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FINAL REPORT

3rd International Space Forum 2018 - The Latin American and Caribbean Chapter

*Space Science and Academia for better Solution to
Latin America and Caribbean's Challenges.*

Buenos Aires, Argentina
1 November 2018



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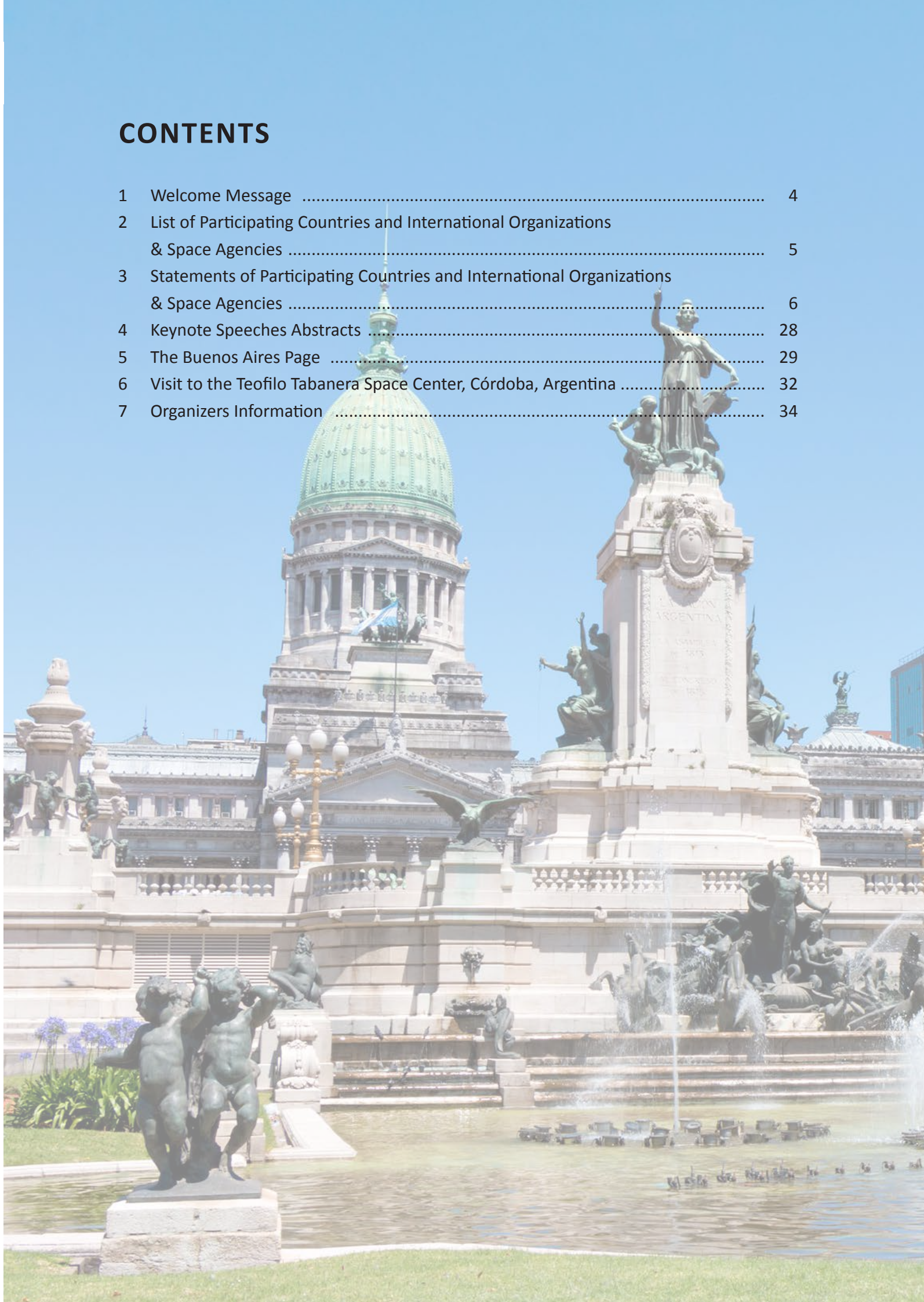


IAF Alliance Programme Partners:



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1 WELCOME MESSAGE

It is a great pleasure for us to present the final report of the International Space Forum (ISF) at Ministerial Level – The Latin American and Caribbean Chapter, ISF 2018. Following the successful meetings held in Trento and Nairobi, this third edition of the Forum was announced by Raúl Kulichevsky, Executive and Technical Director of the Argentinian National Commission of Space Activities (CONAE) in Nairobi. After Africa, Latin America and the Caribbean represent the geographical continuation of last year's regional forum; and this event, held in Buenos Aires, brought together the majority of the countries of the region to discuss the best opportunities that space could bring for the socio-economic development of the area.

The success of such a meeting might begin with its preparation, but can only be measured by its participation and the engagement of the attending delegations. In this respect, this year was truly remarkable, and we would like to express our sincere thanks to all the delegates who joined us in Buenos Aires and in Cordoba. A total of 17 countries from Latin American and the Caribbean, and 12 space agencies and international organizations from all over the world, took part in the Forum. The involvement of various actors from government, space agencies, universities and technical institutions shows that these institutions are well aware of the major role that space has to play in solving some of the daily challenges that Latin American and Caribbean countries are facing.

As emerged during the Forum, the development of Space Technologies could be particularly helpful for environment protection and management, natural disaster prevention and mitigation, and accurate monitoring of climate and climatic extremes. The diffusion of new space-derived technologies could present an innovative and disruptive answer to both old and new challenges. Thus, discussing about space development could concretely contribute to improve the socio-economic development of the countries, by solving old issues and by introducing innovations.

In order to truly develop and promote space technologies, international partnership is key. For this reason, we are particularly glad that so many different countries from the area gathered in Buenos Aires, giving the opportunity to less space-developed countries to get in direct contact with more structured ones and to exchange ideas and point of views. Education and capacity building are a first, important step to develop and spread the technologies that could help Latin American and Caribbean Countries to face major challenges; and some of them, such as the diffusion of extreme climate, knows no boundaries, and calls for the cooperation throughout the area.

All those aspects were widely discussed during the Forum and were brought to the open by the statements of the delegations. To give you all the opportunity of continuing with the reflection on those essential topics we gathered in this booklet all the interventions made during the Forum and the Buenos Aires Page. We hope that this will contribute to keep alive the spirit of the meeting, and that it will inspire new forms of cooperation and partnership, not only in Latin America and the Caribbean, but throughout the whole globe.

Enjoy the reading!



Jean-Yves Le Gall
President
International Astronautical Federation (IAF)



Roberto Battiston
President
Italian Space Agency (ASI)



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

2 LIST OF PARTICIPATING COUNTRIES

	Argentina		Haiti
	Belize		Honduras
	Bolivia		Mexico
	Brazil		Nicaragua
	Colombia		Panama
	Chile		Paraguay
	Ecuador		Perú
	El Salvador		Uruguay
	Guatemala		

INTERNATIONAL ORGANIZATIONS & SPACE AGENCIES

ANASA (National Aerospace Agency (NASA) of Azerbaijan Republic)		IAA (International Academy of Astronautics)	
ASI (Agenzia Spaziale Italiana)		IAF (International Astronautical Federation)	
CONAE (Comisión Nacional de Actividades Espaciales)		IISL (International Institute of Space Law)	
DLR (German Aerospace Center)		KARI (Korean Aerospace Research Institute)	
ESA (European Space Agency)		NASA (National Aeronautics and Space Administration)	
GRULAC (Group of Latin American and Caribbean Countries)		UNCOPUOS (United Nations Committee on the Peaceful Uses of Outer Space)	
HSA (Hellenic Space Agency)			

3 STATEMENTS OF PARTICIPATING COUNTRIES

Statement of Argentina

By Raúl Kulichevsky

Executive and Technical Director, National Commission on Space Activities (CONAE)



First of all, thanks to the authorities of the Ministry, to all the delegates from the countries that accompany us, to the IAF president, to the ASI president; to all the colleagues who are present with us today.

The truth is that I had prepared a speech, but the question that was mentioned earlier about why in Latin America we probably have more cases of collaboration in this area among Latin American countries and countries such as the United States or different European countries made me change the topic of what I had planned to say today, because I think that was a very good question.

And I actually think the answer, or the first hint of an answer, is: this is why we are here.

I think that it is what encouraged us, CONAE, to be part of the organization of this event.

Because we firmly believe that in spite of the successful collaborations we have had, because we can mention many collaborations with CONAE, for example with Brazil, either in all the cooperation we had in the previous SAC missions of Argentina, performing all the environmental tests in Brazil... and now with the SABIAMAR project, and other bilateral agreements... one that is about to be signed with CONIDA, the Peruvian Space Agency, and also agreements that we are working with the Paraguayan Space Agency...

But the truth is that certainly there is no integrating place that can optimize the cooperation in this area in Latin America and the Caribbean.

So I think that this leads to what we, at CONAE, have been proposing as a great desire, as almost a dream, which is to have a regional space agency.

And I believe that this is the initial step to start organizing and working on the possibility of creating this regional space agency because, clearly, it is the cooperation among the countries what is going to enhance all the initiatives of each one of us. So also from that idea, we can achieve the other point that was mentioned as a very important one, and I fully agree with, that is: how do we send all the information we generate from space to the community to support the sustainable development of the countries of the region.

So I thank you very much for your presence here.

We are very pleased to receive you in Buenos Aires and we hope this meeting to be useful in order to be a founding seed of integration even stronger than the one we have had so far between the countries of Latin America and the Caribbean.

Thank you very much.

Statement of Brazil

By Carlos Gurgel

Director of Satellites, Applications and Development, Brazilian Space Agency (ABE)



Distinguished Ministers, Distinguished Heads of Delegation, Dear Colleagues, ladies and gentlemen,

The Ministry of Defense of Brazil, on behalf of its Minister, His Excellency Mr. Joaquim Silva e Luna, is honored to participate in the 3rd edition of the International Space Forum and to be part of its distinguished audience. It is an excellent opportunity to establishing our understandings of how to exploit the benefits arising from activities in the space area, intending to contributing to the solution of Latin American challenges related to the environment and our societies.

