

**Committee on the Peaceful  
Uses of Outer Space  
Fifty-fourth session**

*Unedited transcript*

638<sup>th</sup> Meeting

Wednesday, 8 June 2011, 10 a.m.

Vienna

*Chairman: Mr. Dumitru Dorin PRUNARIU (Romania)*

*The meeting was called to order at 10.08 a.m.*

**The CHAIRMAN** Good morning distinguished delegates. I now declare open the 638th meeting of the Committee on the Peaceful Uses of Outer Space.

This morning we will continue our consideration of agenda item 7, report of the Scientific and Technical Subcommittee on its forty-eighth session. We will begin our consideration of agenda item 9, spin-off benefits of space technology: review of current status. We will continue our consideration of agenda item 11, space and water; agenda item 12, space and climate change; and, item 13, use of space technology in the United Nations system.

Following the plenary, there will be three technical presentations. The first by a representative of Italy entitled 'Italian contribution to Alpha Magnetic Spectrometer (AMS-2)'. The second by a representative of the Russian Federation entitled 'About the IGMASS project promotion in the year of half-century anniversary of the first manned flight' and the third, by a representative of Pakistan entitled 'Monitoring of 2010 floods in Pakistan using space-based assets'.

The Action Team 14 on near-Earth objects will hold its second meeting and the teleconference in the meeting room M7 from 2.30-5.30 p.m. to continue its work on the draft recommendations for an international response to the near-Earth objects impact threat.

In the evening delegates are invited to the traditional Austrian heurigen.

**Report of the Scientific and Technical Subcommittee on its forty-eighth session** (agenda item 7)

Distinguished delegates I would now like to continue our consideration of agenda item 7, report of the Scientific and Technical Subcommittee on its forty-eighth session.

The first speaker on my list is the distinguished representative of the Russian Federation.

**Mr. G. BARSEGOV** (Russian Federation) (*interpretation from Russian*) Thank you Mr. Chairman In the past years the Committee's methods of work as well as the methods of the Scientific and Technical Subcommittee have undergone considerable changes, on the whole in the right direction. Nevertheless, innovations in the sphere of space-related diplomacy make it imperative that with time these things be thought through and discussed. The possibility of streamlining, and I would say making it a little more subtle, the practice that we have today, is something that we ought to consider under the new agenda item of the Scientific and Technical Subcommittee regarding the long-term sustainability of space activities or, more exactly, the methods of work in that sphere, something that we need to make a decision on at this Committee session.

Russia's proposals in this regard at first were not entirely favourably received by some of our

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In its resolution 50/27 of 6 December 1995, the General Assembly endorsed the recommendation of the Committee on the Peaceful Uses of Outer Space that, beginning with its thirty-ninth session, the Committee would be provided with unedited transcripts in lieu of verbatim records. This record contains the texts of speeches delivered in English and interpretations of speeches delivered in the other languages as transcribed from taped recordings. The transcripts have not been edited or revised.

Corrections should be submitted to original speeches only. They should be incorporated in a copy of the record and be sent under the signature of a member of the delegation concerned, within one week of the date of publication, to the Chief, Conference Management Service, Room D0771, United Nations Office at Vienna, P.O. Box 500, A-1400, Vienna, Austria. Corrections will be issued in a consolidated corrigendum.

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colleagues. Nevertheless consultations regarding a package solution as to the terms of reference and methods of work of this working group was set up and these consultations were conducted in an intensive fashion yesterday demonstrated that a number of delegations are also interested in further elucidating some of the specific facets of future joint work. The result of those consultations is doubtless positive in our view.

Talking in general, the most important conclusion is that, while we work to streamline our work in the future, we should refrain from any actions that might have a negative impact on the role of the United Nations as a powerful integrator of the will of sovereign States first and foremost.

As regards the document we have regarding the terms of reference and methods of work of the working group its adoption, as adjusted and revised, will open up for the Scientific and Technical Subcommittee a stage of pragmatic analysis that would allow us to forecast a broad array of trends that influence space activities. The Russian Federation has tried to create a balanced document and, it seems to us, that working together with our colleagues and of course with the working group chairman we have been successful in achieving that objective. At any rate, we proceed on the understanding of what we call the presumption of success.

Mr. Chairman. Putting in place the necessary regulations to govern the transfer of space technologies and their management is something that is noted by the International Institute of Space Law as an area that can require a special regime for global unification in practical terms. This is an important conclusion made by a highly prestigious body and taking that into account it would be useful, under the new agenda item, to exchange opinions regarding the policies, methods, organizational and technical procedures that would ensure fair use of controlled space-related products within the framework of a properly adjusted mechanism for international cooperation.

In Russia, as we already noted in this session, has developed mechanisms, principles and norms that make up a balanced combination of stimuli for the development of new forms of international cooperation in the sphere of high technology use in outer space. They pave the way toward broadening the area for exporting specialized trans-border services. We have every reason to consider this practice, which has already been tested in specific cooperation projects, one of the best practices. The intergovernmental agreement, signed by Russia regarding technology

safeguards, provide adequate safeguards both for the exporters and the recipients of these products. Their cornerstone is attention to the interests and the responsibility of a good face end user, they decisively strengthen as compared to the existing practice, the concept of the end use of controlled products. The importing State itself, which obviously is interested in high technology cooperation, takes upon itself a number of serious commitments to ensure the necessary administrative, organizational, political and legal conditions to safeguard legitimate end use of controlled products. Thanks to the principle of the immunity of such products in the territory of the importing State, and this includes products that get into the hands of commercial actors, that situation rules out the possibility of those controlled products becoming subject to challenge jurisdiction or any kind of malpractice.

