cultural, archaeological and biodiversity heritage of our Central American and Caribbean peoples.

In this framework, in Honduras since this new administration, we are taking constant steps, during 2022 the National Meeting of Spatial Data was developed as a starting point and initial consensus for the development of an Integrated Plan and Framework for Geospatial Information at the national level. Also in the content of the Law Reform for the Promotion and Encouragement of Scientific, Technological and Innovation Development, the foundation of the Honduras Space Agency is being included as one of the milestones for the consolidation of governance and prioritization in this sector.

Operationally, the different State institutions are including these technologies as part of their strategies, especially in the areas of forestry, land-use planning and disaster prevention.

Likewise, Honduras has set an example in recent years of how the participation of different actors in the national science, technology and innovation system and regional collaboration through SICA and other networks is fundamental for the development of our countries' space infrastructure. The National Autonomous University of Honduras, the largest public university in our country, is leading the Morazán Satellite Project, which is on the verge of putting the first Honduran satellite into orbit.

During 2022, we participated in the regional Latin American and Caribbean platforms in chapters focused on science, technology and innovation, such as CELAC and the OEI, in which it was agreed and emphasised recurrently that the axis of Space Science and Technology should be one of the priorities for collaboration in the present and future.

International networks of researchers, innovators and research institutes have already paved the way in recent decades by making space sciences one of the most collaborative scientific sectors. We therefore call for the continuation of these efforts, with a regional approach within the framework of the common problems and conditions of Central American and Caribbean countries, so that we can, based on an open science approach, share talents, experiences, infrastructures, plans and dreams in this field that brings us together today. Thank you very much.





Statement of Nicaragua

By Humberto A. García Montano,
Investigador, Observatorio Astronómico de la Universidad Nacional
Autónoma de Nicaragua (UNAN-Managua)



- Nicaragua in terms of food security and production, and on food production in Nicaragua.
- About the scientific-academic part.
 - 1) About NASA's Giovanni platform.
 - 2) Copernicus platform.
 - 3) Earth data

Access for students of Environmental Chemistry, Geology and Geophysics subjects.
They use satellite data for air quality, volcanic monitoring and physics of the atmosphere.

- In matters of Special Sciences.

In Nicaragua, there is only the "Law for the Creation of the National Secretariat for Outer Space Affairs, the Moon and Other Celestial Bodies"

4 STATEMENTS OF PARTICIPATING INTERNATIONAL ORGANIZATIONS & SPACE AGENCIES

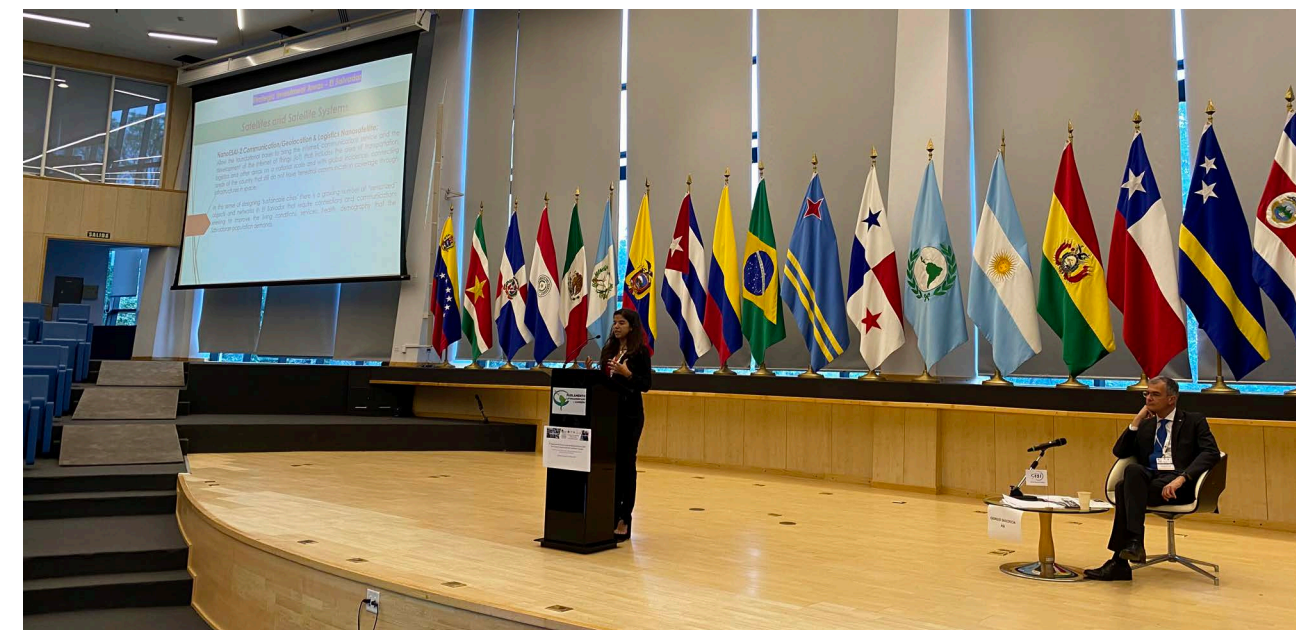
AEC (Colombian Space Agency)

By Pilar Zamora Acevedo,
CEO, AEC



It is necessary to understand the applications of space for the life and development of all humanity, food security must be promoted by cultivating space knowledge and its solutions, along with cooperation between all economic sectors of the planet, including States, the private sector, businesses, students, entrepreneurs, financing and academia. Just as the rural communities that are fortunate enough to be in Latin American and Caribbean countries must be beneficiaries of these technologies, they must improve their quality of life and that of their generations in order to guarantee the food and environmental sustainability of humanity.

On the side of the Colombian Space Agency, our work in this new space era is to make space technology an involving, magical science, full of public and private initiatives that financially contribute value to our evolution as a society.





Statement of ASI (Agenzia Spaziale Italiana)

By **Giorgio Saccoccia**,
 President, ASI



Agenzia Spaziale Italiana

Excellencies, distinguished guests, Dear colleagues and friends,

for this edition of the International Space Forum we chose three topics very important for the needs of the countries of the Central America and the Caribbean region. **Food safety, emergency management, water monitoring and blue economy** are being discussed today through the lenses of the space sector because space technologies, applications and services can provide a relevant support in the decision-making processes related to those challenges and activities.

A recent study of the Space Economy Observatory of the Milan Polytechnic in Italy analysed the direct and indirect impacts of space technologies on the efforts to achieve the UN sustainable development goals. The results of the study confirm that **Earth observation from satellites impacts directly on ten SDGs**, while the satellite navigation has a direct impact on six SDGs and the satellite telecommunications a direct impact on four SDGs. Among these SDGs, we find SDG 2, “**zero hunger**”, SDG 6 “**clean water and sanitation**”, SDG 9, “**industry, innovation and infrastructure**”, SDG 13, “**climate action**”, SDG 14 “**life below water**”, and SDG 15, “**life on land**”.