The History is the master of life. Therefore, it is wise to remember that throughout our history, the competitive nature of the human being, always seeking discoveries and innovations, shows that the more technologically advanced a nation is, the higher is the use of existing mechanisms to not only acquire or sustain their sovereignty, but to provide socio-economic benefits that will make their community more prosperous.

Within the space area, all of us here are witness to the emergence of disruptive technologies and revolutionary initiatives in recent years, and indeed space has evolved at a dazzling pace. It is an exciting time to live. We observe space applications becoming tools of our daily lives, private enterprises engaged in a new space race and evolving into self-sustaining economic realities, with scientific discoveries increasingly expanding the boundaries of knowledge.

In this context, before addressing the main topics that will be discussed along this event, we briefly present the ongoing actions in Brazil that aim to strengthen the Brazilian Space Program (pt: PEB), in particular, the Strategic Program of Space Systems (pt: PESE), under the responsibility of this Ministry and which I discuss below.

Regardless of the continental dimension and the economic and social demands of our country, the Brazilian Space Program is still in search of the necessary political prestige, with the purpose of meeting national needs in the integrated use of space. Since 2008, with the publication of the National Defense Strategy, the Brazilian State has adopted Space as a strategic sector and has stimulated its development in conjunction with other governmental organizations, such as the Brazilian Space Agency. This fact has stimulated cooperative and dual work - civil and military - as a way of integrating technologies and applications that, at the same time, served the needs of all segments of importance for the development of Brazil. In 2012, the Air Force Command created the Commission for the Coordination and Implementation of Space Systems (pt: CCISE) and, in partnership with other entities, developed the Strategic Program of Space Systems.

This Program has great importance to the Ministry of Defense and Brazil. It is designed to provide essential infrastructure for Defense's strategic information systems, in addition to providing various other services relevant to Brazilian society, characterizing an essential and daily need of the Brazilian Nation. In this sense, PESE contributes crucially to the homeland defense, the promotion of peace and acts as a source of products of dual applicability.

In order to further increase the value of our Space Program to Brazilian society, at the beginning of this year, the President of the Republic of Brazil established the Brazilian Space Program Development Committee (CDPEB), which currently consists of 12 Technical Groups, to define strategic actions that can enhance the results of the PEB.

However, in order to reach these expectations, the PESE, integrated with the PNAE, must not only be consolidated as an enterprise of the entire Ministry of Defense but also of the Brazilian State, given the complementarity of these Programs. The development and achievements in our Space Activities must be seen as a patrimony of Brazil.

Focusing on this event, it is interesting to note how the strategies defined in the PESE align with the main topics that will be discussed at this 3rd International Space Forum.



Space Partnerships

Regarding one of the topics that will be discussed, the issue of international partnerships is paramount for the success of the PESE. The work conducted in Brazil aims to structure the Brazilian space strategy in the capacity to build and consolidate competencies within three perspectives based on modern schools of strategy: mobilize efforts to expand knowledge and master technologies; integrate suppliers and partners for development and production capacity; influence and promote innovation through the provision of support and resources. Therefore, there are three necessary means for the achievement of the goal of mastery of knowledge and technologies for space.

Therefore, it is necessary to establish efficient and profitable international partnerships that contribute to the strategies defined in our Strategic Program. Management of Natural Resources and Prevention of Disasters Concerning space applications for natural resource monitoring and disaster prevention, PESE works as a technology spin-off, driving the deployment of satellite means that can provide support for environmental monitoring and natural resources in the country; support the resolution of problems such as deforestation, desertification, soil degradation, biodiversity reduction, and so on; assist in predicting weather and climate and in monitoring climatic extremes; as well as providing data for predicting occurrences of natural disasters.

According to the COPUOS Declaration addressed to Rio+20, spatial data are fundamental not only to monitor the Earth and its environment but to monitor the State, the exploration and evolution of terrestrial and marine natural resources, soil, subsoil, and submerged areas, as well as the multiple agricultural and pastoral activities, which are generally extremely relevant to national economies.

These initiatives also aim to integrate complex systems, together with information and communication infrastructures, favoring internet programs, data transmission, e-learning, telemedicine, medical and health services, photogrammetry, geodetic references, navigation and satellite positioning, geographical information, compliance with international treaties and agreements, crime prevention and respect for the law.

Education and Capacity Building

We also know that there are no space activities without substantial government support, notably for Science and Education. The spatial area is a difficult and complex technological domain that requires high levels of knowledge, based on excellent education in Science, Technology, Engineering, and Mathematics (STEM).

In exchange, space programs, with their designs and applications, have a unique pulling power appropriate to seduce young people interested in Science. The Brazilian Space Program will promote exceptional results for the Defense and society, making the space area more useful and attractive, capable of involving more students in STEM education.

In order to complement the previous strategies, we are also developing government actions that can encourage strategic partnerships and integration of Research & Development (R&D) institutions with the industrial sector. Our primary goal is to qualify the national industry for the development and manufacture of subsystems and complete systems for the space sector and, thus, to involve national companies in the Brazilian Space Program.

It is necessary to foster the integration between R&D institutions and their industrial partners by jointly carrying out technological development projects that include industry from the design stage. It is also necessary to seek the approval of long-term plans that allow national companies to decide, with less uncertainty, on participation in the Brazilian Space Program. In this sense, the use of Public-Private Partnerships (PPP) as a financing alternative for space projects has proved increasingly efficient in the international scenario.

Mr. Chairman, Distinguished delegates, I thank you all for your kind attention.

Statement of Ecuador

By Celio Puga Narvaez

Executive Director, Instituto Espacial Ecuatoriano – Ministry of National Defence



Distinguished authorities and special guests, good morning to all, receive a fraternal greeting from the Ecuadorian Space Institute and the Aerospace Development Management; both institutions are part of the Ministry of National Defense of Ecuador.

Congratulations to all the organizers for this important event, momentous for Latin America and the Caribbean. Also, a gratitude to the Argentine brothers, for their hospitality.

Congratulations to Argentina for the launch of the SAOCOM satellite in October. The Ecuadorian Space Institute and the Aerospace Development Management are pleased to maintain a close relationship with the National Commission of Space Activities (CONAE).

The three topics that are being dealt with in this forum are fundamental, education and capacity building, spatial collaboration, natural resource management and disaster prevention; however, I will refer to the third issue.

Unfortunately, on April 16, 2016, an earthquake of 7.8 magnitude took place in Ecuador, in which the Ecuadorian Space Institute generated valuable information to be delivered to the competent organisms, as a contribution to the decision-making process, this was possible due to the experience gained in the use of remote sensing and geographic information systems, the technical and technological capacity installed, and human talent, but mainly thanks to friendly countries that supported us and allowed access to satellite information, without which it would not be possible to carry out the work.

At the moment we are developing the Building Physical Aptitude Project at scale 1: 5000; whose aim is to: define the physical aptitude of the territory for urban development through multipurpose geo-spatial information for decision making.

The specific objectives of this project are:

- Generate geo-spatial information.
- Modeling variables to determine Constructive Physical Aptitude, use conflicts and host capacity.
- Transfer knowledge and socialize the project.

The benefits:

- Zoning the housing plans of social interest (home plan for all).
- Provide basic information for the design of development plans and land use and management plans.
- Through this information, contribute to the construction of strategies and measures of prevention and reduction of risks.

Natural disasters have interfered and will continue interfering in the sustainable progress of our countries, we consider it necessary to continue developing studies that support the knowledge of this type of events and therefore it is also fundamental to maintain institutions in charge of spatial technology where this technology is used for the development and progress of our peoples, and we must promote the relationship between our institutions.



Statement of El Salvador
By Luis Enrique Salaverría
President, El Salvador Aerospace Institute



Excellences, distinguished representatives of the various countries of Latin America and the World, heads of space agencies and fellow colleagues;

It is my great honor to be here with you and on behalf of the People of the Republic of El Salvador; I want to extend my greatest appreciation for organizing and inviting me to such excellent forum.

While El Salvador historically has been absent from the development and utilization of space technology, in recent years this has been changing –albeit slowly.

I can proudly tell you of two start-up companies exploring applications of geospatial data from satellite imagery and another intrepid start-up that is working with sounding rockets and cansats.

Nevertheless, what we would like to see is even more participation in the development and utilization of space technology from smaller countries such as the one I represent.

To answer this question, I would like to share with you a few ideas that might elucidate the problem, or push this subject forward:

From experience in my country, I can tell you that things do not usually work from top to bottom. What I mean to say is that private citizens or enterprises are the first to become interested in exploring, understanding and using space technology and only after they are successful is that the government becomes interested and actually gets involved in creating policies to support and promote these activities. Therefore, a good idea is to identify and support those early actors, such that they can truly make a difference in their respective countries.

Secondly, is that there is bountiful of talented individuals, space engineers, scientists, technicians, and so on scattered all across Latin America that more often than not, are unable to find suitable work in the space sector. If we were able to bring together all those talented individuals from all across Latin America, into one center, belonging, financed and in service to every country in Latin America, we could have an amazing team of talented individuals capable of developing, advanced payloads, satellites, launch vehicles and space exploration missions. Really, why not? We have so much capacity, so much potential, what could we not do? We could explore the moon, or mars on behalf of the people of the Americas. That should be the goal.

Thank you so much for your attention.



Statement of Honduras
By Ivonne Bonilla
Ambassador, Embassy of Honduras in Buenos Aires



Buenas tardes a todos y todas:

Deseo manifestar en primer lugar el agradecimiento del Gobierno de la República de Honduras a la invitación que se nos formulara para participar en este Foro de tan relevante importancia. Asimismo, agradecer al Gobierno de la Argentina y a las autoridades de la Federación Internacional de Astronáutica (IAF) y de la Agencia Espacial Italiana (ASI), como organizadores de la tercera edición de dicho Foro, conjuntamente con la Comisión Nacional de Actividades Espaciales (CONAE) de Argentina.

Honduras está ubicada en el corazón de Centroamérica, en una ubicación privilegiada, misma que la hace vulnerable a los desastres naturales tales como inundaciones, sequías, entre otros fenómenos de la naturaleza, que han tenido un impacto negativo en la economía del país.

Al tener una participación como país y conociendo los ejes centrales del Foro, nos da la oportunidad de tener de primera mano información relacionada para prevenir desastres naturales, misma que podría ayudar a la economía de los países específicamente para predecir los tiempos de cosechas, sanidad vegetal, estado del medio ambiente, entre otros; trabajando conjuntamente como países para crear sociedades de colaboración para el desarrollo del tema espacial. Asimismo, es de vital importancia mencionar la necesidad de información existente, pero sobre todo el uso adecuado de la misma para su mejor utilidad. Esto con el desarrollo de las capacidades a través de la educación.