This approach has gained the support of the government of the Russian Federation and the Federal Assembly of the Russian Federation, our parliament. Russia's legal system is highly democratic in this regard, space-related agreements which, in the interests of international cooperation, substantially alter many of the legally envisaged or statutory procedures in Russia, once they are ratified they become part and parcel of the legal system itself. We believe that in the context of the new agenda item it will be possible for us to develop generic guide specifications for cooperation in the high tech area of space exploration.

Similarly to the Nuclear Security Summit recently held in Washington and we know that that event focused on issues pertaining to the safe management of nuclear materials. In the same vein, similar to that, we could try and consolidate mutual understanding regarding the most acceptable standards and recommended practices in terms of ensuring physical and legal protection and appropriate end use of exported or imported products to be used as part of space-related cooperation.

As regards the list of subjects proposed for discussion in regard to confidence building measures in the sphere of control in outer space, we would like to share the following thoughts.

Of course, these issues should be considered as part of an interrelated theme in a broader political context. Therefore, in future, we might very well need to set up interaction with the group of government experts on transparency and confidence building measures in outer space. The working group which is set to start functioning next year, in accordance with the UN General Assembly's decision.

Mr. Chairman. The work of the Scientific and Technical Subcommittee of COPUOS in the field of space debris mitigation is proceeding in a planned and constructive manner and this is something we need to retain. I would like to inform delegations that Russia is currently carrying out a broad array of measures to ensure the complete implementation of the Space Debris Mitigation Guidelines including through the introduction of new technological solutions. Furthermore, we work to adjust parameters for space debris models and develop possible scenarios for man-made contamination of outer space. The geostationary orbit contamination is also considered, inter alia, as part of international cooperation under the auspices of the Keldysh Institute of Applied Mathematics of the Russian Academy of Sciences.

We would like express our satisfaction with the work of the Scientific and Technical Subcommittee and its working group on nuclear power sources which is committed to promoting and implementing, in international practice, the provisions of the safety framework for the use of nuclear power sources in outer space. We support the holding of workshops on nuclear power sources carried out by the Subcommittee in accordance with the current five year plan. Since they are an important tool in raising certainty in that the development, design, launch and use of nuclear power source bearing spacecraft are being conducted in a safe fashion.

Mr. Chairman. We would like to reaffirm the intent of our specialized Ministry for Emergency Situations to organize, in September of this year in the city of Krasnoyarsk, an international scientific and practical workshop on the use of space-based information in the management of emergency situations in central Asia. We plan to invite representatives of China, Mongolia and Afghanistan, United Nations entities and SPIDER offices. Russia's participation in this programme, UNSPIDER, is at this stage envisaged as a way to set up a regional SPIDER support office under the National Centre for Crisis Situations.

Mr. Chairman. At present we have made considerable progress in our work on a draft binding instrument on receiving, using and disseminating remote sensing data. This document will create, for this type of activity including its international dimension, a necessary up-to-date and renewed organizational and legal basis. In that context, we attach great importance to creating all the necessary preconditions for strict compliance with the remote sensing principles accepted by the United Nations.

Mr. Chairman. Russia is currently working on an integrated federal targeted programme for observation and research with reference to near-Earth objects. In particular, we are in the process of modernizing, monitoring and observation means, improving methods for forecasting, the movement of such objects, designing automated search space telescopes and creating a ground-based infrastructure. Thank you very much Mr. Chairman.

**The CHAIRMAN** (*interpretation from Russian*) I thank the distinguished representative of the Russian Federation for your statement.

(*continued in English*) Is there any other delegation wishing to speak under this agenda item at this morning's session? I see none.

We will therefore continue and hopefully conclude our consideration of agenda item 7, report of the Scientific and Technical Subcommittee, this afternoon.

**Spin-off benefits of space technology: review of current status** (agenda item 9)

Distinguished delegates I would now like to begin our consideration of agenda item 9, spin-off benefits of space technology: review of current status.

The first speaker on my list is the distinguished representative of India.

**Mr. R. KUMAR** (India) Thank you Mr. Chairman. The Indian delegation would like to emphasize that the Indian space programme strives to take the benefits of space technology to mankind and society. Many application programmes including tele-education, tele-medicine, disaster management support, search and rescue, village resource centres, etc. are being actively pursued in this direction. While implementing our space programme, many of these technologies and tools developed were found to be useful in areas other than space and ultimately of benefit to society. Such technologies and tools have been carefully identified and successfully transferred to industries for production and promotion.

Mr. Chairman. The Indian delegation briefed this Committee last year on some such spin-offs including Acramid, a polyaramid reinforced plastic for prosthodontic restoration; Polyurethane technology for artificial limbs; Olfex, a free-flowing and anti-caking fire extinguisher; and, Polycleanse a cleansing cream for effective removal of resins, oil, grease, adhesives, ink stains etc. from skin. Additionally, the delegation

would like to highlight some of the products and processes that are adopted in other areas benefiting society.

Mr. Chairman. Precipitated silica, extracted from rice husk ash by an innovative process developed by the Indian Space Research Organisation (ISRO), is a high value filler material in rubber product industries, cosmetics and paints. Unlike in sand the silica present in rice husk ash is \_\_\_\_\_(?) form which has several commercial applications as filler. When combined with other methods of processing, this innovative process is found to be energy conserving and \_\_\_\_\_(?) temperatures not higher than 150° centigrade at any stage.

Mr. Chairman. ISRO has developed an electronic unit for use in weather balloons named Dr. Pisharoty sonde. It measures various atmospheric parameters such as pressure, temperature and humidity and transmits them to a fixed receiver. The GPS package in it can also measure the wind velocity. The device is being used for atmospheric studies and weather forecasting.

Mr. Chairman. India has also developed a low cost search and rescue beacon, an affordable and technically advanced electronic device that helps in rescuing people in distress through satellite communication. The beacon can be used at sea, on difficult terrain on land and in the air by various groups of people.