When we consider the topics of **food safety, emergency management, water monitoring and blue economy**, we cannot but notice that they are all heavily linked to the changes in the Earth climate. Those changes, influenced by human activities, are causing the sea levels to rise; increased frequency of extreme weather events and associated consequences; changes in the habitat and ecosystem for several animals and plants species; shortages in food production. In addition, climate change facilitates the survival of some pathogenic vectors, increasing the risks for human health and food security.

It is undoubtful that, in order to face these scenarios, there is the necessity to coordinate the efforts and activities of numerous actors, both at national and international level, and this represents a real challenge in a fragmented world! **International cooperation remains and it is increasingly becoming indispensable**, if we want to look for solutions that are sustainable and long-lasting. Also, regional cooperation is becoming more and more relevant, since it helps pooling resources otherwise impossible to obtain, to face the challenges that may become common to all countries of one specific region. Space plays an essential role in fighting the challenges induced by climate change!!

Satellite technology is being increasingly recognised as offering useful information and services to the decision-making processes and derived actions. Satellite data enable crucial applications, starting from the forecasting of extreme **meteorological events** to the **monitoring of the environment**, of the health and nutritional **quality of crops and marine fauna**, but also **precision agriculture**, as a mean to reduce waste and make food production more efficient.

Let me recall, as an example, that in the early 80s, scientists through ground and overall *satellite-based observations*, demonstrated that Earth's natural sunscreen was thinning dramatically over the South Pole each spring. The discovery from space of the so-called *ozone hole* (fortunately for us still in a recoverable phase at the time) is considered a case in which space activities gave a great support in saving the Earth and mankind.

Italy has and is continuing to make relevant investments in the development of national and European space programs, especially in the domain of Earth observation, which is undoubtedly the one that may contribute the most to the activities related to food safety, emergency management, and water monitoring.

Italy is a beautiful country, but as fragile as a work of art! We periodically have, unfortunately, volcanic eruptions, earthquakes, floods, landslides, coastal erosions and also tsunamis sometimes. Not the strongest eruptions of the world, not the most violent earthquakes, however we lose human lives, the infrastructures are damaged or lost and all these events cause enormous expenses, for the State and the People.

Earth observation from Space represents a valid tool to anticipate and monitor these unforeseen events. It is a precious support to guide rescue teams in emergencies and hopefully, in the future, will allow the implementation of instruments to anticipate and prevent the negative consequences of crisis situations.

ASI has **developed the COSMO-SkyMed constellation, which carries onboard radar sensors able to observe the Earth during night and with all weather conditions, 24/7**. Its data provide an important support in many domains of the human life on Earth. Disaster management is one of these, in which information from space has become an indispensable tool in the hands of the Italian Civil Protection decision-making process. After years we are proud of the multiple applications today we have for preventing disasters, managing emergencies and for the recovery phases.

I would like to recall here the long-standing collaboration that ASI has in this field with the Argentinian space agency CONAE, with which it established the Italia-Argentinean system for emergency management (SIASGE), which combines COSMO-SkyMed data with the Argentinian SAOCOM satellites data. Let me tell you that part of the data of the COSMO-SkyMed constellation are devoted to the international scientific community, though the so-called International Open Call, launched by the Italian Space Agency in 2015, with no expiry date so far. Excellencies, distinguished guests,

It is useful to give you an example of application of this constellation. The 6th of April 2009, an Earthquake hit the Italian city of L'Aquila (the Eagle). The city was almost destroyed with hundreds of victims. The CSK constellation was useful in many crucial ways during the emergency, but let me put in evidence its role during the recovery phase, when an important question raised: where to re-build the new houses? It was in that step that through COSMO- SkyMed data we noticed that the seismic waves did not propagate in some areas with specific geological characteristics: and those areas were selected! The new houses in that province are safer because of properly choosing *the position* where to build them. Space data supported, in this specific case, appropriate **Urban planning**.

ASI is also specializing in the development and use of hyperspectral technology. Its satellite PRISMA, launched in 2019, is a cutting-edge Earth observation system, equipped with electro-optical tools, which integrates a hyperspectral sensor with a medium-resolution panchromatic camera, sensitive to all colours. This means that the satellite is not only able to distinguish the geometric characteristics of the observed objects, but also their **chemical-physical composition**, and this because each material has its own spectral signature, an actual fingerprint, which is a unique combination of colours, known as spectral bands. PRISMA is able, for instance, to identify minerals in rocks and soils, to analyse vegetation types and conditions, and to detect pollutants in water and air.

Observing cultivated areas from space means observing, for example, the status and the evolution of crops, making forecast for the next crops, but also detecting the other “colours” of the cultivation: if there are other non-expected pigments from the space images, we can wonder what they mean. Bacteria or infections often generate specific spectral signatures when observed from space. Satellite data like those coming from our hyperspectral sensor on the PRISMA satellite could provide the needed analyses and often allow finding solutions on understanding why an infection in a cultivation is occurred or how it is spreading.

At European Union level, Italy is one of the major contributors to the **Copernicus program** for Earth observation, both by providing data from COSMO-SkyMed and by developing, together with the other major European spacefaring nations, the so-called Sentinel satellites.

Data are the most important resource coming from the Earth Observation satellites: they are immaterial and replicable. The Italian Space Agency, under defined conditions, provides data for free for research purposes. The Copernicus programme offers its data for free. Often, what it is really needed is *ingenuity and knowledge* on how to use these data to extract what is needed.

Today, we are here to gather the highest institutional representatives of Central America and The Caribbean Countries in the science and research sectors, to stimulate research and collaboration from university and academia in space, also to help in finding always new and better ways to use space data

As a further confirmation of the importance that my country attaches to the satellite Earth observation domain, a relevant part of the funds dedicated to space of the post-Covid-19 pandemic National Plan for Recovery and Resilience has been allocated to





the realization of a new Earth Observation program called IRIDE. It will consist of a so-called “constellation of constellations” of satellites in low Earth orbit carrying on board different types of sensing technologies.

For Italy, a founding member of the European Space Agency and among the first countries to develop and operate its own satellite, launched in 1964, space technology represents an integral part of our socio-economic reality. And ASI, since its inception in 1988, it has developed cutting-edge competences and capacities in this field and now the ASI and the whole Italian space sector gathers hundreds of the best Italian brains and talents.

Allow me to say that these competences and talents are at your disposal. As I already mentioned in my welcome remarks, ASI is closely following the development of space activities in the larger region of Latin America and the Caribbean and is supporting the establishment of the Latin American and the Caribbean Space Agency, ALCE. I personally believe that ALCE will act as a springboard for the space activities and for the technological progress in general in your region.

