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Committee on the Peaceful Uses of Outer Space

Unedited transcript

621st Meeting
Tuesday, 15 June 2010, 3 p.m.
Vienna

Chairman: Mr. Dumitru Dorin Prunariu (Romania)

The meeting was called to order at 3.22 p.m.

The CHAIRMAN: Good afternoon distinguished delegates. Please take your seats. We have to begin otherwise we will stay too long after 6.00 p.m.

Good afternoon once again, I now declare open the 621st meeting of the Committee on the Peaceful Uses of Outer Space.

This afternoon we will continue our consideration of agenda item 11, Space and Society. We will begin our consideration of agenda item 12, Space and Water, agenda item 13, Space and Climate Change, agenda item 14, Use of Space Technology in the United Nations system.

Time permitting, we will also begin our consideration of agenda item 16, Other Matters, and consideration organizational matters only.

There will be four technical presentations this afternoon. The first one by a representative of the United States NOAA entitled "50 Years of Operational Environmental Satellites: the United States Experience". The second one by a representative of the Moscow State Engineering Physical Institute of the Russian Federation entitled "Gamma Ray Astronomy on the Way to Uncover the Mystery of Dark Matter of the Universe". The third one by Chile on "Space in Chile: Past, Present, Future". And the fourth one by UNESCO on "Achievements of the International Year of Astronomy: Its Legacy and Way Forward". We will then have a video and a presentation by Japan entitled "Re-entry of HAYABUS on 13 June 2010".

I would like to inform all delegates that the Austrian Heurigen event will take place tonight at 7.30 p.m. Delegates have received invitations in their pigeonholes.

I would also like to remind delegations to provide the Secretariat with possible corrections to the provisional list of participants which was distributed as Conference Room Paper No. 2 so that the Secretariat can finalize the list of participants. Any corrections should be submitted by the end of this meeting.

Space and society (agenda item 11)

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

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

Ms. A. ALIFADIORA (Nigeria): Thank you Mr. Chairman. Mr. Chairman, thank you for giving me the opportunity to contribute to this agenda item. The United Nations Office for Outer Space Affairs-affiliated African Regional Centre for Space Science and Technology Knowledge Education in English Language for Nigeria, continues to make progress in the implementation of the United Nations mandate of building indigenous capacity in space science and technology applications.

The Centre successful completed the 2009 Post-Graduate Diploma Programme with the award of PG Certificate to 38 participants from eight countries in English-speaking Africa.

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The Centre, in collaboration with the Regional Centre for Training in Aerospace Service for Nigeria, also organized a one-week training Workshop on Remote Sensing GIS Applications for 20 professionals from different fields and agencies.

Some staff of the Centre participated at the Fourth ICG Meeting in St. Petersburg, Russia, and the GNSS Training Workshop held in Trieste, Italy, and Rabat, Morocco, in April and September 2009 respectively.

The Centre will host a one-month Regional Training Workshop on GNSS in October 2010 in collaboration with the Office for Outer Space Affairs and the National Space Research and Development Agency, NASDA, of Nigeria.

Among the contents of the Workshop's training programmes on diverse areas of GNSS applications including its use in establishing national and regional geodetic reference systems in Africa, and secondly, the future development, interoperability and compatibility of the existing systems such as GPS, GLONASS, Galileo and KOMPASS.

The Training Workshop will benefit from the experiences gained from the meetings and training attended by the staff of the Centre as similar workshops held by other Resource Centres in India, Morocco and Mexico.

Mr. Chairman, the Regional Centre in Nigeria is also participating in a humanitarian satellite constellation programme which comprises the designing and building of low-cost pico(?)-satellites including the relevant payloads in collaboration with NASDA, a number of universities in Nigeria, the Regional Centres in Morocco and Mexico and other international partners.

The HOPESAT(?) Programme will be used to promote scientific research with emphasis on global climate change observation and disaster management. In addition, ACSDE(?) is partnering with the Department of Geo-Information and Earth Observation, ITC, University of Twente, the Netherlands, for capacity-building in and the deployment of Geo-Net Cast Facility Applications at the Centre's premises at Ile-Ife, Nigeria.

The project, when completed, would provide access to a network of neo-return satellite data which can be used for training and research in Nigeria. Its applications will use its vital benefits in many areas such as food security, human health, environmental and disaster management and economic growth.

ACSDE(?) remains committed to the implementation of the space education outreach programmes to stimulate the interest of students at all levels of education in space science and technology and also promote public awareness of its benefit to society.

The Centre organized schools and public outreach activities in collaboration with the National Space Research Development Agency to celebrate the 2009 World Space Week in Nigeria. ACSDE(?) organized a seminar on the themes development of pragmatic curricula for space education in primary and second schools in Nigeria, and merits and demerits of technology transfer, vis-à-vis, space technology development in Nigeria.

Space education outreach workshops were also carried out for primary and secondary schools in the southern and northern parts of the country. In addition, _____(?) visits(?) were taped(?) to some permanent members of the public in order to sensitize them on the benefits of space exploration to the society.