Mr. Chairman. ISRO has developed various types of thermal paints to meet different applications in launch vehicles and satellites. They have low solar absorptivity and excellent thermal stability and can be used on surfaces subjected to severe conditions like temperature variation, high vacuum, etc.

IRSO has also developed a silicon based electrically conductive paint which can be used over thermal protection coating systems, for dissipation of static electricity charges from the outer surface of \_\_\_\_\_(?) sensitive systems.

Mr. Chairman, in conclusion the Indian delegation assures that the Indian space programme will continue to find new opportunities for deriving benefits to the common man from space technology. Thank you Mr. Chairman.

**The CHAIRMAN** I thank the distinguished representative of India for his statement.

The next speaker on my list is the distinguished representative of Germany.

**Ms. A. FROEHLICH** (Germany)

Mr. Chairman, distinguished delegates, 18 June 1998 was quite an historic day, this was the day the German parliament adopted the Space Station Convention. This treaty established an international law framework governing ISS management, operation, crews, transport, financing, liability and intellectual property. To commemorate the first successful years and to take a broad look into the future, the German Aerospace Center organized an event entitled 'Ten years of research under space conditions on the ISS' in March this year.

For another ten years at least the Space Station will welcome scientists doing research under space conditions. Germany is very happy that the ESA Council has endorsed the extension of use of the ISS. Indeed, German scientists played an important role in research on the Space Station, right from the beginning.

The German/Russian plasma crystal experiment, the first scientific experiment on the ISS, was launched as early as March 2001. It marked the start of a series of German/Russian experiments to explore complex plasmas under space conditions which are still going on to this day. The result of these experiments in space might revolutionize terrestrial medicine in the future. For plasma attacks, virus as well as bacterium, creeping into any and all apertures it clears germs within seconds. Since plasma is a gas it can get anywhere which makes it a highly efficient disinfectant. Even bacteria that are resistant to antibiotics can be destroyed with cold plasma. Dangerous resistant germs that confront hospitals with enormous problems can be destroyed by plasma within seconds.

Mr. Chairman, materials designed for space applications also helped to win a gold medal in sprint and long jump. A top German athletic special prosthetic line was equipped with a bracket originally designed for the Alpha Magnetic Spectrometer on board the ISS.

Mr. Chairman, distinguished delegates. These are only a few promising examples of spin-off benefits of space technologies. I am sure that further development in space technology will soon add many more to this impressive list. Thank you for your kind attention.

**The CHAIRMAN** I thank the distinguished representative of Germany for her statement.

The next speaker on my list is the distinguished representative of the United States of America.

**Mr. J. HIGGINS** (United States of America)  
Mr. Chairman the United States takes great pride in sharing the fruits of its aerospace research and development efforts, bringing the benefits of technologies born in space and in the skies back down to Earth. Often understated, these innovations have been successfully spun off to private industry and made available to people around the world. The United States is once again pleased to share a few examples with the Committee.

This year's examples include a fuel cell device that generates clean and affordable energy to major businesses, aerodynamic features that have saved commercial airlines billions of dollars in fuel costs, an inflatable antenna that provides emergency communications after disasters and an image sensor technology that enables one of every three cell phone cameras on the planet.

Working for NASA's Ames Research Center, an engineer invented a system for using solar power to split Martian water into oxygen for astronaut pioneers to breathe and hydrogen to fuel their vehicles. The engineer saw the potential in reversing this process feeding in natural gas or renewable biofuels, water and oxygen to generate clean energy on Earth. Now the innovators California-based company manufactures scalable fuel cell systems that produce power through a process that is 67-100 per cent cleaner than that of a typical coal-fired power plant. The individual fuel cells, each one capable of powering a light bulb, are manufactured using inexpensive sand-like powder and can be stacked to deliver more energy. A stack the size of a loaf of bread can power an average home, in a system with the footprint of a parking space can power a 30,000 square foot office building. The company now provides affordable energy onsite for many of the United States major companies and has recently expanded its operations planning to create as many as 1,000 new jobs.

In the 1970s, a NASA's Langley Research Center aeronautical engineer explored the effects of a precisely designed vertical wing tip device, which he called a winglet, on induced drag a significant detriment to aeroplane performance and fuel efficiency. Later flight tests conducted at NASA's Dryden Flight Research Center confirmed that the winglets provided

for less fuel burn and better cruise efficiency among other benefits. These findings helped popularize the winglet which can now be found on aircraft worldwide.

One company based in Seattle, Washington, further advanced the technology creating the blended winglet which produced additional drag diminishing effects. These winglets now appear on thousands of aircraft in service for numerous American and international airlines. To date, the innovation has saved more than 2.6 billion gallons of jet fuel representing an approximate equivalent monetary savings of more than \$4 billion and a reduction of more than 20 million tons in carbon dioxide emissions. The company predicts total fuel savings greater than 5 billion gallons by 2014.

In 1996, the Space Shuttle Endeavour successfully deployed an inflatable antenna in space. NASA's Glenn Research Center encouraged further development of the technology and partnered with private industry to explore new innovations in this area. This resulted in a thin polyimide material used to craft an inflatable solar concentrator and it soon became apparent that the same basic technology was applicable to inflatable antennae. Now, a company in Alabama manufactures an award winning ground-based inflatable antenna communication system that emerged from the NASA partnership. Capable of providing Internet access, voice over Internet protocol, e-mail, video conferencing, broadcast television, and other high bandwidth communications, the inflatable antenna can be quickly deployed in remote and hard to reach areas. Transported in two readily portable cases the systems have provided emergency communications in the wake of hurricanes, wildfires and earthquakes.