ASI is here today to confirm its availability and support, and to offer all its competences and experience, for collaboration and innovation for a better world, together.

Thank you for your attention.

Statement of EURISY
By Dominique Tilmans,
President, EURISY



“Space solutions can save lives, time and money” – Dominique Tilmans

Dear Excellencies, Dear Colleagues,

I tell you a secret! I’ve seen the paradise; I’ve been to the San Blas Islands. What a wonderful country you have! Amazing!!

Well heaven is not for me now it’s for later and I decided to come back to earth to discuss with you about a key contribution that space can bring in the case of extreme emergency

As Former Senator, I’m an advocate of space and particularly for space solutions because they are relevant tools to help our administrations to be more efficiency and to offer a better-quality service to Civil Society

Today, with my hat of President of Eurisy, an association that raises awareness of the benefits of space for society since more than 30 years now, I want to bring to your attention the Advanced Mobile location that I think can be appropriate to the Latin-American and Caribbean Countries.

Street interviews

Before that, I want to show you a slide about a street interview we are launching with Eurisy just a few days ago.

It has no statistical value, but gives us an idea about the knowledge the people have about space

As you can see people don’t know space can save lives.

This will help us to prepare a survey on the knowledge people have of space. We will organize it across Europe in collaboration with our members, which are mostly the space agencies.

Advanced Mobile Location -AML.

I’ll explain how satellite system can support person in distress.

Imagine. You are walking in the middle of nowhere and you have an accident, you are injured and far from any rescue service. What do you do? Your only chance is your mobile.

So, you take it and call the emergency number of your country. They ask you your exact position but you can’t answer, or vaguely. However, knowing the exact location of a person in distress can make a difference between 1 hour-long rescue mission and a 4 day-long search mission.

Fortunately, a solution exists!

Since this 24 January, Galileo, the Global Navigation Satellite System (GNSS), has begun to deliver its High Accuracy Service, that allow users to locate themselves in real-time with an accuracy of less than 25 cm compared to the accuracy of hundreds of metres, or even kilometres without the AML what can be fatal!!!!

I’ll show you a video that speaks for itself.





https://www.youtube.com/watch?v=T0sJ6CZfAh8&ab_channel=Google

How it works?

An AML-enabled Smartphone recognises when an emergency call is made.

If your position is not already activated, the AML activates your phone to collect your location. Then sends an automatic SMS/ HTTPS to the emergency service with your location

It's free-of-charge and available on android smartphones



Where the AML is implemented?

In 30 countries worldwide in Europe also in Australia, Mexico, New Zealand, United Arab Emirates, and the United States. Maybe soon in Panama?

It mandatory for all the European Member States to make use of handset-derived location to locate people calling emergency services

Do I have to do anything to activate AML on my mobile?

No. AML is not an app and does not require any action from the user.

The next question is: who must configure AML? It's a political decision!!!

I'll not enter in technical details but it's a decision of

- The Ministry of Interior who is the key actor in AML deployment
- In some countries the Ministry of Health and the Ministry of Defence may be involved.
- They must discuss with the emergency service and the Mobile operating systems providers to set the definition of:
 - the end-point for the country,
 - the transmission (SMS or HTTPS)
 - and the emergency numbers for which AML will be activated

Why AML is not implemented in all countries and is not well-known?

Because, us, policy-makers and decisions makers are not enough aware about the benefits of space solutions!!

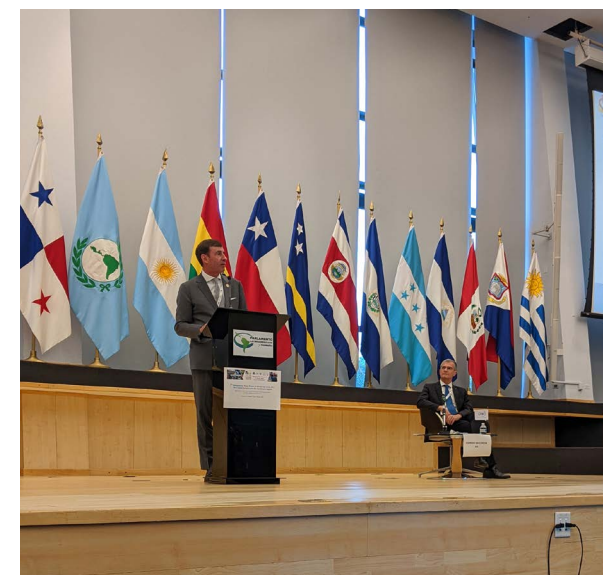
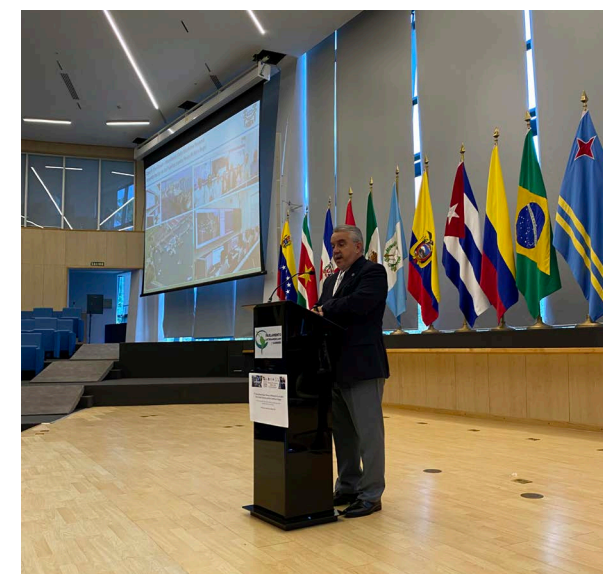
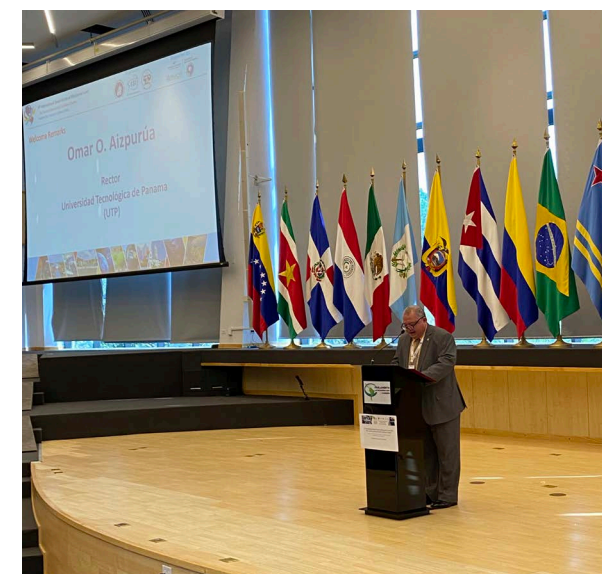
Please keep in mind: space solutions are not the exclusive domain of engineers it's also the responsibility of politicians!!