To reach out to the general public across various multi-ethnic groups in Nigeria, the Centre has set up a Committee to develop space education information materials in local languages which will be distributed in forms of flyers, hand bills and posters to target groups.

Similar information are also disseminated through the media.

Mr. Chairman, efforts are being made to collaborate with Ministries of Education and ICT in Uganda to organize similar space outreach workshops for primary and secondary schools in Uganda, as part of the Centre's plan to reach out to other member States.

Thank you Mr. Chairman.

The CHAIRMAN: I thank the distinguished representative of Nigeria for her statement.

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

Mr. M. D. SUBARI (Malaysia): Thank you Mr. Chairman. Mr. Chairman, distinguished delegates, ladies and gentlemen, I am pleased to report in this

meeting progresses in space-related education activities of my country that were carried out since the last United Nations COPUOS in June last year.

As I have stressed in my early intervention in agenda item 5, educating the nation of the strategic importance of space has been and will continue to become our main agenda. The National Planetarium at Kuala Lumpur continues to champion this effort. A new interactive and immersive full dome digital printer and system was recently installed which enhanced the capability to screen a wider selection of space-related movies in a more dynamic and immersive presentation.

We are also upgrading the exhibition in the Planetarium on space exploration subjects as well as astronomy and astrophysics. The exhibits are more interact in nature to stimulate high interest to visitors.

Malaysia actively participated in the global celebration of the International Year of Astronomy in 2009. Throughout the year, many activities, mainly on space education and public awareness, were organized involving all walks of life. This includes a short photographic competition and exhibition by amateur and professional astronomers, the compilations of native folklore and astronomy and the Universe, the publication of a book on the _____(?) Tourist and commemorative gold-plated coins.

Other global celebrations such as World Space Week, EURIS(?)-9, and the Earth Hour have also been implemented.

As an important effort to continue our education and awareness activities on space science, a special condition was established in August 2099. The ANGKASA-1 Malaysia on mission a small condition will be the main agency under the Ministry of Science Technology and Innovation to carry out these activities through collaborations with other government agencies as well as private sectors.

One of the programmes that the ANGKASA-1 challenge programme implemented last month in Saba(?) has attracted more than 2,000 youth. This programme which simulates the selection process of an astronaut has significantly increased interest among the youth in space exploration. We will have several more implementation of this programme this year in the other zones of the country. We hope to involve more than 10,000 youth in this year's programme.

The National Space Challenge targeting the primary school children was successfully organized last year. More than 100,000 schoolchildren were involved in various stages of implementation. The final stage was carried out in the form of a whole week's Space Camp involving 25 schools and about 100 schoolchildren in various modules of education including hands-on teamwork, IQ and creative art.

The Water Rocket Competition targeted for the secondary school children was also successfully carried out.

As the National Space Challenge, the Water Rocket Competition was organized jointly with the Ministry of Education involving almost all this _____(?) in the countries. About 15 schools were involved in the final stage of the programme at Kuala Lumpur.

As for the university students, since the past three years, Malaysia has participated in the Parabolic Flight Programme organized by JAXA in sending scientific experiments developed by university students. Several teams of local university students has participated in this Programme which exposes rich opportunities to microgravity sciences. They are also involved in other collaborations with JAXA and education awareness programmes through the Asia-Pacific Regional Space Agency Forum, APRSAF.

Mr. Chairman, my delegation would like to reiterate our standing in viewing the importance of education, the importance of educating our nation in science technology and innovation, especially in space science technology and utilization. Only with preparing the right human resources, we can make progress in this sector.

I thank you Mr. Chairman.

The CHAIRMAN: I thank the distinguished representative of Malaysia for his statement.

The next speaker on my list is the distinguished representative of UNESCO, Ms. Yolanda Berenguer.

Ms. Y. BERENGUER (United Nations Educational, Scientific and Cultural Organization): Thank you Mr. Chairman. I would like to provide an update on the activities of UNESCO to the member States of COPUOS but before doing so, I would just like to remind them that the Space Education Programme of UNESCO was launched and developed based on the recommendations of two world conferences. The first was the World Conference on Science, organized by UNESCO and ICSU, and the second was the UNISPACE III.

The objectives of the Programme are to enhance the teaching and learning of space-related subjects and disciplines in schools and universities and their integration into curricula, providing educators and teachers with the appropriate materials that are appropriate for their needs and to educate the general public and make them aware of the benefits of space science and technology.

In 2009 and in early 2010, Space Education Workshops were organized in Ecuador, Peru, Philippines and Syria. These Workshops were carried out in cooperation with the Ministry of Education through the National Commissions of UNESCO, and with the specific countries space agencies.

These Workshops were held in several cities in the country to reach a maximum number of students and teachers. The Workshops had lecturers on different space topics such as human space exploration, the principles of rocket science, basic astronomy, remote sensing and there were hands-on activities and distribution of educational materials. And I would like to take this opportunity, this occasion, to thank once more the Japan Space Education Centre and JAXA, as well as the French Space Agency, for providing the materials and expertise for these Workshops.