A team of NASA jet propulsion laboratory researchers explored ways of improving image sensors in order to significantly miniaturize cameras on interplanetary spacecraft while maintaining scientific image quality. The team invented a complete miniature imaging sensor system that operates quickly with low power demands while providing high quality images. Realizing the potential applications for the technology on Earth the inventors founded a company, now based in San Jose, California, to license and commercialize the sensor innovation. The sensor proved ideal for crafting cameras that fit into slim cell phones and produced good photos without draining the batteries. By 2008 the company had shipped its one billionth sensor and placed its technology in one-third of the world's cell phone cameras. The sensors are also part of every major brand of personal computer cameras worldwide and are incorporated in many embedded cameras for notebook computers as well. The company

is also advancing the technology for digital still and video cameras, for medical imaging devices and automotive and surveillance applications. The company now ships as many as one million sensors every day.

Space aeronautics research continues to improve and revolutionize our lives as NASA research is spun off into tangible and remarkable benefits for all. Our resolve to improve the quality of life on Earth and benefit humankind provides the impetus to develop and disseminate these technologies. The handful of examples I have highlighted are the direct result of the United States government's civil space programme dedicated to active and productive collaboration with private industry and with academia. Additional information about these and many other interesting spin-offs is provided in NASA's publication, Spin-off 2010, a copy of which was made available to each delegation yesterday. Thank you.

**The CHAIRMAN** I thank the distinguished representative of the United States for your statement.

Is there any other delegation wishing to speak under this agenda item at this morning's session? I see none.

We will therefore continue and hopefully conclude our consideration of agenda item 9, spin-off benefits of space technology: review of current status, this afternoon.

#### **Space and water** (agenda item 11)

Distinguished delegates I would now like to continue our consideration of agenda item 11, space and water.

Is there any delegation wishing to speak on this agenda item?

The distinguished representative of Austria has the floor.

**Mr. W. LICHEM** (Austria) Our global agenda, and I would like to put my brief presentation here in the context of what is emerging on our global agenda, and the agenda of this Committee provides ample examples of what has been happening to the global agenda. It has been marked by addressing the growing awareness of substantive, sectoral and also disciplinary interdependencies between different agenda areas, international issues and different governmental responsibilities.

The issues related to space and water are a good example for this new conceptual, enhanced policy challenges marked by breadth and interrelatedness. A key element of this development of our agenda is that interdependencies seem constantly to be broadening. Space and climate change, climate change and human security, societal development and urbanization, space and water, and so on.

Austria, as a landlocked country, would like to draw attention to the fact that the classical surface and groundwater interdependencies of water resources systems are not ending when flowing to the sea. The coastal and marine ecosystems are directly affected by water management, by land use, by agricultural and industrial development, by urbanization, by climate change and so on. Similar to the negotiation on agreements regarding internationally shared water resources, the international negotiating and norm setting process for coastal and marine ecosystems is marked by the challenges of an inherent imbalance of direct reciprocity. Upstream versus downstream is still a key issue in water management, up current versus down current is to be addressed in ecosystem management. There the issues are even more complex.

Of the world's 64 coastal and marine ecosystems, most are today facing profound challenges to their biological systems, to the survival of marine cultures with regard to industrial and municipal pollution, contamination by ballast water, and the destruction of upstream spawning areas are on the agenda. More than 1,000 oil spills every year, rising incidences of piracy and the illegal intrusion of foreign fishing boats which tend to destroy the livelihood of local fishermen, all of these issues are to be addressed, sometimes by countries who are not able to effectively control their exclusive economic zone. How, now and who, is to respond? How do the countries create the institutional capacities for effective ecosystem management?

Ecosystem management, like water management, is inherently fractal requiring shared objectives and a certain coordination of a plurality of different governmental, intergovernmental and non-governmental responsibilities and action. Fractal management is marked by two key elements, the shared objectives of what is to be done and the shared information and data and here we arrive at space.

As we note from international water resources management, space technology can today provide most of the data required for interjurisdictional natural resources management and in this regard provide one

of the two key elements for modern fractal resources management, the information base.

Dr. Abiodun has drawn the international community's attention to the important contribution of space to marine and coastal ecosystem management already, almost a quarter of a century ago. His argumentation has become ever more pertinent. There have already been established very impressive programmes on this issue such as, for instance, by the US National Oceanic and Atmospheric Administration and by certain institutions in all regions, in Africa, in Latin America, in Asia, and also in Europe, yet the large majority of the world's ecosystems do not yet enjoy systematic support and the application of space-based data in their management of the protection and sustainable use of these natural resource system.

Austria believes that, within the broader agenda spectrum of space and water, COPUOS may consider to also look at and address the rising significance of the use of space-based information for the sustainable use and protection of marine and coastal ecosystems. This is because of the physical interdependencies with water management very much related to our current agenda. Any conclusions which can be articulated by COPUOS in this regard will be, as we all know, of value at local and regional levels prompting a response to the key institutional challenge of the application of space technology. How do we build the interinstitutional linkage between space on the one hand and the user sector on the other?

In this context Austria would like to suggest that COPUOS considers as a first step a shared encounter between these two communities of international and national public responsibility. Space and ecosystem management could be the subject for informal deliberations, within the framework of the Committee, leading to the articulation of a positive impact of cooperation between space technology and those governmental, intergovernmental and non-governmental institutions responsible for the protection and sustainable use of marine and coastal ecosystems.

I would like to express our thanks for the participation yesterday in an informal deliberation on what to do with this agenda item and the support that was articulated by all those who participated in this round table. I would like to invite the Committee to please also articulate now comments and maybe support to the initiative to include space and ecosystem management in our deliberation of the agenda item space and water. Thank you.

**The CHAIRMAN** I thank Ambassador Lichem for the very important problem touched during your statement.

Are there any delegations wishing to comment on the statement of Ambassador Lichem.