For more information: The AML is contact person is Benoit Vivier, EENA Public Affairs Manager at bv@eena.org

A short conclusion

Too often we have a limited view of things but today space widens our vision of possible. Vision of possible for outer Space of course but not only, also a vision of possible to better understand our planet, to make it more sustainable, more habitable and to help us to overcome the great challenges we are facing

This are the reasons why space is part of our future and the reason why I'm an advocate of space!





Statement of IAF (International Astronautical Federation)

By Clay Mowry,
President, IAF



Distinguished Delegates,

It is a great honour for me to address you on this very special occasion in my capacity as the President of the International Astronautical Federation.

The IAF has been the world's leading space advocacy body since its foundation in 1951, and it is one of the few, and the most important, organizations that deals with the space sector on a global scale.

The Federation has a history of constant growth and innovation: originally founded by 10 organizations, the IAF counts today 468 members from 75 countries from all over the world and covering all space sectors and domains, including all leading space agencies, companies, research institutions, universities, societies, associations, institutes, and museums worldwide.

For over 70 years the International Astronautical Federation has provided a valued forum for all space actors to confront and debate the challenges facing our collective future in the reaches far above planet Earth. Following its mission of Connecting @ll Space People, the IAF continuously seeks to deepen international cooperation worldwide by encouraging the advancement of knowledge about space and fostering dialogue between scientists, engineers, policy makers and all other space actors for the benefit of humanity.

In pursuit of this goal, the IAF works hard to help policy makers understand the economic, social, political, and scientific value of space. Through our congresses, conferences, publications and studies, knowledge is deepened and shared about how space technology can improve our lives. Through the networking of IAF events, investment in innovation is encouraged and organizations from around the world are able to connect, collaborate and advance scientific and technological knowledge in their countries.

To give you a concrete example, last year the IAF held the 2nd edition of the Global Space Conference for Emerging Countries in Quito, Ecuador. World's space leaders gathered all together to discuss the importance of international cooperation, the creation of a global space sector and the role of Latin America in the future of space exploration and development. GLEC succeeded in inspiring students and researchers from Ecuador, and all Latin America, to explore current and future space opportunities together.

The Federation continues to provide a platform to the space community to engage. Let me also mention our latest successful event: The 73rd International Astronautical Congress held in Paris, France, in September.

The IAC 2022 was an outstanding success with a record number of more than 9300 participants from 110 countries. Organized by the IAF and hosted by CNES, this edition of the IAC brought back the IAC to Paris after 72 years from the first ever IAC that took place in the city of lights in 1950. This edition also saw the largest ever attendance by the next generation with more than 45% and it was also the first ever environmentally sustainable IAC.

In conjunction with the IAC, the IAF organized the 12th edition of the International Meeting for Ministers and Members of Parliaments. Attendance at the event has increased dramatically in recent years, and thanks to the inspiration provided by this Forum and our understanding of the important role that Ministers responsible for space policies might have in supporting the sector, since 2021 we have decided to widen the event including Ministers and Vice-Minister. Every year, this platform offers high-level representatives from different countries a space to discuss together and present their peers the challenges and good practices of their countries.

I am sure that, as policy makers, you all will agree on the importance of space activities and, as the new IAF President, I would like

to draw your attention to three important topics that I have chosen to put at the top of the IAF agenda for the next three years:

Sustainability, Investment, and Security "The SIS Agenda".

We have set up dedicated task forces that will discuss and elaborate ways how the topics of Sustainability, Investment, and Security can be reflected in the activities of the federation in more prominent way.

Talking about sustainability this touched upon the protection of the space environment as well as the contribution of space to support sustainable development on Earth.

As we seek a more sustainable space environment, we must secure continued investment to foster its expansion. In the next few years, we will see a shift towards the commercial development of low Earth orbit and a strong push towards the realization of systems in lunar orbit and on the surface of the Moon. We must be prepared for the challenges of increasing investment in the space sector.

Security refers to the freedom to operate safely in the space domain. Collectively, we seek a secure space environment where scientists, innovators, and nations actively engage in commerce and exploration to create new applications here on Earth.

These topics are broad, and I am sure they are deeply discussed within each of your countries and organizations. They cut across the themes we are addressing in this forum, and I am sure they will stimulate the discussions between Ministers and Authorities of Central America and the Caribbean region as well.

Meetings like this are an invaluable resource for attracting key stakeholders like you and for promoting discussion on the importance of space activities, therefore I thank you very much for your contributions and participation.





Statement of IILA (Istituto Italo Latino Americano)

By **Tatiana Ribeiro Viana,**

Technical-Scientific Secretary, IILA



Mister Chair, Distinguished Delegates,

On behalf of Italo-Latin American International Organization (IILA)'s General Secretary Antonella Cavallari, I thank you for giving us the floor.

IILA is an intergovernmental organization whose members are Italy and 20 Latin America's countries. Since its creation, IILA has played an important role in facilitating and strengthening relations between Italy, Europe, and Latin America, implementing a broad range of activities and cooperation projects in the technical-scientific, cultural and socioeconomic sectors.

IILA's commitment in the space cooperation policy began in 2020, being aware that space activities are crucial for its members states' development strategy. We started with a **consultancy service** and **training courses in Space Law and Space Diplomacy** offering a solid capacitation to more than 400 participants coming from almost all our member states.

In order to keep fostering cooperation and regional integration IILA organized in Rome in partnership with the Italian Space Agency (ASI), in June 2022, the **1st Meeting of the Space Agencies** of the IILA member countries. As a follow up showing regional appreciation for our initiative, Brazil offered to host - with IILA support - the **2nd Space Agencies Meeting** next May.

At the same time IILA is expanding its **partnership with major international and Italian research centers and Universities**, offering superior training opportunities in the aerospace sector for Latin America personnel.

Mister Chair,

All the above mentioned experiences allowed IILA to launch quite an ambitious project for the **construction of the first small satellites (CubeSats) in Panama and in the Dominican Republic**, financed by the Italian cooperation. IILA will provide the necessary ground station as well as the training of the personnel, for them to acquire competences related to the observation of the earth and water monitoring. In particular, the CubeSats will help monitoring sargassum in Dominican Republic and safety of the waters in the Panama Canal.

We are deeply convinced that the very complex challenges of recent years require common efforts and multilateral coordination, and we are also fully aware about the very central role space policy can play in every country as a major driving force for economic recovery. Therefore, IILA is here to confirm its commitment and to put its experience at disposal to strengthen friendship and cooperation within the Latin American region.

Thank you for your attention.