Estamos convencidos que al crear alianzas entre Gobiernos nos ayudará a mitigar el cambio climático en apoyo a la producción agrícola, obtener los mecanismos de acceso a plataformas con información geoespacial, donde los países de la región puedan compartir sus buenas prácticas, herramientas de monitoreo de cultivos y pastizales, asistencia técnica y capacitaciones, reflejándose esto en una cooperación que beneficie a la región.

Honduras fue azotada en el año 1974 por el huracán Fifi y en el año 1998 por el huracán Mitch, ambos fenómenos naturales devastaron nuestro país, este último fue considerado según criterio de la Organización de Naciones Unidas (ONU), como el peor desastre natural en América Latina en los últimos 200 años, dejando un saldo de muerte y destrucción e innumerables pérdidas, siendo los sectores productivos los más afectados, reflejándose esto en una contracción de la economía, que nos imposibilitó poder tener un crecimiento económico sostenido.

En la actualidad, el Gobierno del Señor Presidente Juan Orlando Hernández Alvarado, en Consejo de Ministros, mediante Decreto Ejecutivo N° PCM 054-2018, de fecha 15 de agosto de 2018, declaró situación de Emergencia a nivel del Corredor Seco de Honduras, con vigencia al 31 de diciembre del presente año, para enfrentar los efectos de la escases hídrica que ha provocado pérdidas de cultivos y disminución de la capacidad adquisitiva de las familias en 145 municipios en todo el país: 74 con afectación severa, 34 con afectación moderada y 37 con afectación leve, en esa zona afectada.

Por lo anteriormente expuesto, aprovecho este espacio para solicitar el apoyo de los Gobiernos amigos, a fin de que se pueda brindar asistencia humanitaria, técnica o financiera para el Plan de Acción en Atención a la Emergencia de Inseguridad Alimentaria presentado por el Comité Técnico Interinstitucional para la Gestión de Riesgo por Sequía 2018.

Muchas gracias.

Statement of Mexico

By Francisco Javier Mendieta Jiménez

General Director, Agencia Espacial Mexicana (AEM)



The Mexican Space Agency (AEM) gratefully thanks the International Astronautical Federation for the opportunity to present our vision in this International Space Forum (ISF), as well as the Argentina Government through the “Ministerio de Educación, Cultura, Ciencia y Tecnología” and the “Comisión Nacional de Actividades Espaciales” for their local organization of the ISF. In Latin America, space agencies and industry are growing their activities both for their society challenges (connectivity, natural disaster management, agriculture and natural resources, security...), as well as for the technological and economical development, with a clear commitment to the transfer of knowledge technology and production to our countries, in order to develop the space sector with more and better jobs and with stronger links with the academic world and international community with an increasing commitment in the assessment of the planetary challenges from the space perspective.

By transitioning from predominantly state-run programs to one with increasing participation of the private sector, and taking advantage of the ongoing international cooperation in research and development, Latin America is having a unique opportunity to develop its space industry, for which I consider that several aspects are necessary:

- Leadership: at the head positions in the agencies or companies, leaders who are ready to challenge conventional ideas and trends, driving their companies in the great opportunities of the “New Space” concepts, and incorporating information technology (IT) both in upstream and downstream applications.
- Human talent: in the old days space talent tended to cluster around government agencies, but the growing sector has focused on attracting those highly specialized individuals, recruiting all types of professional beyond the traditional profiles, such as life scientists, data scientists, etc.
- Financial muscle: It is no surprise that the space industry requires huge investments that will probably yield returns only after for a number of years; having a dependable financial muscle to rely on is vital for the space companies to adventure in these endeavors.

I have no doubt that in Latin America we have all the potentiality qualities to develop our space industry. Speaking specifically about my country, Mexico’s aerospace field has grown significantly in recent years and constitutes a sector in constant evolution. In the course of the last decade, Mexico has become one of the most competitive countries for productive investment in the aerospace sector: we are presently number 15th in aerospace exports, number 6th in providers to the USA market and number 4th in foreign direct investment.

This industry, which contributes significantly to the Mexican economy through the creation of high level employment, the transfer of technology, the promotion and training of human resources, however this is predominantly aeronautical, but with a clear transition to the production of space devices and systems.

In the space sector we are in the process of incorporating this modern vision that involves the “NewSpace” approach for the development of national added value in synergy with other rapidly developing sectors in Mexico such as information technologies (IT) and with new business models; this should allow us to strengthen our scientific and innovation capabilities, as well as to be more competitive in both manufacturing activities and services. The opportunities offered by this industry go beyond the creation of new business lines and national economic development: it also offers solutions that address the needs of the population in different areas.

Mexico is committed to the development of the space sector, with dedicaion to generating international cooperation, joining forces, establishing alliances, attracting investments and efficiently using available resources to position our country as a pole of spatial development to carry out highly competitive work with clear socioeconomic impact. For this Mexico is committed to integrate in Latin American space initiatives, programs and, in a mid-term, a possible Latin American space organization.

Statement of Nicaragua

By Carlos Salazar

General Director, Institute of Civil Aeronautics (INAC)



It is an honor to participate in this international space forum, thanking the IAF, ASI, CONAE and the government of Argentina for their invitation.

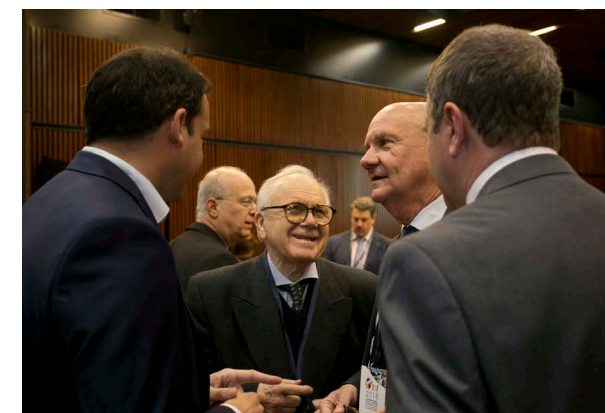
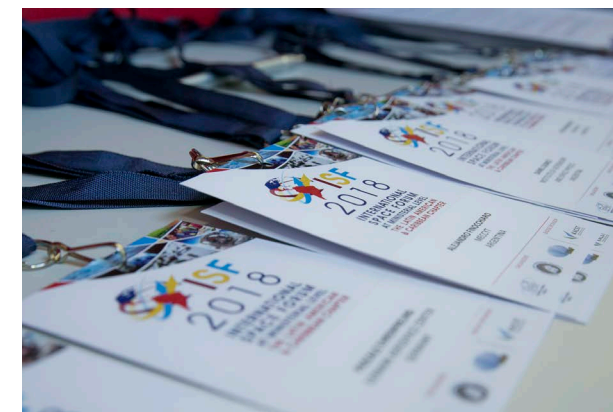
20 years ago on October 30, Nicaragua was affected by Hurricane Mitch, which caused 4 days of heavy rains, filling the crater of the Casita volcano with water, causing a sudden avalanche, the avalanche of water mixed with volcanic material neighborhood with the population that was around him, causing the death of more than 3 thousand people, we believe that if 20 years ago we had had the technology of today, the loss of these lives would not have happened.

That is why the State of Nicaragua expresses its interest to be part of the global network of spatial knowledge and human capital through the use of tools and platforms that facilitate access to space information, this will undoubtedly improve the quality of life of the person human, allowing to be prepared before natural phenomena and climate change, a phenomenon that affects humanity in different areas.

So we propose the signing of memoranda of understanding between our countries to move to the facts the part of the fundamental training to make use of this technology and the information generated by satellites.

It is important that focal points are established for this event to follow up on the objective of this forum.

Thank you very much.



Statement of Paraguay

By Alejandro J. Román M.

General Director of Aerospace Development, Paraguayan Space Agency



Good Afternoon,

Thank you very much, Mr. President and thanks to the government of Argentina and the organization of this great event ISF2018. I have the high honor to deliver this statement on behalf of the delegation of the Republic of Paraguay the President of AEP Cnel. Liduvino Vielman cannot make it today, but he send his regards, we are very proud to be here in the International Space Forum 2018, Paraguay historically was landlocked by geography, but now we are finally looking to the stars and we know that we will not be landlocked anymore through the cooperation in space, we are totally committed to seek for a comprehensive, inclusive and strategic orientation on strengthening of international cooperation in the exploration and use of outer space for peaceful purposes. **We believe that space research is a strong tool to stimulate STEM/STEAM education, those improvements in technical education have benefitted space research and, indeed, all aspects of society.**

The Republic of Paraguay subscribes to the principles of exploration and use of space for peaceful purposes, for the benefit of all humanity; and in particular, for the achievement of sustainable development, without leaving anyone behind, for the reduction of disaster risk and for dealing with the consequences of climate change; and highlights the need to guarantee international responsibility for damage caused by space activities and to continue working on the design of an appropriate legal framework for that purpose.

Mr. President, for space to be a driving force and a decisive element in achieving the objectives of sustainable development, it is necessary to strengthen coordination and support at all international levels, including through better access to spatial data, applications and infrastructure **THROUGH A FREE AND OPEN DATA POLICY**. We believe that we can work together to take advantage of and strengthen the opportunities for international cooperation offered by the exploration of outer space, as well as the development and application of space science and technology; such as **precision agriculture, disaster response and natural resources management**. All countries, regardless of their level of economic or scientific development, should participate in the exploration and use of space for peaceful purposes, contribute to it and benefit from its results. We emphasize in this regard, the need to take into special account the needs of emerging and developing economies, mainly, in the development of their capacities to explore and use outer space for peaceful purposes, without discrimination, under conditions of equality and in accordance with international law.