The distinguished representative of Poland and then Nigeria.

**Mr. P. WOLANSKI** (Poland) Mr. Chairman, distinguished delegates. I participated yesterday in this informal discussion and I can assure you that Poland very strongly supports the Austrian initiative of putting into consideration space and ecosystem management in the framework of space and water. Thank you.

**The CHAIRMAN** Thank you distinguished representative of Poland.

**Mr. A. ABIODUN** (Nigeria) Thank you very much Mr. Chairman. The response of Nigeria would be in terms of a technical presentation so I am going to ask Conference Services to please do me a favour of projecting what I gave them.

[Technical presentation]

**The CHAIRMAN** Thank you distinguished representative of Nigeria, we consider it as a very substantial comment to the proposal made by distinguished Ambassador Lichem of Austria.

Is there any other delegations wishing to comment on the proposal made by the distinguished Ambassador Walter Lichem of Austria?

Or is there any other delegation wishing to speak on this agenda item, space and water at this morning's meeting? I see none.

The second Vice-Chairman wants to add a few words.

**Mr. R. GONZÁLEZ ANINAT** (Second Vice-Chairman) (*interpretation from Spanish*) Thank you very much Mr. Chairman. It was a privilege yesterday to chair our informal consultation to discuss this highly relevant and topical subject. We provided a very powerful impetus to the discussion and Dr. Abiodun has provided a further very powerful impetus both theoretical and practical and this is of course very important. I presided over the informal consultations in a bureaucratic capacity but also very involved in the substantive work of this Committee on this and future

issues related to it. This is a major contribution to our work.

I also wanted to highlight the fact that this is part of the global agenda which involves the substantive interrelationship between issues, between agenda items, it is up to us to connect the dots, to draw the necessary connections and make it into a logical whole. To make sure that developing countries in particular have access to strategic information in areas that are so crucial to their development such as, the rational management of water resources, ways to prepare for and overcome challenges but also to recognize opportunities. Issues such as sustainable development, the need to have a better vision of what common and shared responsibility involves. Our joint responsibility for the future of humankind, the scientific and technological benefits that can be derived from humankind's efforts in outer space particularly for managing natural disasters, for addressing crises, for promoting development.

I also wanted to refer to the fact that sometime ago the UN General Assembly adopted the resolution underlining the importance of interregional cooperation and we have here before us an historic opportunity to start such interregional cooperation between continents. The Space Conference of the Americas, the work carried out by the Intergovernmental Group of Experts and the presentation made yesterday by Ambassador Arévalo on space policies of the United Nations. All of these are elements that should be taken into account in our work to create an institutional and substantive structure for this work. Once again, thank you to my friend Dr. Abiodun for his generous and wonderful presentation. Thank you very much.

**The CHAIRMAN** I thank you distinguished Ambassador Raimundo González Aninat.

The distinguished representative of the International Astronautical Federation, Ambassador Ciro Arévalo Yepes.

**Mr. C. ARÉVALO YEPES** (International Astronautical Federation) (*interpretation from Spanish*) Thank you Mr. Chairman. I am going to be brief. I had the honour to participate in the first working group presided over by the Ambassador of Austria on this important and sensitive subject, monitoring ecosystems and coastal systems. It is very interesting to see that countries have a great sensitivity to the relationship between the ocean and outer space. Representatives of the African continent, such as Mr. Abiodun, have pointed to these sensitive relationships as well as our Vice-President Ambassador Raimundo González

Aninat. This is of vital importance to Latin America as well.

I just wanted to support those who spoke before me, the President of COPUOS statement, the presentation on the United Nations Space Policy, it encapsulates very well indeed the existing opportunities for interregional cooperation. Thank you very much.

**The CHAIRMAN** I thank the distinguished representative of the International Astronautical Federation.

Is there any other delegation wishing to speak on this agenda item? I see none.

We will therefore continue and hopefully conclude our consideration of agenda item 11, space and water, this afternoon.

#### **Space and climate change** (agenda item 12)

Distinguished delegates, I would now like to continue our consideration of agenda item 12, space and climate change.

The first speaker on my list is the distinguished representative of Indonesia.

**Mr. C. SUPROJO** (Indonesia) Climate change has been a global phenomenon with global impact. All countries regardless of their development stage and capacities are affected by climate change in an increased magnitude in terms of human and property loss therefore its mitigation needs a global response and action.

As a country situated on the Pacific Ring of Fire, Indonesia is prone to natural disasters including climate-related disasters. To deal with this situation natural disaster management has been put as a high priority in our national policy. At the national level, we have established a special agency responsible for disaster management while at the regional level, Indonesia together with other ASEAN member countries have established the ASEAN Committee on Disaster Management (ACDM) responsible for coordinating and implementing regional activities related to disaster management. However, our efforts are still far from sufficient and Indonesia therefore believes that common effort will be able to reduce the severe impact of climate change.

In particular, Indonesia would like to reiterate its support for the use of space technology for climate change mitigation and disaster management in general. Therefore, the use of this technology should be extended and disseminated to all countries especially those of Small Island Developing Countries (SIDS) and developing countries who have limited resources to acquire this technology. Thank you

**The CHAIRMAN** I thank the distinguished representative of Indonesia for his statement.

Is there any other delegation wishing to speak on this agenda item at this morning's session? I see none.

We will therefore continue and hopefully conclude our consideration of agenda item 12, space and climate change, this afternoon.

Distinguished delegates I would now like to continue our consideration of agenda item 13, use of space technology in the United Nations system. Before opening the floor for statements, I would like to invite the Director of the Office for Outer Space Affairs to deliver the report of the thirty-first session of the Interagency Meeting on behalf of the chair of the Interagency Meeting, the United Nations High Commissioner for Refugees.