Statement of NSSC (National Space Society Colombia)

By **Raul Eduardo Gutierrez-Gomez,**

Chief Operating Officer Technical-Scientific Secretary, NSSC



We are gathered here today with the objective of proposing solutions from space science and technology to better respond to the needs of the region and its citizens by promoting the participation of the scientific and academic institutions. The National Space Society Colombia (NSS Colombia) is a non-governmental, non-profit organization, created to promote and help the development of Colombia's space capabilities by articulating the different public and private actors as well as integrating and applying the multidisciplinary nature and strengths of its members towards the fulfillment of that same big objective. As NSS Colombia's President it is an honor and privilege to present to you this brief statement that seeks to contribute to the purposes of the 5th ISF 2023.

The first point would be to reflect on what space development is: It is the advance in the acquisition and use of space capabilities focused on contributing to national progress and development. A more precise definition would be "to have and use space capabilities for the development and achievement of the purposes of the state". Space Capabilities understood as the set of space and surface assets combined with the ideal human talent that confers the ability to use them on the surface, in space and in both directions in pursuit of a specific purpose.

So, if the purpose of any state is to provide for the well-being, security and progress, as well as solutions to the vital needs of the population, and we accept that the use of space capabilities facilitates, reinforces and accelerates the achievement of the goals of the state, then it is easy to conclude that space development is strategic for any nation for its contribution to socio-economic development.

The many forms of application of space sciences and technologies have an impact on various spheres of scientific, technological, industrial, business, cultural, and social life. For this reason, they not only generate capacities, but also have a direct impact, although often not perceived, on people's daily lives. For this reason, spatial development contributes to the economic and social growth of any nation when it is duly incorporated into the national education, science, technology and innovation system.

I wish to bring your attention to one aspect of what we could call the socio-economic development of nations equation. Normally it is said the integration of the State, the Academy and the Industry, or the public, private and academic sectors are required to achieve such development. But for socio economic development to be harmonious, lasting and sustainable, I invite those present to consider adding a factor to this equation such as organized civil society, represented by private non-governmental organizations such as associations, foundations, unions, etc., such as it is precisely the case of the Colombian Space Association NSSC, which I proudly represent.

Organized civil society, by allowing individuals to gather their talents, abilities, experiences and strengths around a common social purpose that unites and identifies them, becomes an important support and articulator of the work of public, private and academic entities, therefore being the factor that completes the socio-economic development equation of any country. I want to stop here for a moment and emphasize on motivating the authorities present here, be they space agencies, ministries, secretariats or commissions for Science, Technology and Innovation, universities or their departments of space sciences, in their respective countries and institutions, that if there are not non-governmental organizations that seek to contribute to space development then you should promote and support their existence, but if they already exist, then your countries have an important asset and in this case the invitation is to give them a more relevant role in the structuring of your respective national space ecosystems.

For those delegations present today that are interested in explore how to promote the participation of civil society in the space development of your respective countries, I wish to leave the message that the NSS Colombia is more than willing to provide advice and support in such efforts.

I would like to conclude my speech by bringing up an aspect that I consider equally important to be contemplated within the objective that brings us together today. The Latin American and Caribbean Parliament welcomes us today which is propitious to reflect on what the Ambassador of Italy mentioned at the reception last night when he said that space is one of the best scenarios





that exists for international cooperation, as it is so clearly demonstrated by the existence and operation of the International Space Station. Only by joining efforts we as a region will be able to solve the many common challenges that affect the region regardless of borders or on which side of the political spectrum the government of the day is. For this reason, I want to conclude today precisely in this scenario to motivate the Latin American and Caribbean nations that have not yet done so, to join the Latin American and Caribbean Space Agency, ALCE, whose formation is so diligently and opportunely led by Mexico and Argentina. And for those nations that are already part of ALCE, it is appropriate to motivate them to strengthen it due to its enormous potential as a regional integration initiative that will benefit us all.

Thank you for your time and attention. .



Statement of SIDERALIS Foundation

By Juan Jaramillo,
 President, SIDERALIS Foundation



Good afternoon everyone.

I am pleased to greet you on behalf of those of us who are part of the Sideralis Foundation of Ecuador, so I also allow myself to congratulate the local organizers, the IAF, and the authorities and representatives of the Republic of Panama for the excellent organization of this Forum.

Dear colleagues and friends of the space community, we are undoubtedly living in an exciting and defining moment for the global space industry, we are just years away from a new expansion, which among other things will make operations in orbit and on lunar surface frequent, as well as allowing an unprecedented increase in global and space connectivity thanks to the large telecommunications constellations, it will also increase number of space stations both state owned and private. All this will generate a huge flow of data and information with immeasurable value. In this context, the question that our foundation has constantly asked is how to increase the opportunities of making Ecuador and Latin America part of this process and enjoying the benefits it will bring?

Part of the answer was outlined in May 2022, during the "Global Conference on Space for Emerging Countries- GLEC2022" organized by the IAF and Fundación Sideralis in Quito - Ecuador. In this conference thanks to the contribution of several sectors and experts of the global space community, it was concluded that the ideal path lies in the establishment, development or consolidation of local space industry ecosystems, connected with others of a regional and global nature, seeking to be sustainable thanks to the synergy between the Government, the industry and the academy of each nation. In addition, it became clear that supporting and developing regional initiatives such as the Latin American Space Agency (ALCE), or global initiatives such as the Artemis Agreements is undoubtedly a smart investment towards the integration of such ecosystems.

However, we believe that it is easy to mistakenly assume that the starting point towards viable ecosystems is only in their current conformation. It is more complex and, in our experience, the constitutive actors such as the Government, Academia and Industry are far from ready. Not to mention that in general our population and, therefore, the public opinion lacks the elements that allow them to see and understand the space sector as positive or as a development opportunity. We believe that this condition is, in fact, the initial problem that must be addressed in order to be able to think about sustainable and long-term processes.

We have repeatedly seen how various actors from the public and private sectors are not only unaware of the potential of space products or services but consider them totally out of their interest. The potential of satellite information applied to the management of water resources, emergency care, planning and management of resources, improvement of productive and commercial activities such as mining, agriculture and transportation, as well as the protection of the environment, among many other uses, is undeniable. But its impact is considerably limited if potential users are unaware, or they reject its application.