In this spirit, the Paraguayan Government, which recently ratified the Treaty on the principles that should govern the Activities of States in the Exploitation and Use of Outer Space, It has also created the Space Agency of Paraguay, made up of public and private institutions, with the aim of promoting and implementing the development policies of national space activities and to take advantage of outer space in a peaceful manner. The Space Agency of Paraguay, which has been in operation since 2017, in this short life of his Space Agency we were very active in international forums, in this matter we were accepted as a full member of UNCOPUOS approved by the General Assembly in October, and also as a member of IAF in Bremen. We also where invited in a study group of STEM in the IAA. Now we are currently preparing the National Space Activities Program and has promoted cooperation initiatives with similar institutions in other States, most recently with the Mexican Space Agency and CONAE here in Argentina, also we are working with the Paraguayan ministry of science and education in a broad CanSat program and **we are planning to launch our first CubeSat satellite in 2021.**

Finally, Mr. President and distinguished delegates, convinced of the importance of the creation of national capacities and of their relevance as a cooperation platform between the States, the Paraguayan delegation advocates the strengthening of the capacity-building activities of the States in the field of space science. technology and its applications and in the development of legislation and spatial policies. We believe that if we improve STEM / STEAM education for the benefit of space research, we will improve the type of skills that have been so successful in other fields, such as robotics, medicine, engineering and others, in our universities. Secondary schools and, yes, to **INSPIRE** younger generations. We must continue to persuade governments, foundations and private industries to help. **WHILE LEARNING FROM THE PAST, WE NEED TO LOOK AT THE FUTURE AND BE PREPARED FOR IT.**

THANK YOU VERY MUCH.

Statement of Perú

By John Peter Camino Cannock

Ambassador, Embassy of Perú in Buenos Aires



Distinguished authorities, members and experts of national and international space agencies,

Ladies and gentlemen,

It is my great honor to express my sincere congratulations to the organizers of this forum. It is an opportunity to have a privileged platform to discuss about the relevance and the possibilities of a greater involvement of our Region in the space programs.

Peru is proud to be part of this space community. The launch of the first Peruvian satellite of Earth Observation, “PeruSat-1”, in September 2016, represented a milestone for space development in my country. Since then, the Peruvian public sector has experienced a technological leap due to the use of satellite products. Therefore, the work done with our satellite has greatly exceeded initial expectations in many fields such as security, agriculture, cartography, disaster management, monitoring of illegal crops, deforestation and other social problems. However, we are aware that we have difficult and complex challenges ahead of us.

We know that the themes of this important Forum are of great relevance for the strengthening of space capabilities at the global level. From the point of view of a developing country that enters the intensive use of space technology, we share the idea that the growth of the space-oriented industry is very important as a technological basis for national plans. We are also convinced that is very important to promote the interest of youth in outer space, so that long-term projects have better chances to succeed. We do believe in the importance to demonstrate to civil society that investing in the space field is beneficial for our countries.

On the other hand, through the Space Agency of Peru-CONIDA and the National Council of Science, Technology and Technological Innovation-CONCYTEC, Peru has been promoting capacity building, through the allocation of scholarships for Masters and Doctorate Programs, as well as the promotion of symposiums, forums, seminars, among other academic events. Through the Ministry of Foreign Affairs, links have been established with International Cooperation in order to contribute to enhance capacity building, to support the socio-economic and sustainable development of the country. Peruvian related institutions are also designing a National Space Policy.

In Peru there are great possibilities of spatial development. The operation of a satellite system in our country allows us to record the various uses and benefits that are generated from satellite data, which will contribute to enhance space policy, create new projects and develop spatial plans.

Finally, we can say that Peru continues creating the necessary conditions to contribute to scientific research and technological development by noticing global and regional needs, as well as our partners’ strengths in the spatial field, with whom we are already approaching to cooperate for superior levels of action and deliver concrete results.

Thank you.

Statement of Uruguay

By Marta Gaggero

Chief Counsel, Centro de Investigación y Difusión Aeronáutico-Espacial (CIDA-E)



Distinguished Authorities, distinguished Delegates, distinguished participants in this Forum, good afternoon.

First of all I would like to thank the kind invitation received from the IAF President, the Italian Space Agency President and the Director of the CONAE to participate in this Third International Space Forum, dedicated this time to Latin America. It is an honor for us to attend this important meeting.

The theme of the Forum is “Space Science and Academia for better Solution to Latin America’s Challenges”.

Topics to be discussed are of great importance for all countries and, in this particular case, to Latin Americans: management of natural resources and prevention of disasters, space cooperation, education and training.

This Forum will allow us to know more about space programs linked with these issues that Governments and space agencies are developing.

Uruguay, although is not a space faring country, adheres to the principles of space cooperation and peaceful uses of outer space. By CIDA-E’s initiative, our country has approved all the UN space treaties and is Member of UNCOPUOS since 1981. Besides this, in our country, many public and private organizations use space technology, they use the information provided by satellites for their daily activities.

The importance of space technology in people’s everyday life was demonstrated once again at the Global Conference on Space Applications (GLAC 2018) which took place in Montevideo last May, and was co-organized by the IAF and the CIDA-E. For Uruguay - a country whose main activity is agriculture and farming-- satellite data are a tool that can help to generate more productive and sustainable returns. The agricultural sector is often affected by extreme weather conditions such as heavy rains, tornadoes, strong winds, storms, frost, droughts and floods.

That makes it necessary to agricultural establishments and other public and private stakeholders to incorporate new technologies.

GLAC 2018 made it clear that space applications help socio-economic growth, they help to have a more efficient agriculture, they are also important in the management of risk, in investigations of the climate and the preservation of the natural resources, among other benefits they provide.

Today, in this Forum, we will have the opportunity to continue exploring ways of cooperation in the region and go on with the investigations about the mechanisms to achieve a better management of natural resources and to prevent disasters, all activities that need the essential support of a proper education and training.

We hope that the initiative mentioned by Mr. Kulichevsky and by Dr. Mendieta, about creating a regional space agency, initiative presented by Chile in the 80’s, become a reality.

The results of this meeting will provide rich information that will help us to continue promoting the development of the space sector in Uruguay.

Thank you for your attention.

STATEMENTS OF PARTICIPATING INTERNATIONAL ORGANIZATIONS & SPACE AGENCIES

Statement of ANASA (National Aerospace Agency of Azerbaijan Republic)

By Alchin Shirin-zada

General Director, ANASA



Dear ladies and gentlemen!

I am proud to participate at the Forum with you and I am grateful to the International Aeronautical Federation (IAF), the Comisión Nacional de Actividades Espaciales (CONAE), the Italian Space Agency (ASI) and the Embassy of Italy in Argentina for inviting us-Azerbaijan National Aerospace Agency delegation to the Forum.

Our Agency started operation from 1974 as a Scientific Centre “Caspiy”, in 1981 on its base was set up a Scientific-Industrial Association of Space Research and in 1992 Azerbaijan National Aerospace Agency (ANASA) was established on its base.

We have been carrying out research on agriculture, emergency situations and climate change based on cosmic data for 45 years. Today, Azerbaijan has three space satellites.

ANASA has been a member of IAF since 2003.

Education, science, space, space exploration are the topical issues for all countries in all periods of time. The issues discussed about Latin America exist in European and other countries, including us and our neighboring countries too. Azerbaijan is a country with oil, gas, gold and other deposits and a country that attaches great importance to space science and research. Our republic shares borders with friendly states that have positive bilateral relations with us and love us and with another state that does not love us and we do not have relations with.

I think that it would be more effective to solve the problems together, invest in these issues together with neighboring countries and concentrate on joint research on space research, climate change, disaster prevention.

It is highly commendable to hold such events and organize discussions for solving the issues discussed at today’s event. The Forum once again demonstrated the necessity of the work done to find ways to eliminate the issues raised in the reports.

Finally, I would like to emphasize that the event was organized at a fairly high level.

I express my gratitude to all organizers and participants for their mutual good attitudes!

Thank you very much for your attention!

Statement of ASI (Agenzia Spaziale Italiana)

By Roberto Battiston

President, ASI



Excellencies, Distinguished Delegates,

It is an honor and a special pleasure to be here in Buenos Aires at the International Space Forum – The Latin America and Caribbean Chapter dedicated to Space Science and Academia for better solutions to Latin America and Caribbean's Challenges.

We decided to focus this 3rd International Space Forum on “Space Science and Academia for better Solution to Latin America and Caribbean's Challenges”, because we are convinced that knowledge and expertise existing in the space Academia can and should be used to find better solutions to the global challenges that afflict humankind and many regions of the world. In the last decades, the Latin American and Caribbean region suffered from several large natural disasters whose magnitude, in terms of fatalities and damages, has renewed national governments' interest in better managing risks and hazards. The sources of risk in the region are both natural and man-made. Because of its geographical conditions, the region is prone to natural events of severe intensity.

A comprehensive approach to disaster management, which attempts to maximize protection of welfare through an adequate policy-mix, is needed, focused on the adoption of proactive policies for risk identification and reduction programs. In this direction Space capabilities and infrastructures can transform the daily life and provide effective tools to achieve economic and social benefits, the same benefits that are at the core of the United Nations Agenda 2030 and its goals.

I would like here to briefly highlight just a few examples of current activities that ASI is pursuing in the three main topics that we have chosen for our discussion today.

- **Management of natural resources and Prevention of disasters:** Since 1996 Italy started the realization of a national earth observation program equipped with Synthetic Aperture Radar operating at X-band, the COSMO-SkyMed Constellation, able to cover the whole planet. The first satellite of COSMO-SkyMed constellation has been launched on June 2007. The first constellation composed of four satellites is operational by 2010 dedicated to the environmental monitoring and surveillance applications for the management of exogenous, endogenous and anthropogenic risks.

- Since 2005 ASI and CONAE are developing the unique, civil, earth observation satellite system, **SIASGE (Italian Argentinean System of Satellites for the Management of Environmental Emergencies and Economic Development)**, composed by the Italian COSMO-SkyMed radar satellite constellation in X band and the Argentinean SAOCOM radar satellite constellation in L band.

It was a great honor for me to be able to witness the launch of SAOCOM 1A from the US Vandenberg Base in California last 8 of October. The second SAOCOM 1 B will be launched next year.

The data provided from the SIASGE constellation will represent a concrete help for emergency response, disaster risk prevention and for the management of natural resources for the benefit of all the Latin American and Caribbean region.

The improvement of disaster risk management appears essential to guarantee the protection of the natural resources and the future progress of the economic and social development of the region.

- **Space partnerships:** the SIASGE constellation represents also a good and effective example of space partnership, which demonstrates what can be achieved through a reliable international cooperation. In fact, thanks to a joint plan and architecture of orbits, observation angles and revisiting time, the SIASGE system is able to collect and merge many radar data in L, X and L+X bands.