#### **Report on the outcome of the thirty-first session of the United Nations Interagency Meeting on Outer Space Activities**

**Ms. M. OTHMAN** (Director, OOSA) Mr. Chairman, distinguished delegates. It is a pleasure for me to report on the outcome of the thirty-first session of the United Nations Interagency Meeting on Outer Space Activities. The session, held in Geneva from 16-18 March 2011, was organized by the Office for Outer Space Affairs, hosted and chaired by UNHCR, and attended by representatives of 10 United Nations entities. The session was scheduled back to back with the eleventh meeting of the United Nations Geographical Information Working Group (UNGIWG) with the objective of increasing the participation in the meeting, raising the awareness of space-related activities carried out by relevant United Nations entities and enhancing the effectiveness of the meeting as a mechanism for interagency coordination and cooperation in this area.

I will now briefly report on the meeting highlights. The thirty-first session of the Interagency Meeting focused on the use of space technology to address climate change issues. In this connection, the

meeting reviewed and endorsed a special report on space and climate change prepared under the leadership of WMO in cooperation with the Office for Outer Space Affairs and with contributions of other United Nations entities. The special report and the report on the work of the Interagency Meeting as contained in A/AC.105/991 and A/AC.105/992 respectively and now before the Committee.

The joint session of the Interagency Meeting and UNGIWG, held on 16 March 2011, resulted in the establishment of a special task force with the objective of providing substantive contribution to the United Nations Conference on Sustainable Development to be held in Rio de Janeiro, Brazil, in 2012, that reflects the views of a wider group of United Nations entities on the increasing role that use of space-derived geospatial data has in achieving sustainable development. The work of the task group will complement the contribution the Committee is making to the Rio+20 conference.

The open informal session on space and climate change was held on 18 March to promote a direct dialogue between member States and UN entities on important space-related developments in the United Nations system. Presentations were made by six UN agencies: UNHCR on climate change and forced migration; UNFCCC Secretariat on its developments of relevance to global climate observations, including from space; WMO on monitoring climate from space; ITU on its scientific services related to Earth observation; UNESCO on its activities in response to climate change; and, the United Nations Economic Commission for Africa on cooperative geospatial information management process for the development of spatial data infrastructure in Africa.

Mr. Chairman, we noted that only four member States were present to use this valuable opportunity to listen to six United Nations entities, to exchange ideas on the implementation of space-related activities within the United Nations family. I would therefore like to request member States of COPUOS to encourage the participation of their representatives in these informal sessions.

Chairman, distinguished delegates. I would like to conclude my statement by reminding delegations that the presentations made at the meeting and the open informal session as well as reports and information on the current space-related activities of United Nations entities are available on the website dedicated to the coordination of outer space activities within the United Nations system. Thank you Mr. Chairman.

**The CHAIRMAN** Thank you Ms. Othman for that informative statement.

**Use of space technology in the United Nations system** (agenda item 13)

I now open the floor for statements. The first speaker on my list is the distinguished representative of Chile.

**Mr. C. ORTIZ** (Chile) (*interpretation from Spanish*) Mr. Chairman, distinguished delegates. I would like to inform delegations as to the development of a multilingual satellite platform using three languages constructed by Chile and designed to promote education regarding space science and technology. Chile because of its high altitude is a unique country, also a multilingual and multicultural country, involving Spanish and many indigenous languages, 1.5 million of its population belong to indigenous peoples and the cultural and linguistic importance of promoting this diversity is also supported by our legislation which values and recognizes cultural diversity and multilingualism.

The installation of the educational satellite platform in languages, Mapudungun, Aymará and Rapa Nui, is dedicated to education in the functional and anatomical features of the human body for children and teenagers in bilingual zones throughout the country, in primary and secondary schools, emphasizing the importance of the indigenous languages as a basis for a policy of health, active prevention of infectious diseases transmitted by bacteria and parasites, metabolic disorders, arterial pressure and various addictions. The programme strives to stimulate individual and community based prevention activities for disease prevention with the support of this educational satellite platform.

This project met with the approval of UNESCO and the sixth Space Conference of the Americas. Thank you very much Mr. Chairman.

**The CHAIRMAN** I thank the distinguished representative of the Chile for your statement.

Is there any other delegation wishing to speak under this agenda item at this morning's meeting?

Distinguished representative of Switzerland you have the floor.

**Ms. N. ARCHINARD** (Switzerland) (*interpretation from French*) Thank you Mr. Chairman.

The Swiss delegation would like to thank the Director of OOSA for her report at the thirty-first session of the Interagency Meeting on Outer Space Activities held in March in Geneva. We are also thankful for the delegations attending, this was a session open to member States I would like to highlight the interest shown in that session and the fact that this open-ended session provides member States with an opportunity to become better informed regarding space activities and opportunities they offer throughout the UN system. This is a way to share views and here in COPUOS we need to have that access because a number of UN agencies are pursuing related activities and the agencies who come here and report to us here do not cover the entire field in terms of space technology, its various uses. An open session, like the one I am referring to in Geneva, is an excellent additional opportunity for member States to broaden their horizons as to what is going on throughout the UN system, activities pursued by various agencies. Again we thank the Office, for the report on that session and for the verbal presentation made by the Director. Thank you very much.

**The CHAIRMAN** I thank the distinguished representative of Switzerland for your intervention.

Is there any other delegation wishing to speak on this agenda item at this morning's meeting? I see none.

We will therefore continue and hopefully conclude our consideration of agenda item 13, use of space technology in the United Nations system, this afternoon.

I would now like to give the floor to the Secretariat to provide us with some information related to agenda 15, organizational matters.