For all these reasons, as we are doing in this Forum, we dare to propose that we all public and private organizations in the region, which are part of the space community, dedicate our efforts and resources in the following aspects:

- 1. Integration:** establish and strengthen bonds of cooperation and communication between various actors in the local/regional/global space community. In this, the role of entities such as ALCE and the IAF regional committees are critical, as they allow a continuous exchange of ideas and experiences in accessible and inclusive forums and environments.
- 2. Joint Investments in projects** for research, development and innovation, that allow public entities, but especially companies and startups in the region to participate in the global space industry with competitive products and services, ensuring the return of foreign currency to the region.
- 3. Promote the "normalization" and "appropriation"** of the space theme, highlighting the concepts as "space

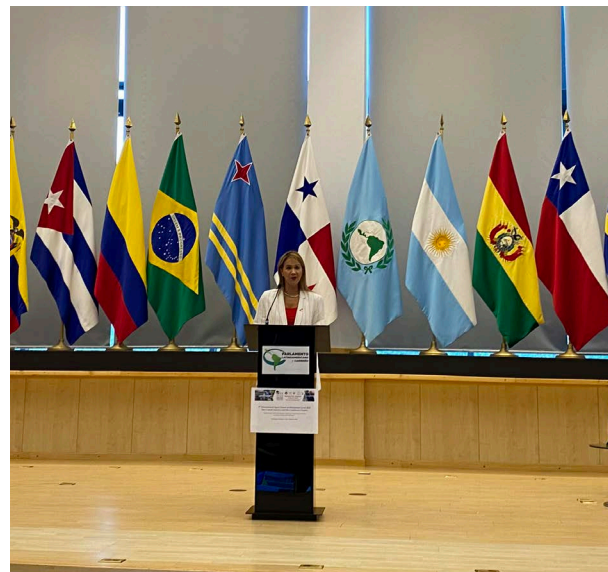




development as national/regional development opportunity", as well as that "Latin Americans are perfectly capable of being decisive players in the space industry". This requires investing in scientific outreach aimed at making public opinion, government, industries and academia see space development from other perspectives and making them more likely to participate and benefit from it.

We believe that the experience of various colleagues as well as organizations in the region offers a solid basis for developing the mentioned aspects. Likewise, we express our interest and desire to join and actively support all regional initiatives that coincide with an inclusive and proactive vision.

Thank you all,



Statement of SGAC (Space Generation Advisory Council)

By Saira Roxana O. Williams,
North, Central America and the Caribbean Regional Coordinator
Matias Campos
South America Regional Coordinator



Honorable representatives of the local and regional governments, dear organizers Universidad Tecnológica de Panamá, Italian Space Agency and the International Astronautical Federation, dear heads of delegations and observers.

The Space Generation Advisory Council, SGAC, would like to thank you for your leadership and support for this forum hosted for the first time in the Central American and Caribbean region. We would like to thank everyone that was involved in the preparation of the 5th International Space Forum at Ministerial Level 2023 The Central America and the Caribbean Chapter. Bringing these events to the region has the power to create an impactful legacy within the region, quickly starting initiatives and furthering space development in the region, development that will bring many benefits across sectors activating the whole economy. Most benefited from all these opportunities are the students and young professionals of the region who we refer to as the space generation, who are in fact the people that are pushing forward the emergence of New Space, creating private space entities in the region in collaboration with Academia and government support. We deeply appreciate the opportunity to share the perspective of the young generation of Central America and the Caribbean in our organization during this forum.

SGAC, as a truly global organization, has been working on expanding the network to bring all the opportunities we have to countries of all our 6 regions. From previous years SGAC continued to prove to be an invaluable platform for students and young professionals in the space sector to funnel their passion and talent. SGAC offers a plethora of events and activities where members can get immersed in the space industry. Taking part of the diverse project groups with topics ranging from exploration to space law or by participating in our global and regional events that bring the community together to discuss pressing matters in the state of space and through various working groups guided by world experts the young generation comes up with a set a recommendations that are shared to the United Nations Office for Outer Space Affairs (UNOOSA) as the voice of the space generation. SGAC is proud to award more than 150 scholarships per year to students and young professionals from all over the world to attend these events and join these important conversations. As an inherently global organization with volunteers working online together across the world, SGAC has continued growing, now representing more than 24,000 students and young space professionals between the ages of 18 to 35, from more than 165 countries to the United Nations, space agencies, industry, and academia.

We continue our work in 2023, which is an important year for us because we want to come stronger in bringing more and more opportunities for our members. In the last 5 years the National Points of Contacts from Central America and the Caribbean have been working on capacity building for our members from these regions. Last year we had one of our biggest opportunities created for Central America and the Caribbean in our region, SGAC_Decode, a CubeSat mission design competition organized by our National Points of Contact from Nicaragua, Jamaica, Saint Lucia, Trinidad and Tobago, and Barbados. While organizing this competition the National Points of Contacts came to realize that a great tool to help students and young professionals to build a path in the space sector was through hands-on projects which would give important skills in space mission designs, space engineering and more. After the competition ended, more perspectives on space were shared not just by our national points of contact but also from our members who were participating. The following points were shared:

1. Capacity building: A starting point to continue developing the future space workforce from emerging space economies by providing our members with the tools or the knowledge in how they can use space assets for solving problems.
2. Hands-on Space projects: This will serve not just as a learning opportunity but also as a way of having the required skills for developing space projects. It will also give the opportunity to students and young professionals to develop their own space programs, allowing them to work on real-world space projects, providing solutions to regional and local issues, and gain experience in space engineering, science and technology.





- Career combination with space: The growth of the space sector in Central America and the Caribbean is also based on how we encourage our students and young professionals to combine either the major that they already have or the major they are taking with space.

These 3 points have been key for encouraging our students and young professionals to work on building their career path in the space sector. From last year's project on CubeSat mission designs, this year, we have a team with members from Nicaragua and Trinidad & Tobago who applied for an Automatic Packet Reporting System Payload competition organized by Kyushu Institute of Technology (Kyutech) which aims to bring the payload of the winning team aboard the BIRDS-X project. These are ways to encourage students and young professionals to get involved in space, and we, in the Space Generation Advisory Council, are committed to continue this.

In summary, Honourable representatives and Distinguished Delegates, SGAC has shown positive growth over the past 3 to 5 years in the North, Central America and the Caribbean Region, which would not have been possible without the tireless effort of our volunteers and in this case specifically our National Points of Contact and Regional Coordinators as well as the support of our international partners and sponsors.

As we continue this year with the plan we have, we would like to highlight the hard work and outstanding efforts from our SGAC members, as well as our mission as the leading international space youth organization. We invite all the delegations present today to engage with the SGAC National Points of Contact of your respective countries and support them in spreading these opportunities among the space generation.

In conclusion, I would like to stress the fact that being here as a delegation in the 5th International Space Forum at Ministerial Level 2023 The Central America and the Caribbean Chapter is invaluable to SGAC; the organization is grateful and honored to be able to share with you our young generation from Central America and the Caribbean perspective in space, and remains available to support you in your work.

Statement of PARLATINO

By Silvia Del Rosario Giacoppo,
President, Latin-American and Caribbean Parliament (Parlatino)



Dear Ladies and Gentlemen Authorities of the Republic of Panama

Members of the Bureau of the Latin American Parliament

Mr. Clay Mowry, President of the International Astronautical Federation

Mr. Omar O. Aizpurúa, Rector of the Technological University of Panama

Mr. Giorgio Saccoccia, President of the Italian Space Agency

Dr. Eduardo Ortega-Barría, Minister of Panama for Science, Technology and Innovation.