The ASI Geodesy Space Station in Matera (Italy) and the CONAE Teofilo Tabanera Station in Cordoba complete the Italian and Argentinean partnership in a balanced alliance in terms of ground segment participation, resources investment and common advantages.

Italy and Argentina have already invested for the future partnership having engaged in the second generation of SIASGE, currently in phase of realization.

- **Education and Capacity building**

Finally, ASI is firmly convinced that a greater involvement of Academia in space programs and activities is one of the key factor for sustainable development and socio-economic growth of the region.

Since the beginning of the SIASGE concept, it was clear that this unique system needed a skilled experts to manage a large and very different community of users worldwide. In this sense, ASI and CONAE agreed to start a massive and regular program of exogenous, endogenous and anthropogenic risks

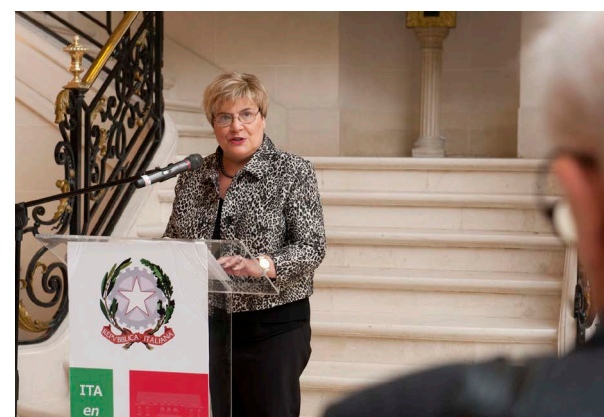
The on-going cooperation between ASI, CONAE and the University of Cordoba, related to the Mario Gulich Institute in Space Advanced Studies and open to all the region needs, is another relevant example of a farsighted vision.

Since 2001, the Gulich Institute has trained around 300 student and young professionals from Argentina and other countries of Latin America, in cooperation with Italian Universities and Research Centers. In 2010 a two-year joint Masters Course in “Aplicaciones Espaciales de Alerta y Respuesta Temprana a Emergencias” has been established to guarantee a regular, comprehensive and detailed program on space information data system.

Finally, as mentioned this morning, today, at this Forum, I would like to launch the proposal to organize, at the Gulich Institute in Cordoba, Space Summer Sessions on different focused space themes, in order to promote knowledge and capacity transfer for all the countries in the Latin American and Caribbean region.

Space international partnerships are essential for the success of the initiative. In this sense, we welcome expertise, support and sponsorship by public and private entities.

Thank you, for your kind attention.



Statement of DLR (German Aerospace Center)

By Pascale Ehrenfreund

Chair of the Executive Board, DLR



Dear Ministers,

Dear Heads of Delegations,

Dear colleagues,

It is a pleasure for me as Chair of the Executive Board of the German Aerospace, DLR, to be here today at this “third International Space Forum - The Latin American and Caribbean Chapter” focusing on the “Space Science and Academia for better Solutions to Latin America and Caribbean’s Challenges”.

Ladies and gentlemen,

The space sector is in transition. It has evolved from a domain of activities of few countries with mainly science and technology motives to a sector allowing direct socio-economic benefits for the involved countries.

With the on-going internationalisation and globalisation of the space sector with new institutional and private actors emerging across all continents, today you do not need to master the whole chain of space activities to be able to reap the benefit of space.

This is a chance for Latin American and the Caribbean countries since space is definitely part of the answer to challenges the continent is facing.

We all agree around this table that Space technology and its applications can contribute to solve societal challenges like food security; sustainable agriculture and forestry; Management of natural Resources and Prevention of Disasters; clean and efficient energy; smart, green and integrated transport; climate change and its consequences – just to name a few.

By tackling those and other challenges Space can create a considerable positive socio-economics benefit for Latin America and the Caribbean region and help achieving the United Nations Sustainable Developments Goals.

Ladies and Gentlemen,

The German Aerospace Center, DLR, is the biggest European space research organisations with a majority of our 8500 staff and 40 Institute being involved in space research.

We are involved in all fields of space research and in particular in the domains of Space Applications and Space science that are the topics of today’s discussion. We are also cooperating with actors from over the world as our activities are embedded in international networks of partnerships.

I would like here to highlight a few examples of DLR activities providing solutions for Latin America and the Caribbean region, activities done in partnership with local partners.

DLR cooperates with actors from the North of the Latin America and the Caribbean region to the South.

For instance, DLR is cooperating with Mexico on a data reception station in Chetumal on the Yucatan peninsula where information transmitted by satellites can be received and evaluated. In 2014 the ground receiving station has being transferred by DLR and it became the property of the Mexican space agency AEM. AEM is now responsible for the operation and use of the station while DLR continues to support its research activities. We will also renew and extend our cooperation agreement next year.

In 2018, we celebrate the 1-year existence of the 3-year project RIESGOS (Multi-risk analysis and information system components for the Andes region) that aims to develop for the Andes region an innovative research in risk analysis of the

various natural hazards and associated cascade effects and the integration of the results into a modular multi-risk information system. This includes data collection through innovative monitoring tools (new satellite missions and automated in-situ surveys), the development of novel analysis tools and the provision of system components that can be flexibly used and connected to existing systems.

Natural hazards do not stop at certain national borders, which is why RIESGOS cooperates across borders. The German Consortium is working together with 25 South American partners from Chile, Ecuador and Peru, in RIESGOS to provide and integrate innovative research methods and ideas into existing components.

The project is developing “What if-scenarios” thus contributing to the pro-active phase of the preparation for disaster events. By this means we contribute to the objectives of the SENDAI Framework.

Another example of cooperation is on the utilization of Firebird data to monitor fires on the Continent. The Center for Satellite based Crisis Information (ZKI) that is an institution of the German Remote Sensing Data Center (DFD) at the German Aerospace Center has prepared fires situation maps in Chile. On 25 January 2017, the Chilean National Office for Emergency (Oficina Nacional de Emergencia del Ministerio del Interior; ONEMI) activated the International Charter Space and Major Disasters to obtain up-to-date situation images of the disaster area to assist emergency services. ZKI was tasked with coordinating the entire Charter activation. The fires in Chile were the most devastating in years. The fires had affected a surface area of over 366 000 hectares and destroyed 1047 buildings. Unlike other current satellites, FireBIRD has the capability to detect smaller fires in particular. This enables more precise mapping, and therefore analysis of their impact on the climate. Moreover, exact registration of forest and bush fires is highly relevant due to the economic loss they entail.

DLR is also cooperation with Brazil in the fields of sounding rockets, rocket motors and Earth observation with AEB or INPE. The use of Brazilian rocket motors for sounding rockets is essential for the German and European sounding rocket programmes. We also cooperate with Brazilian universities in the fields of space medicine, communication and navigation.

One of DLR research planes the High Altitude and Long Range Research Aircraft (HALO) is used for atmospheric research and Earth observation. Its scientific flight campaigns are used as joint or coordinated missions with other airborne platforms or satellite and model activities.

For instance HALO in 201, measured the emergence, development and properties of tropical clouds in Brazil. The “ACRIDICON” (Aerosol, Cloud, Precipitation, and Radiation Interactions and Dynamics of Convective Cloud Systems) researchers launched the mission to better understand the microphysical mechanisms that prevail within these towering clouds and that determine their climate impact.

From 2019 to 2022 we will also at least for HALO campaign in Latin America and the Caribbean region with “EUREC4A” over the Barbados, “CAFE Brazil & SCOOP” over Brazil, “COMET 2.0 Tropical” in Brazil and the northern South America.

In Argentina, we are also in discussions with CONAE on the topic of small satellites both for their developments and operations and access to FireBird data for selected areas in the country.

DLR is also a platform for collaboration with Latin American Universities in its other fields of research. Just last year DLR approved a cooperation agreement with the Adolfo Ibáñez University in Chile with the purpose to cooperate in joint research and development on concentrating solar systems.

Solar energy which can be used versatile, is a major renewable power source with many benefits for people and the environment.

Ladies and gentlemen,

As you can see there are many instruments and opportunities to strengthen DLR ties with Latin American and Caribbean stakeholders such as universities, academia, research organisations, companies and Space Agencies. I encourage you to contact us to set up new R&D partnerships.

Thank you for your attention.

Statement of Group of Latin American and Caribbean Countries (GRULAC)

By Ronnie Nader

CE/CTO & Space Operations Director, Ecuadorian Civilian Space Agency (EXA)



The IAF GRULAC is an administrative committee within the Federation that groups the Latin American and Caribbean institutions affiliated to the IAF, and it may seem that this cooperation for sharing earth observation data is extremely important, vital I would say, however that is not enough, as many other countries here have stated, like El Salvador and Honduras, is not enough because we need more development, more action.

Because of this, since 2017 the IAF GRULAC has started a fast development experimental program that includes 3 axis: Education, Exploration and Human Space Flight. when you are part of the GRULAC, as part of the IAF, you have access to the Latin American Lunar Program, which first mission is scheduled to launch on 2021 with the participation of Colombia and Ecuador and the first technology test for this mission will be launched in just 20 days. We also have a very modest but realistic Human Spaceflight Program, with multinational suborbital manned missions that we expect to start launching in 2021/2022, the first crew is already selected and the aim of this program is to fly into space at least one citizen for each Latinamerican and Caribbean country in the next 5 years. and our Education program aims to inject real time weather satellite data into schools classrooms for the whole region, starting with Ecuador and Colombia, where we already are doing this since many years ago.

The message is: Join the IAF, join the GRULAC, we can cooperate, we can work together in real space projects that can show that cooperation for development is multilevel, not only the big data for serving our countries but also exploration and education, because our peoples needs inspiration, because programs like these provides the inspiration that produces engineers and scientists that are the ones that in time make possible the kind of wonderful applications like the ones (SAOCOM) we have seen here today.



Statement of HSA (Hellenic Space Agency)

By Christodoulos Protopapas

Chairman, HSA



Dear Ministers, Heads of Delegations, Distinguished Guests, Colleagues, Ladies and Gentlemen,

in my capacity of Chairman of the newly founded Hellenic Space Agency I would like to express my appreciation for being invited to participate in the “3rd International Space Forum – The Latin American and Caribbean Chapter”.