**Other matters** (agenda item 15)

**Mr. N. HEDMAN** (Secretariat) Just before we commence with the technical presentations, the Secretariat would like to the attention of delegations to the annotated provisional agenda for this session. On page 8, where we have listed under the item 15, other matters, specific subtopic of organizational matters. Delegations will recall that yesterday we took up, considered and adopted, the proposal contained in C.2/L.282 related to the discontinuing of unedited transcripts.

Delegations who have attended previous sessions this year of the Scientific and Technical Subcommittee and Legal Subcommittee are aware of

all the discussions that have been held during these subcommittee sessions on the organization of work, method of work, ways and means of rationalizing and optimizing the work of the subcommittees. In the annotated provisional agenda on page 8, that I am referring to, there are references to the appropriate reports of the Scientific and Technical Subcommittee and the Legal Subcommittee.

I would like to draw the attention of delegations also to last year's report of the Committee in A/65/20, more specifically to paragraph 321, where there is a list of issues, measures, topics, that were raised during last year's session of the Committee for further reflection and discussion. At last year's session of the Committee and likewise at the previous meetings of the subcommittees this year, there were recommendations that open-ended informal consultations should be held among interested member States in the margins of this session of the Committee to further discuss those organizational matters, method of work of the Committee and its subcommittees. The Secretariat has arranged for a room, more specifically room M7, that could be used tomorrow morning, Thursday, 9-10 a.m. for such informal consultations and, Mr. Chairman through you, the Secretariat would like to know if there is any member State that is willing to take on the moderating function for such informal consultations because they are to be held among interested member States in the margins of the sessions.

So, Mr. Chairman, it would be good for the Secretariat to know if there is a wish among delegations to hold such informal consultations and also if there is a member States that would like to lead those informal consultations. I repeat, tomorrow morning, Thursday, 9-10 a.m. in M7. but we would like to know before we announce it on the monitors. Thank you.

**The CHAIRMAN** Thank you Mr. Hedman. Is there a wish from any delegation to take part in the informal consultations on agenda item 15, organizational matters? Just to know if we organize the consultations and if there is any delegation wishing to lead these consultations.

**Mr. L. SCOTTI** (France) (*interpretation from French*) My delegation would like to participate in these consultations but, because of the volume of work and the distribution of the agenda, we are running various meetings at the same time so we do not want to vouch in advance for the way we are going to be coordinating this. Possibly other States could give us a

helping hand here. We are certainly interested in having these consultations.

**The CHAIRMAN** Switzerland, you want to have the floor?

Distinguished representative of Italy you have the floor.

**Ms. G. ARRIGO** (Italy) I would like to thank the Secretariat for organizing this meeting, we are interested to take part in the meeting and we wish that the Chairman could kindly help us in chairing this informal meeting tomorrow morning. Thank you.

**The CHAIRMAN** I thank the distinguished representative of Italy.

**Ms. A. FROEHLICH** (Germany) Germany will also participate at this meeting.

**The CHAIRMAN** OK. Thank you very much. Are there any other comments?

**Mr. C. ORTIZ** (Chile) Chile will also participate.

**The CHAIRMAN** We are waiting tomorrow morning for any delegations that wish to take part in informal consultations on agenda item 15, organizational matters.

Distinguished delegates I would now like to proceed with the technical presentations. Presenters are kindly reminded that technical presentations should be limited to 20 minutes in length.

US you have the floor.

**Mr. J. HIGGINS** (United States of America) I apologize for taking the floor right now but I wanted to make a general announcement. You will recall that at the last session of the Scientific and Technical Subcommittee it was suggested that we hold consultations during this session on possible commemorative events dealing with launch of Landsat-1 and its fortieth anniversary.

Through you Mr. Chairman, I would like to ask the Secretariat if it would be possible to have a room available tomorrow during lunch break, either at 1 or 2 p.m., where we could discuss, among interested member States, what we might do, either during the next session of the Scientific and Technical Subcommittee or the next session of COPUOS. I know

this is rather free-flowing and a little open-ended but we did want to have an opportunity to at least discuss some ideas that member States might undertake. We would also request that someone from the Secretariat join us if possible. Thank you.

**The CHAIRMAN** Thank you distinguished representative of the United States. I give the floor to the Secretariat.

**Mr. N. HEDMAN** (Secretariat) Thank you Mr. Chairman. By all means, the Secretariat is ready to provide room M7 for such consultations and M7 can then be used from 1-3 p.m. so it is up to the delegation of the United States whether to start at 1 or 2 but that we can sort out after and it would be put up on the monitors. So there will be informal consultations on the Landsat fortieth anniversary, as the US delegate pointed out, in M7 tomorrow and the Secretariat will attend through its Space Applications Section.

**The CHAIRMAN** Thank you Mr. Hedman.

Distinguished representative of Brazil has the floor.

**Mr. F. FLORES PINTO** (Brazil) (*interpretation from Spanish*) I just wanted to pointed out that we wanted to participate in these informal consultations tomorrow at 9 a.m. We are going to be there. Thank you.

**The CHAIRMAN** Thank you distinguished representative of Brazil. Are there any other comments? I see none.

We will proceed now with the technical presentations.

The first presentation on my list is by Mr. Roberto Battiston of Italy entitled 'Italian contribution to Alpha Magnetic Spectrometer (AMS-2)'.

[Technical presentation]

**The CHAIRMAN** Thank you Mr. Battiston for your presentation. Indeed the problems connected with the fundamental formation of the universe with dark matter and anti-matter are very actual and questions a lot of things connected with astrophysics.

Are there any questions for the presenter?

**Mr. F. FLORES PINTO** (Brazil) (*interpretation from Spanish*) I wanted to put a

question on the possible links between this project which seems extremely important to me and the work done by the Béranger Laboratory in Argentina which is specialized in cosmic rays. Is there some sort of cooperation taking place between what is happening within this programme and what the Argentine facility is working on the basis of?