Mr. Fabrizio Nicoletti, Ambassador of Italy in Panama

Master's students of the Technological University of Panama

Ladies and Gentlemen Parliamentarians

Invited guests,

As President of the Latin American and Caribbean Parliament, it is an honour to be able to host this "5th International Space Forum at Ministerial Level - The Central America and Caribbean Chapter (ISF 2023)".

The theme of this Forum is: "Space Science and Technology for improving regional opportunities and better facing local challenges".

I want to tell you that we at Parlatino are fully convinced of this! Space may be to some extent unknown to a large part of our populations, but its existence and application directly affects our way of life, and Latin America and the Caribbean must become aware of this.

That is why we consider it important that parliamentarians join these forums for dialogue to advance space exploration as a tool to promote regional development through its countless applications.

And in this sense, to be able to support in their national parliaments concrete initiatives such as the Agreement that creates the

Latin American and Caribbean Space Agency (ALCE). ALCE main objective is to coordinate satellite and space capabilities that contribute to strengthen the comprehensive and sustainable development of the space sector in the region, for the benefit of the Latin American and Caribbean population, and that needs the ratification of 4 more countries to enter into force.

In this way, from PARLATINO, we reaffirm our willingness to work and offer viable alternatives and solutions to address not only the challenges and difficulties that our countries face today but also with an important look towards the future.

Without taking up any more of your time, I welcome you and wish you an enriching day.

Thank you very much!





Statement of Panama

By **Eduardo Ortega-Barría**,

Panama National Secretary for Science, Technology and Innovation SENACYT



Good morning, Madame Minister of Foreign Affairs of Panama, Her Excellency Janaina Tewaney Mencomo. Distinguished Ministers of Science, Technology and Innovation of the Central American and Caribbean Region who are with us.

Executives of Space Agencies and companies dedicated to the area of space technology, delegates and observers from countries and organizations of the Central American and Caribbean region.

For the National Secretariat for Science, Technology, and Innovation of Panama, it is an honour to host this 5th International Space Forum at Ministerial Level - The Central America and Caribbean Chapter.

In our Central American and Caribbean region, the area of space sciences and space technology is experiencing a major awakening. Inevitably, the COVID-19 Pandemic made clear to the world the need for connectivity and the significant impact of space activity on humanity.

We are aware of the significant data production generated by space activity and the great capacity for applications in the daily life of society. There is no sector of the economy today that does not benefit from satellite data. And, in this sense, we are pleased to share that this data volume will soon increase greatly in our region, given the installation of the Copernicus Data Centre in Panama. This data centre will have the capacity to receive and distribute data from more than 20 satellites throughout the region. However, this great news is accompanied by an equally great and important challenge: Our Central American and Caribbean Region needs to empower itself and generate technical and practical capacities for the use of this data. Europe has incredible monitoring models for disasters, vegetation cover, marine, among others, that we can replicate in our region and that would help enormously to prevent losses of economic resources and, above all, HUMAN LIVES.

Our Central American and Caribbean Region has great potential for space activity and its derivatives to take off and reach great heights, since in the short time we have been here we have demonstrated that we have the impetus, the capacity and the desire to make it happen.

I would like to conclude my remarks by stressing that space sciences have enormous potential to improve our lives and our region. It is our responsibility as leaders and committed citizens to foster its development and application for the benefit of all. I urge you to join me in this task and to work together to build a better and brighter future for Central America and the Caribbean. I extend my thanks to the Italian Space Agency, the International Astronautical Federation and the Technological University of Panama for the work carried out for the realization of this Forum.

I welcome you all to Panama and to this 5th International Space Forum at Ministerial Level - The Central America and Caribbean Chapter.

5 KEYNOTE SPEECHES PRESENTATIONS

Keynote speech on space for food safety

by **Adoniram Sanches**, Sub-regional Coordinator for Mesoamerica, Food and Agriculture Organization (FAO)



1. Old and New Problems of the Food Security Agenda in Latin America and the Caribbean: Increased Hunger and Climate Change.
2. Innovations in the use of satellite technology to improve climate risk management and increase the resilience of agricultural production systems: Agriculture Stress Index System (ASIS); Soil mapping for resilient agri-food systems in Central America and sub-Saharan Africa (SoilFER); Global Agro-Ecological Zoning (GAEZ).

Keynote speech on Satellite systems in support of emergency management

by **Raúl Kulichevsky**, Executive and Technical Director, Comisión Nacional de Actividades Espaciales (CONAE)



The occurrence of disasters in the world, whether natural or anthropogenic, is becoming more frequent. Disasters can have a high cost both in human lives and in the economy of countries. In Latin America, one of the important causes of emergencies is the alternation of the phenomenon of “El Niño” and “La Niña”, that generate scenarios that oscillate between droughts and floods.

Disasters require urgent actions and Earth Observations (EO) and Space-based technologies play a crucial role in contributing with relevant information to support decision-making regarding risk and vulnerability reduction, and to address the underlying factors of disasters.

Remote sensing in quasi-real time can provide detailed information on the location and extent of the event and then can help on: determine and quantify the consequences of the disaster on populations, ecosystems and economies, coordinate responses from the different actors involved in emergency management as well as rescue and evacuation planning, infer mitigation and remediation measures.

Also EO contributes to the tasks of environmental protection and conservation, studies of climate change, rational management of renewable and non-renewable natural resources, planning of infrastructure works, security tasks, surveillance and territorial integrity, and health applications, among others.

This Keynote speech will focus on how satellite systems can support emergency management and, in particular, the experience of CONAE in this field. It will describe the interaction between CONAE and different organizations that are in charge of disasters management in Argentina, and also how CONAE cooperates internationally, such as with the UN International Charter and the alliance with ASI in the Italo-Argentine Satellite System for Emergency Management (SIASGE).





Keynote speech on Enhancing water monitoring and blue economy through space

by **Rodney Delgado Serrano**, Director, Dirección Nacional de Ciencias Espaciales - Universidad Tecnológica de Panamá (UTP)



The oceans represent 71% of the surface of our planet Earth. Through them, millions of jobs and millions of dollars in billing are generated. In this sense, the protection of the oceans through strategic policies is key to the development of our region. Space data and services can greatly help in monitoring marine ecosystems, providing more information to authorities, helping to make better decisions and contributing to the sustainable development of the region's blue economy.

Different products, such as: sea surface temperature maps, sea level anomaly maps, ocean color products, among others, are strategic for a sustainable and fruitful blue economy.