Hellenic Space Agency was officially established almost 9 months ago, as a long awaited consequence of Greece participating in various space activities, programs and initiatives, starting from 1985 with participation in Intelsat, Inmarsat and Eutelsat IGO and also becoming a first protocol member in ESA since 1994. A crucial milestone for us was the official membership to ESA in 2005 together with the formation of the Hellenic Association of Space Industries in 2009. Greek space industry poses 41 space companies, as being identified by EU primes and ESA. Greece is also a member of all major organizations related to Space up to now.

At the same time, we must not forget that numerous Greek scientists have been embodied during the last decades in the global space industry, working in high caliber programs in NASA, ESA and other space agencies, industrial and academic institutions as well as famous manufacturing and launching companies as well as satellite operators around the world. Greece commences its national space program with the launch of the first communication satellite back in 2003 which will henceforth be enhanced in order to satisfy the needs and expectations of the Greek citizens since one of the major milestones of the Greek civilization remains the welfare of the citizens of the country. We are now in the verge of implementing our first steps of the enhanced national space program, which is going to be executed within the next years and is being composed mainly of the following pillars:

- Complete design and launch of a microsatellite constellation (11 microsatellites), in order to support mainly downstream applications for the benefit of Greek citizens, academia and industry.
- Official participation in high caliber projects, such as Orion mission and generally the Gateway to the Moon.

Creation and design with interested European and International partners of a big satellite constellation for EU, trying to provide to Europe a complete and reliable early awareness system for the prevention of physical disasters and mainly the extension of forest fires. This is primarily an aftermath due to the fact that Greece suffered the tragic killing forest fires event this summer, where our country suffered 100 human losses.

We know that even though our Space Agency is still rather young and small yet we strongly believe that in the years to come we will be able to participate and support global space activities, with all of our powers and means considering that Greek scientists, researchers and professionals have been injected to the global space community through our efficient educational system.

Concluding I would like to wish fruitful and prosperous meetings during the conference and convey the message that only through strong partnerships, concrete relations, commitment, and inspiration we can offer quality of life to the citizens of the world as well as beyond Earth frontiers. We are obliged to offer to the next generations the hope that there is enough fuel to transfer them to the future safely and with a vision.

Statement of IAA (International Academy of Astronautics)

By Livio Gratton

Member, IAA



Excellencies, distinguished delegates, dear colleagues:

On behalf of the International Academy of Astronautics, and particularly being a Latin American member of the IAA, I want to express how much the Academy celebrates this initiative, and the focus on the region, as expressed in this event organized by the IAF in general, and in particular by CONAE, and by an agency with such a rich tradition and long standing history in cooperating with Latin America, as is ASI.

I am saying nothing new when stating that these initiatives at the highest level are necessary, to give direction to the different efforts, and express the willingness to make particular changes for the well-being of our societies. We have here an Ambassador, a Secretary of Government, Heads of Agencies, former Heads of Agencies, amongst many other authorities. But I am saying nothing new either when saying that these initiatives need partners to translate these ideas into actual actions and results. In that sense, the IAA has always been the ideal partner of the IAF, as it brings in the energy and concrete ideas of its members, which as you well know are individuals.

I would like to spend one or two minutes talking about an example of this kind of partnership, already mentioned by the Director of CONAE earlier; the 1st IAA Latin American Symposium on Small Satellites, as it includes many topics that were discussed here today. It was a group of IAA members linked to DLR that put in the time and the effort to evaluate the feasibility of doing this event in Buenos Aires with a short time to prepare it. As this was an event with a strong component of Academia, it was only natural that this connection, from a group mentioned today by the Head of the Executive Board of DLR did this, but acting as members of the IAA. Based on this, it was established that the symposium would be organized by the Colomb Institute that belongs to both CONAE and San Martín National University.

As the Institute was recently created at that time, two other factors were critical in ensuring the success of the event. The first one was when INVAP committed to sending several papers, which guaranteed the quality of the local participation. This was closely followed by several IAA members from Brazilian IAF organizations committing to sending several works, which guaranteed early in the process the quality of the regional participation. Those two factors, plus the important participation from many others, ended up in the venue having to be changed for an unexpected quantity of registration, as was mentioned here today. I could enumerate a long list of specific collaborations and results that came out directly from contacts and ideas arising from the event.

At the IAC in BREMEN, the IAA determined the 2nd Latin American Symposium on Small Satellites also be organized by the Colomb Institute in Buenos Aires on November 2019.

I would like to invite the IAF members, and CONAE and ASI in particular as organizers of this forum, to see this IAA event that will take place in this same building next year, as the arm and muscle that will make concrete results come out in the direction indicated in this forum.

Thank you.

Statement of IISL (International Institute of Space Law)

By Maureen Williams

Board Member, IISL



Distinguished participants,

It is a privilege to say a word on behalf of the International Institute of Space Law (IISL) and its president, Professor Dr Kai-Uwe Schrogl, at the chapter on Latin America and the Caribbean of the International Space Forum.

Our Institute was created almost six decades ago. A time when the famous science-fiction writer, Arthur Clarke, was anticipating that *a time will come when only machines shall talk to machines and we'll have to tiptoe away and leave them to it*. Shortly after, man made it to space. And shortly after, so did woman. Valentina Tereshkova was the first to make the world stand back in wonder on 16 June 1963 and remains the icon to inspire generations.

I shall briefly address a few landmarks achieved by the international community over the years in the legal field to which this Forum is making important contributions which our Institute is pleased to support.

These landmarks include five international treaties, all of them in force, three sets of UN Principles and a number of UN Declarations where the needs of developing countries and their access to advanced space technologies are the recurring notes. Of a more recent vintage are the Permanent Court of Arbitration's Optional Rules for Arbitration of Disputes relating to Outer Space Activities which became effective on 6 December 2011.

Today we are in different political scenarios and further technological development. The current agenda of the IISL is looking at the challenges brought about by the intersection of cyber security and space security and their new applications, among others HAPS (high altitude pseudo satellites) in need of regulation, suborbital activities and national space legislation to rule them, the mining of asteroids in outer space, the presence of NEOs (near-earth objects) and the risk of their impact on planet earth, capacity building and the elimination of space debris in accordance with international law.

Argentina, our host country today, has shown special interest in outer space activities and their regulation from the early days of the space era. Suffice it to mention the contributions of Ambassador Aldo Armando Cocca, Permanent Representative of Argentina to COPUOS in the sixties and seventies, who took active part in the drafting of the five space treaties. Since then space law became gradually part of the syllabi of the National Institute of Air and Space Law in Argentina, with Ambassador Cocca as the first holder of the chair. In 1969, a now historic Symposium on the Teaching of Space Law in the World was organised at the University of Buenos Aires by Professor Eugène Pépin -then president of the IISL- and Ambassador Aldo Cocca, in the aftermath of the IISL Twelfth Colloquium on the Law of Outer Space held in Mar del Plata, Argentina, on 5-10 October 1969.

Nowadays space law experts meet frequently at the Argentine Academy of Aerospace Sciences in Buenos Aires where events are held regularly and to which representatives of neighbouring countries are invited. In fact, some of these academics are here today. In addition, the Annual meeting of the Ibero American Institute of Air and Space Law is taking place in Buenos Aires next week and space lawyers from Spain and Latin America shall be discussing various topical space law issues. Also, at this point in time, the idea of a Latin American round within our Institute's annual Moot Court Competition is beginning to gain ground and we expect it materialises.

As to recent space activities in Argentina the SAOCOM mission, involving this country and Italy on emergency management, is one of the most challenging technological projects ever developed in Argentina. It consists of two constellations of two satellites each and the first satellite was launched on 8 October 2018. The Italian Space Agency, for its part, provides four other satellites to this bilateral mission.

2018 marks the fiftieth anniversary of the first UNISPACE Conference, a milestone anniversary which intends to renew and strengthen the UNISPACE mandate as a unique platform highly supported by the International Space Forum and our Institute for the interrelationship between emerging and major space nations.

Meetings like today's are invaluable to raise awareness on all these issues. As time unfolds we look forward to further cooperation with the International Space Forum and, on this note, distinguished delegates, I shall close the statement from the International Institute of Space Law (IISL). Thank you very much.

Statement of KARI (Korean Aerospace Research Institute)

By Hyo-Suk Lim

Executive Director of Satellite Operation & Application Center, KARI



Distinguished participants, space representatives from Latin America and Caribbean, and ladies and gentleman

I would like to express my sincere gratitude to IAF, ASI, and CONAE for invite me and Korean delegation to this forum and giving me this opportunity to address space development in Korea.

My name is Hyo-Suk LIM and Executive Director of Satellite Operation and Application Center of Korea Aerospace Research Institute (KARI). KARI, leading the space development in Korea, has been striving to research and develop in the area of satellite, rocket, lunar exploration, and aircraft.

Beginning from the 1990s, Korea has become active in space development. Korea's first experimental satellite called KITSAT (Korean Institute of Technology Satellite)-1 was launched in 1992. We named it Wooribyeol, which literally means 'Our Star' representing our aspiration toward space. Since then, the first Korean Sounding Rocket (KSR-1) was successfully launched in 1993 and Korea's first earth observation satellite, KOMPSAT (Korea Multi-Purpose Satellite)-1 in cooperation with the U.S was launched in 1999.

And what's more, in 2010, Korea's first geostationary earth observation (GEO) satellite, COMS which stands for communication, ocean and meteorology, was successfully launched and operated until now. Looking at the details of satellite, thanks to our successful development of KOMPSAT-1, we were able to launch several high resolution optical and SAR satellites. There are currently 4 LEO satellites and 1 GEO satellite in operation.

Based on the success of KOMPSAT series, Korea launched a new satellite program in 2015, the Compact Advanced Satellite (CAS)-500, to make a standardized satellite bus platform. A 500-kg class standard platform will be developed by 2019 and carry various payloads such as optical cameras, radar, microwave and hyper-spectral systems.

In terms of space launch vehicle, after two failures in 2009 and 2010, Korea's first space launch vehicle (KSLV-1) was successfully launched in 2013, with all Korean citizens counting down together. Korea is currently developing its own space launch vehicle, called KSLV-II. By doing so, our hope is to launch our own satellites independently from Korean territory. For KSLV-II, it will have a capability of launching 1.5 ton multipurpose satellite into LEO. The test launch vehicle with main engine will be test-launched this year and complete KSLV-II will be launched in 2021. Afterwards, it will go through a series of launches to secure reliability.