**The CHAIRMAN** Mr. Battiston you have the floor.

**Mr. R. BATTISTON** (Italy) Thank you for this question. The Béranger Observatory in Argentina is a very large facility, about 3,000 square kilometre, designed specifically to measure ultra high energy cosmic rays which means cosmic rays are so infrequent, typically 1 per square kilometre per year. This is the far extreme of the cosmic rays spectrum while we are working in the lower energy side. Obviously we could not measure these extremely high energy because the size of the AMS detector is much smaller. However, in this field of astro particle physics the so-called 'multi-messenger approach' putting together information of different type of particles or particles of different energies is now the rule of the game and all the international collaboration operating large infrastructure on the ground and in space are collaborating together to what is sharing of data and understanding the \_\_\_\_ (?) and we are looking into collaborating also with the Béranger Observatory for programmes which will be of physical interest.

**The CHAIRMAN** Thank you Mr. Battiston. Are there any other questions?

**Ms. N. ARCHINARD** (Switzerland) Thank you to the presenter for this interesting presentation. As it was mentioned, the AMS-2 is really a product of international collaboration and, in this regard, the Swiss delegation wanted to highlight the role of the University of Geneva in the development of this instrument. The University of Geneva contributed to the building of the cosmic ray sensors and also of the assembly of the whole instrument. We wanted also to bring to the attention of other delegations that on the Swiss stand, which is present in the space exhibit in the Rotunda, one prototype of such a cosmic ray sensor is exposed and the prototype exposed was actually flown on the STS-91 mission which was the last Space Shuttle mission to the Mir Space Station in 1998. So you would see on the Swiss stand a prototype of a unit of this cosmic ray sensor. It is interesting to note that AMS-2, which is now docked to the Space Station, contains a 192 such units.

**The CHAIRMAN** Thank you very much for your comments, distinguished representative of Switzerland.

Distinguished representative of Oman has the floor.

**Mr. S. AL-SHIDHANI** (Oman) Many thanks Mr. Chairman and also to the presenter for this very nice presentation of the latest discovery. My question, have you discovered some particle or cosmic ray coming from the Earth atmosphere where there is some thunderstorms going on at the same time? Also, is there a big difference if you have detected some rays or particles coming from the Earth compared to outer space?

**The CHAIRMAN** Mr. Battiston you have the floor.

**Mr. R. BATTISTON** (Italy) Thank you for this question. We are collecting data at all energies including the low energies which are typical for those phenomena related to thunderstorms or \_\_\_\_\_ (?) in the Earth's atmosphere, however having been operating for only 15 or 20 days so far, we are now focusing to collect data and we will do this kind of analysis later on. What I presented today was just a few examples of the most extreme events that we found, it will be quite some time to fully analyse this gigantic set of data we are receiving for the coming years.

**The CHAIRMAN** Thank you Mr. Battiston. Are there any other questions to the presenter? I see none.

The second presentation on my list is by Mr. Sergey Cherkas of the Russian Federation entitled 'About the IGMASS project promotion in the year of half-century anniversary of the first manned flight'.

[Technical presentation]

**The CHAIRMAN** Thank you Mr. Cherkas for your presentation.

Are there any questions for the presenter?

**Mr. Y. ZHAO** (China) First of all China would like to thank the presenter, Dr. Cherkas, for his presentation and IGMASS project. In particular, I do appreciate Dr. Cherkas for sharing with us the cooperation between the IGMASS project as well as China during this year's visit to Beijing.

I have question concerning this presentation. In this presentation Dr. Cherkas mentioned that there will be a potential cooperation between the IGMASS project as well as with UNSPIDER since they have a close link agenda. I wonder whether Dr. Cherkas can share with us whether they have any thinking about how to have effective cooperation between IGMASS project as well as UNSPIDER and the Charter to deliver synergy in promoting early warning of disaster as well as the management of disaster. Thank you.

**The CHAIRMAN** Thank you distinguished representative of China.

**Mr. S. CHERKAS** (Russian Federation) (*interpretation from Russian*) I would like to thank my Chinese colleague for this very interesting question. Indeed, we are thinking about this. We consider UNSPIDER to be a leading organization in the area of disaster management. We have had contacts with UNSPIDER throughout the past two years and it is our view that we, as developers of IGMASS, can gain in terms of political support from UNSPIDER and we are certainly counting on that but also in future we might provide UNSPIDER with important input and set a new task before UNSPIDER, not only reacting to natural disasters after they happen but also preventing them. That is the way we see the strategy for our cooperation.

**The CHAIRMAN** Thank you Dr. Cherkas. Are there any other questions for the presenter? I see none.

We start with the third presentation by Mr. Arshad Siraj of Pakistan entitled 'Monitoring of 2010 floods in Pakistan using space-based assets'.

[Technical presentation]

**The CHAIRMAN** Thank you Mr. Siraj for your presentation.

Is there any delegate who has questions for the presenter? I see none.

Distinguished delegates I would now like to inform you of our schedule of work for this afternoon. We will reconvene promptly at 3 p.m. At that time we will continue and hopefully conclude our consideration of agenda item 7, report of the Scientific and Technical Subcommittee on its forty-eighth session. We will continue and hopefully conclude our consideration of agenda item 9, spin-off benefits of space technology: review of current status; item 11, space and water;

item 12, space and climate change and, item 13 use of space technology in the United Nations system.

Following the plenary there will be three technical presentations. The first by a representative of Australia, the second by a representative of the International Academy of Astronautics and the third, by a representative of the Space Generation Advisory Council.

I would like to remind delegates that the Action Team 14 on near-Earth objects will hold its second meeting in the meeting room M7 from 2.30-5.30 p.m.

Are there any questions or comments on this proposed schedule? I see none.

This meeting is adjourned until 3 p.m.

*The meeting closed at 12.21 p.m.*