6 THE PANAMA CITY PAGE

5th International Space Forum at Ministerial Level
 – The Central America and Caribbean Chapter

“Space Science and Technology for improving regional opportunities and better facing local challenges”

On 6th March 2023, the Panama National Secretary for Science, Technology and Innovation, Ministers and other governmental Authorities of the Central America and Caribbean countries interested in developing space activities in their countries, representatives of national and international space agencies and organizations, senior space experts, met in Panama City (Panama) under the auspices of the International Astronautical Federation (IAF), the Italian Space Agency (ASI) and the Technological University of Panama (UTP) for the 5th International Space Forum - The Central America and Caribbean Chapter (ISF 2023).

After the first International Space Forum in Trento (Italy) and the following regional Chapters focused on the African region (Nairobi 2017), the Latin American and the Caribbean region (Buenos Aires 2018) and the Mediterranean region (Reggio Calabria 2019), the Central America and Caribbean Chapter promoted open and productive discussions on the wish to involve the Academia, Universities and scientific community of the region in space programs and activities, in order to create new opportunities and means to better face local challenges.

Delegates and experts exchanged views, shared experiences and visions, and delivered statements, in which they presented a wide range of valuable views, including:

- **space technologies and related applications** provide and contribute to find solutions to several challenges that affect human life on Earth; they are precious tools for implementing the goals of the United Nations 2030 Agenda for sustainable development;
- **space activities** require a high-level of scientific and technical knowledge, as well as a multidisciplinary approach;
- **Academia and Universities** are precious sources of knowledge and human talents; they are very well distributed throughout the world and characterized by a great propensity for international cooperation;
- their interaction with the international **space networks** and their involvement in space activities would allow for a better understanding of the benefits deriving from space technologies and services and increase the chances to find better space solutions to local and global challenges.

Three keynote speeches were delivered by distinguished space experts on the following topics:

- **Space for food safety:** integrate the use of space-based data and services for forecasting of extreme meteorological events, monitoring of the environment, monitoring of the health and nutritional quality of crops and marine fauna, and precision agriculture into local crop practices and fishing activities for a better management of food production.
- **Satellite systems in support of emergency management:** enhance the use of satellite data, including radar data (which are capable of sensing Earth under all weather conditions and during night), to prevent, mitigate and manage the impact of natural and man-made disasters, integrating them in the civil protection organizations of the region for a more rapid and efficient response.
- **Enhancing water monitoring and blue economy through space:** bring the “blue” community and the “space” community together to promote the use of space technology among public and private actors who deal with the monitoring and management of inland waters and of the ocean, for the provision of services and as a resource for the development of commercial activities.





5th International Space Forum at Ministerial level – The Central America and Caribbean Chapter

Panama City, Panama | 6 March 2023



Delegates noted that:

- the Central American and Caribbean region is made of small countries, islands, archipelagos, tropical climate with various and diversified climatic phenomena. No country alone has enough resources to develop national, comprehensive space programs;
- the region has nonetheless an active and brilliant scientific community that could offer its established communication channels with their counterparts in the region for the dissemination of space knowledge;
- space partnerships between local actors and international space actors represent an opportunity for the socio-economic development of the region, both in terms of capacity building and infrastructure development.

Ministers, Heads of delegations, Heads of space agencies and all distinguished delegates present in Panama City welcomed the 5th International Space Forum - The Central American and Caribbean Chapter and identified the following points as the main objectives to be pursued in a medium-short term:

- **promotion of a greater use of space-based data** and information from telecommunication, Earth observation, and navigation satellites to support agriculture and food safety, emergency management, monitoring and management of inland and coastal waters, the blue economy, as well as transports, energy, archeology, security;
- promotion of the **establishment of space disciplines in universities** of the region and of a **sustainable capacity-building program** at regional level;
- exploit the existing space competences, centers and facilities in the larger region of the Latin America and the Caribbean, in view of the awaited establishment of the Latinamerican and Caribbean Space Agency (*Agencia Latinoamericana y Caribeña del Espacio – ALCE*), including:
 - the Center for Space Science and Technology education for Latin American and the Caribbean (RECTEALC) affiliated to the United Nations and located in Brazil and Mexico;
 - the Copernicus regional Centre, located in Panama City, established within the framework of the European Union program for Earth Observation Copernicus, to prevent natural disasters and help fight against climate change;
 - the Mario Gulich Institute in Space Advanced Studies, located in Cordoba (Argentina) at the Teofilo Tabanera Space Center of CONAE, which represents a unique Centre of excellence in the region for the use of Earth observation data for the management of natural resources and disasters, as well as for training and teaching opportunities;
- promote the peaceful, responsible and sustainable use of outer space for the benefit of the present and future generation of men and women and as a contribution to the achievement of the goals of the 2030 agenda of the United Nations.

Finally, the Central American and Caribbean delegations expressed the wish to replicate this regional space Forum in the following years, to enhance the participation of local scientific communities, academic institutions and experts, involving also new actors and private companies to continue and expand the discussion on space capabilities and technology opportunities for a greater socio-economic development of the region.





5th International Space Forum at Ministerial level
– The Central America and Caribbean Chapter

Panama City, Panama | 6 March 2023

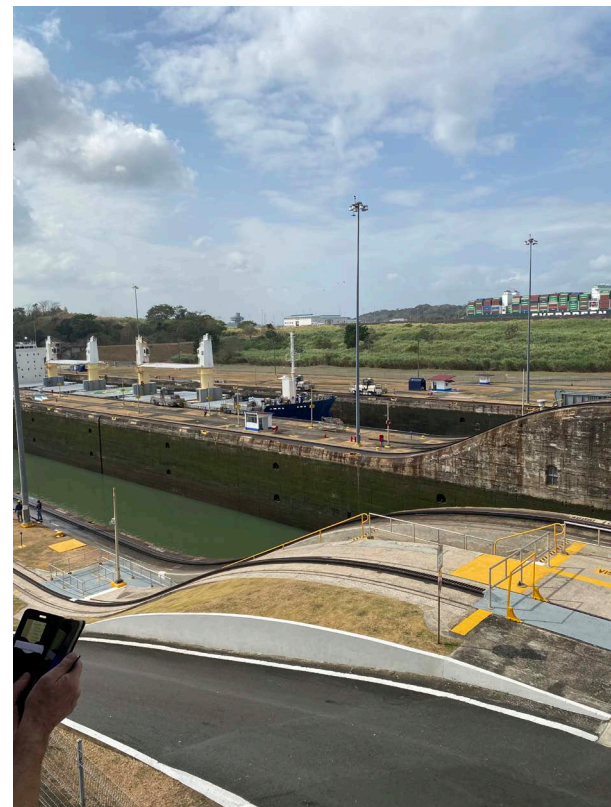




5th International Space Forum at Ministerial level

– The Central America and Caribbean Chapter

Panama City, Panama | 6 March 2023





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