From 2012, Korea launched 'University Cubesat Mission' to provide undergraduate and graduate students with opportunities for hands-on experience in satellite development. This program includes education, contest, and development. Korean government provides development cost, technical support of cubesat development, space environment test, and launch service for the selected team.

For space exploration, Korea's priority is focused on a robotic lunar exploration, which is to develop a Korea Pathfinder Lunar Orbiter (KPLO) based on international cooperation with NASA and it is scheduled to be launched in 2020. As a follow-up to this project, Korea is planning to launch a lunar lander with its own space launch vehicle by 2030.

Korea has been actively promoting international cooperation with the countries for the peaceful uses of outer space. KARI and the CONIDA (National Commission for Aerospace Research and Development) of Peru signed a frame agreement on cooperation in joint utilization of satellite resources and exchange of space technological experiences in October 2016. KARI and CONAE of Argentina have discussed common interest in the exploration and utilization of space development and will sign MOU during this forum.

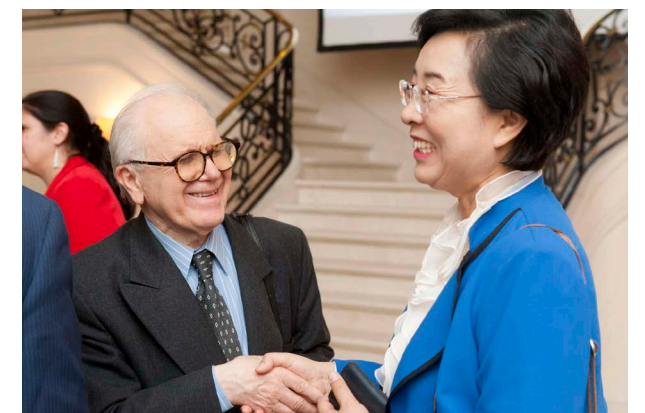
KARI and the Adama science and technology university of Ethiopia signed MOU in 2016 on the exchange of scientists, technical experts, and professional training. Based on the MOU, KARI and KAIST (Korea Advanced Institute of Science and Technology) hosted a space technology training course. In this year, KARI and Adama science and technology university started joint development of nano-satellite.

In addition, Korea contributes to future technology capacity development through the KARI International Space Training (KARIST) program. Since 2010, we have invited researchers from emerging countries to share our experiences on satellite development and remote sensing. 200 space experts from more than 30 countries were joined and next year will mark the 10th anniversary of KARIST. In its celebration, Korea is planning to hold a joint workshop with UNOOSA (UN Office for Outer Space Affairs).

On top of that, KARI has been providing the satellite image taken by KOMPSAT to the 'International Charter Space & Major Disasters' participating 18 space organizations operating satellites with an interest in a major disaster internationally.

The whole world is now facing various disasters including global warming, and it is not exceptional to Latin America, Caribbean, and Korea. The task remaining before us is to build a healthier and safer global society where the benefits of space technology can be shared by all. I sincerely hope the cooperative relationship between all participants would be last continuously.

Thank you very much.



4 KEYNOTE SPEECHES ABSTRACTS

Keynote speech on Management of Natural Resources and Prevention of Disasters by Dr. Jan Woerner, Director General, European Space Agency (ESA)

ESA is an intergovernmental organisation to serve the Member States in the space domain. In the sense that “competition is a driver” and “cooperation is an enabler” ESA develops space missions to save our planet. This includes the processes of BIG DATA and artificial intelligence for evaluation and decision support. A sustainable Earth needs a comprehensive view including opportunities and threats in space and on the surface.

By combining national interests, capabilities and funding possibilities a cooperation scheme is existent which satisfies national and continental needs as well as cooperation on a global scale.



Keynote speech Space Partnerships by Rosa Maria Ramírez de Arellano y Haro, Chair of the 2018-2019 UNCOPUOS

Nowadays, more and more countries are carrying out space activities and using space technology in various practical applications; this has been largely possible thanks to the fact that data and technology access is increasingly more open and less expensive. However, there is a growing disparity between countries that have acquired capacity and developed space technology and those that have not yet done. Latin America, being an emerging region, is counted within this group of countries; hence the need to continue promoting the design of study programs for the training of technicians, engineers, scientists and professionals in the space field in order to strengthen their own capacities in space science and technology, (without ignoring the necessary cooperation that must prevail with the most developed countries in the field). Additionally, it is true that Latin America has higher education centers where high-quality research is carried out, it is necessary to promote a greater link between space research and its applicability in solving the major problems that affect us as a region, in alignment with the SENDAI Summit, PARIS Agreement, ODTs (Guidelines of sustainability development goals; and SPACE2030 Agenda and its plan of implementation that is being formulated. In a complementary manner, it is important to formulate specific cooperation schemes among academic institutions in the region, promoting the exchange of knowledge and the development of projects together with a long-term regional vision.



Keynote speech on Education and Capacity Building by Raúl Kulichevsky, Executive and Technical Director, Comisión Nacional de Actividades Espaciales (CONAE)

Capacity building has typically been defined as the development and strengthening of human and institutional resources, but, in a broader sense, capacity building encompasses a country's human, scientific, technological, organizational, and institutional resources and capabilities.



The space sector can play a fundamental role in the socioeconomic growth and sustainable development of Latin American and Caribbean countries contributing to the formulation and implementation of policies in connection with productive areas, emergency management, security, urban planning, water management, marine and coastal ecosystems, health care, etc. with the provision of space-based information. However, as necessary as generating the technology to provide the information, it is necessary to ensure that the community is ready to take complete advantage of all these data from satellite EO missions and convert them efficiently into products that can support decision-making.

With this view in mind, building human capital is a strategic policy at CONAE since its creation. These activities have been oriented to the use of Earth Observation (EO) data not only with training courses for our Institutional Users but also with different programs oriented to high level education courses (Masters Degrees and a PhD degree very recently approved). We have also created and implemented the 2MP Program devoted to children between 8 and 15 years old and their teachers at school.

This keynote presents the experience of more than 20 years at CONAE in Education and Capacity Building.

5 THE BUENOS AIRES PAGE (to be added to the Trento Space Statement)

3rd International Space Forum at Ministerial Level - The Latin American and Caribbean Chapter “Space Science and Academia for better Solution to Latin America and Caribbean’s Challenges”

On November 1st, 2018, the Argentinean Secretary of Government for Science, Technology and Innovation, Ministers of Science, University and Research and other Space governmental Authorities of the Latin America and Caribbean countries, representatives and experts of national and international space agencies and organizations, met in Buenos Aires (Argentina), under the auspices of the International Astronautical Federation (IAF), the Italian Space Agency (ASI) and the Comisión Nacional de Actividades Espaciales (CONAE), for open and productive discussions on the opportunity of a greater involvement of Latin American and Caribbean universities and Academia in the space programs to search for better solutions to Latin America and Caribbean's challenges.

Following the first International Space Forum (ISF) held in Trento (Italy) in 2016 with the adoption of the Trento Space Statement and the 2nd International Space Forum - The African Chapter - held in Nairobi (Kenya) with the adoption of The Nairobi Page, delegates, experts, representatives of Academia gathered in Buenos Aires for the 3rd International Space Forum – The Latin American & Caribbean Chapter - and exchanged views, shared experiences and made statements, in which they declared that:

- space technology and applications provide and contribute to find solutions to several challenges that affect human life on Earth and represent a precious support to the implementation of the United Nations 2030 Agenda for sustainable development;
- space activities require high-level scientific and technical knowledge, as well as a multidisciplinary approach;
- academic institutions represent an immense reservoir of knowledge and human talents, very well distributed all over the world and characterized by a great propensity for cooperation;
- the greater involvement of Academia and scientific community in space activities would increase the chances to find even better space solutions to global challenges.

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

- Education and Capacity Building: a greater development of space education and training in Latin America and Caribbean would serve as a catalyst for high-level scientific and technical capacity building and contribute to a greater socio-economic development of the region.
- Management of natural resources and prevention of disasters: Earth observation, navigation and telecommunications satellite technology and applications are precious tools to support governmental, regional and local management activities, in particular, to protect the environment, to ensure a peaceful and secure region, to manage diversity as source of wealth, harmony and socio-economic transformation.
- Space Partnerships: partnerships and collaborations among countries with different levels of space knowledge would facilitate its dissemination and technology transfer. Space partnerships among Latin American and Caribbean scientific and academic institutions would allow making the best of their capacities in space activities establishing the conditions for all countries of the region.

Governmental representatives and delegates noted that:

- the Latin American and Caribbean region has been developing its space capacities since the 1970s: several countries have established national space agencies with planned space programs and activities;
- the Region has a very active scientific community, with historical Universities and scientific institutions that would benefit from their inclusion and active participation in the global space community, which would facilitate the exchange of space knowledge and increase space capacity-building opportunities;



- space partnerships among academic institutions of the Region and between these and the international space community is a challenging opportunity to
- the greater involvement of Academia and scientific community in space activities would increase the chances to find even better space solutions to global challenges.

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- **Education and Capacity Building:** a greater development of space education and training in Latin America and Caribbean would serve as a catalyst for high-level scientific and technical capacity building and contribute to a greater socio-economic development of the region.
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- space partnerships among academic institutions of the Region and between these and the international space community is a challenging opportunity to support the socio-economic regional development and insert “Space activities” in the governmental agendas and also to support an adequate infrastructural development on ground and in space.

Ministers, Heads of delegations, Heads of space agencies and all distinguished delegates present in Buenos Aires welcomed the 3rd International Space Forum - The Latin American and Caribbean Chapter - and identified the following points as the main objectives to be pursued in a medium-short term:

- increase and deepen networking in space cooperation activities among Latin American and Caribbean scientific and academic institutions, and with spacefaring countries, in order to facilitate capacity building and technology transfer;
- consider the existing space Centers and facilities in the region to build up a space network of infrastructures to develop a sustainable roadmap for a challenging regional Capacity Building Program linked to the global IAF community;
- consider the opportunities offered by the regional Center for Space Science and Technology education for Latin American and the Caribbean (CRECTEALC) affiliated to the United Nations;
- among the space educational institutions, the Mario Gulich Institute in Space Advanced Studies, located in Cordoba (Argentina) at the Teofilo Tabanera Space Center of CONAE, represents a unique Centre of excellence in the region for earth observation data use, training, teaching, processing and information for the management of natural resources and disasters;
- promote an ever greater space cooperation in the Region to prepare the adequate environment for the development of a future regional space agency;
- promote the peaceful 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 Latin 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 socioeconomic development of the Region.



6 VISIT TO THE CONAE TEOFILO TABANERA SPACE CENTER (CETT), IN CORDOBA

On November 2nd, the ISF participants had the opportunity to visit CONAE's Teófilo Tabanera Space Center (CETT), in the Province of Cordoba and make a tour of the facilities.

The tour included a visit to the Mission Operations and Control Center (MOC) of SAOCOM, CONAE's recently launched L-Band SAR satellite, as well as the Cordoba Ground Station (CGS), which provides TT&C, and Acquisition services for several international missions, including the Italian Cosmo-SkyMed Constellation which, together with CONAE's SAOCOM, form the Italian Argentine Satellite System for Emergency Management (SIASGE). The visit included the facilities for satellite integration and testing (LIE).

The Space Center also houses the IG, a cooperation between CONAE and the University of Cordoba, and strong participation from ASI. The goal of IG is to promote the development of new applications of space information to health and emergency management in the region through advanced training of human resources, to support the community of SIASGE users. The IG offers the MAIE, a two-years Masters degree for applications of space information. As part of the visit, presentations were made by IG professors about the activities in the MAIE.

With the tour, the visitors were able to appreciate the degree of development of CONAE's capacities, and the willingness of Argentina to foster space cooperation with international partners from both the public and the industrial sectors.



7 ORGANIZERS INFORMATION

7.1 The International Astronautical Federation (IAF)

Founded in 1951 to foster dialogue between scientists around the world and support international cooperation in all space-related activities, the International Astronautical Federation is the world's leading space advocacy body with over **360 members**, including all key space agencies, companies, societies, associations and institutes across 68 countries.

Over 40 administrative and technical committees support the Federation in its mission to advance knowledge about space and to foster the development of space assets by facilitating global cooperation.

Following its theme "A space-faring world cooperating for the benefit of humanity", the Federation advances knowledge about space and fosters the development and application of space assets by advancing global cooperation.

As the organizer of the annual International Astronautical Congress (IAC), and other meetings on specific space-related topics, the IAF actively encourages the development of astronautics for peaceful purposes and supports the dissemination of scientific and technical information related to space.

THE IAF'S MISSION

- **Promoting cooperation:** The IAF's International Astronautical Congress and various IAF committees provide unique collaborative platforms for experts from space agencies, industry and research
- **Advancing international development:** The IAF is building a future of cooperation, development and international friendship, bringing together experts from experienced and emerging space nations alike
- **Sharing knowledge:** The Federation has many well-established channels to disseminate information within its global network and the wider space community
- **Recognising achievements:** The Federation's prestigious awards are presented annually to individuals and groups who have distinguished themselves in the global space community
- **Preparing the workforce of tomorrow:** To nurture new talent, the Federation has many activities targeting students and young professionals
- **Raising awareness:** The global network of the IAF, and IAF publications, help promote the public appreciation of space activities worldwide



7.2 The Italian Space Agency (ASI)

The Italian Space Agency, created in 1988, coordinates and implements Italy's capabilities and expertise in Space under the high responsibility of the Prime Minister and the instructions of the Ministerial Board for the space policies and aerospace research.

ASI activities range from space science to earth observation, telecommunications and navigation, launchers, space technologies and related applications, education and capacity building.

Italy is a founding member of the European Space Agency (ESA) since 1975 and it is the third country in terms of investment, participating in the major European programs and missions such as the exploration mission to Mars (EXOMARS).

Italy is one of the major European contributors in the realization of the International Space Station, considering that more than 50% of the ISS pressurized volume has been realized by the Italian industry.

Italy is in the forefront in the studies related to the origin of life and understanding of the Universe. In 30 years ASI participated in many scientific missions in collaboration with ESA and NASA. In the field of Earth Observation, ASI has developed the COSMO-



SkyMed satellite constellation, a radar satellite system devoted, in particular, to the natural disasters management. Since 2005 ASI and CONAE are realizing the unique civil earth observation satellite system, SIASGE (Italian Argentinean Satellite System for the management of Emergencies and Economic development), composed by the Italian COSMO-SkyMed constellation and the Argentinean SAOCOM satellites.

In the field of research and space propulsion, Italy developed the European medium size VEGA launcher vehicle, fully designed in Italy and successfully active with the other European launcher vehicles as Ariane and Soyuz.

Bilateral and multilateral space cooperation is a fundamental pillar of the Italian space policy. Many space agreements are in force between ASI and the other space agencies around the world. Italy, through ASI, is member of different International Space Organisations and Committees, among the others the United Nations Committee on the Peaceful Uses of Outer Space (COPUOS).

Italy remains firmly committed in the promotion of international cooperation for peaceful purposes and for safe, secure and sustainable use of outer space.

7.3 Comisión Nacional de Actividades Espaciales (CONAE)



CONAE is the national space agency of Argentina. It functions under the umbrella of the Ministry of Education, Culture, Science and Technology, and it is the national organization in charge of designing and implementing space-related projects and activities for peaceful purposes, through the elaboration and implementation of the National Space Program. This is a long-term strategic program that provides for the development of CONAE's EO satellite missions, creating national capacities and working in associative cooperation with international partners.

Since its creation in 1991, CONAE has developed and flown, in partnership with NASA four satellite missions, which were designed and built in Argentina with participation of local companies and scientific and technical institutions: SAC-A, SAC-B, SAC-C and SAC-D/Aquarius. This series included participation from ASI (Italy), CNES (France), DSR (Denmark) and AEB/INPE (Brazil), and CSA (Canada). Currently, CONAE is developing a Synthetic Aperture Radar (SAR) Mission: SAOCOM, composed of two satellites: SAOCOM 1A and 1B, each carrying an identical Polarimetric L-Band SAR instrument. SAOCOM 1A was launched on October 7, 2018, and 1B will follow a year later. Both satellites were built in Argentina with local companies like INVAP (main contractor) and VENG, as well as national scientific and technical institutions like CNEA. SAOCOM is part, together with the Italian COSMO-SkyMed, of the SIASGE (Italian-Argentine Satellite System for Emergency Management). With both constellations flying along the same orbit will enable a rapid response in the provision of SAR information at emergency situations. ASI is the main international partner and there is also a collaboration with ESA's ground segment and technical support from CSA and NASA. CONAE's national Ground Segment is composed of the Cordoba Ground Station and the Tolhuin Ground Stations (in Tierra del Fuego Province), which provide TT&C and Data Acquisition services.

CONAE also promotes the regional development of human capacities with several training and education programs (from elementary to Master levels, in collaboration with national universities), and the organization of activities to foster the use of space information in disaster management, environmental monitoring and productive activities through the Gulich Institute for Advanced Space Studies, located in the Space Center in Cordoba.



International Astronautical Federation (IAF)

100 Avenue de Suffren
75015 Paris
France

Phone: +33 1 45 67 42 60
Email: info@iafastro.org
Website: www.iafastro.org



Agenzia Spaziale Italiana (ASI)

Via del Politecnico
00133 Roma
Italy

Phone: +39 06 8567 237
Fax: +39 06 8567 322
Email: urp@asi.it
Website: <http://www.asi.it/en>

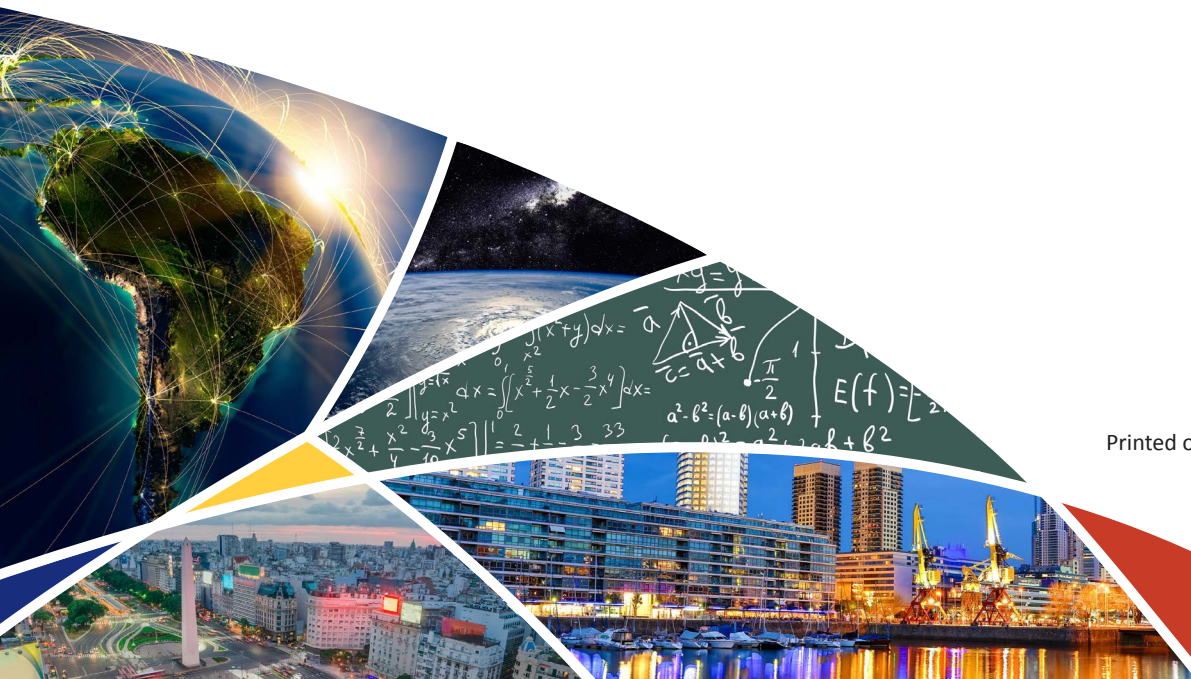


Comisión Nacional de Actividades Espaciales (CONAE)

Av. Paseo Colon 751
C1063ACH Buenos Aires
Argentina

Phone: +54 11 4331-0074
Email: inter@conae.gov.ar
Website: <https://www.argentina.gob.ar/ciencia/conae>

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