Mr. Chairman, as you all know, as we all know, 2009 was the International Year of Astronomy. This was declared by the United Nations General Assembly in December 2007 and designated UNESCO as the lead agency, together with the International Astronomical Union.

Through UNESCO intervention, IAU's membership has increased from 64 countries to 148 and this was done through a statement provided by the then UNESCO Director-General and the then President of the IAU encouraging all the member States of UNESCO to promote and simulate interest in astronomy and to support astronomical activities in their countries.

The UNESCO Regional Offices had implemented, supported and carried out activities, together with the single points of contacts of individual countries. In Headquarters, UNESCO organized outreach activities for the delegations and their families in cooperation with the Observatoire de Paris-Meudon, such as 100 hours of astronomy activities, star-gazing, lectures and even a play on the life of Galileo.

We also organized these activities together with the Cité des Sciences et de l'Industrie and with Institut d'Astronomie du Paris.

In capacity-building, UNESCO organized a pilot Teacher Training Programme for teachers in Ecuador and Peru. The module that was introduced was positively evaluated by the participating teachers and this year this will be finalized and introduced to the Ministry of Education.

Galileo's Cups(?) which are high-quality but low-cost telescopes were distributed to developing countries and in particular to countries that participated in the Space Education Workshop such as Colombia, Ecuador, Syria, Philippines, Tanzania, Nigeria and Viet Nam.

As a follow-up of the IYA, UNESCO will continue to support IYA activities specifically in astronomy education which is outlined in the Strategic Plan 2010-2020 of the International Astronomical Union and this Plan will be presented by the Global Coordinator of the IYA during the technical presentations.

UNESCO is also active in regional coordination mechanisms such as the APRSAF, the Asia-Pacific Regional Space Agency Forum, the most recent of which was held early this year in Bangkok, Thailand, hosted by GISTDA. GISTDA also has a very strong education programme. APRSAF has one Working Group called the Space Education Awareness Working Group which promotes space education enhancement at primary and secondary level as well as teacher training and it is in this regard that UNESCO fully cooperates with APRSAF as well as to facilitate interregional cooperation, as already described by the delegate of Japan.

UNESCO also participates in the Space Conference of the Americas and had worked very closely with the Pro Tempore Secretariat of Ecuador in introducing space science and technology in the educational curricula during the revision of the secondary curricula.

UNESCO works with the CS(?) Working Group on Education and is presently preparing, together with NASA and CONAE, an introductory handbook on Earth observations from space focusing on environmental and climate changes affecting Argentina and South America. This handbook will be ready in a month or two and it will be translated from English into Spanish. Eventually we would like to have it translated in other United Nations languages.

This handbook will be distributed to school teachers in Latin America for its first _____(?) region.

Next year, UNESCO will be organizing space education workshops in Costa Rica and in Egypt.

Lastly, Mr. Chairman, UNESCO welcomes the Human Space Flight Technology Programme introduced by the United Nations Office for Outer Space Affairs which involves the participation of non-ISS member countries in researches and experiments in biology material sciences and different kinds of sciences. This will open doors for the participation of students at the under-graduate and graduate level of developing countries.

Thank you Mr. Chairman.

The CHAIRMAN: I thank the distinguished representative of UNESCO for her statement.

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

I see none.

We will continue and hopefully conclude our consideration of agenda item 11, Space and Society, tomorrow morning.

Space and water (agenda item 12)

Distinguished delegates, I would now like to begin our consideration of agenda item 12, Space and Water.

The first speaker on my list is the distinguished representative of China, Ms. Kun Pan.

Ms. K. PAN (China) *(interpretation from Chinese)*: Thank you Mr. Chairman. Mr. Chairman, in a world of today, many countries are confronted with extremely serious water situations such as flood, drought and the shortage of water and the deterioration of the water environment which constitutes a great threat to the sustainable development of the human society. With the constant development of space technologies, the space-derived geo-spatial data are being used more and more extensively in the water sector and play an active role in addressing the water resource problems faced by mankind.

Back in the early 1980s of the last century, China began using satellite remote sensing data in flood surveys. After nearly 30 years of development, space remote sensing technologies have been widely used in China in the monitoring of floods and drought, water resource and environment survey, investigation of soil erosion, sedimentation n estuaries, rivers, lakes and reservoirs and assessment of major project locations and their environmental impact and have achieved visible social and economic benefits.

China has established an operational system of flood remote monitoring and evaluation and has formed a three-dimensional monitoring network consisting of a space-borne synthetic aperture radar, high-altitude airborne SAR and low-altitude helicopters which, combined with the macro and the dynamic monitoring by meteorological satellites, can basically offer a guaranteed monitoring on floods.

In the area of disaster evaluation, the GIS-based basic background database which includes the digital elevation models and data on water body, water projects, land use, social and economic status and traffic, etc., has played an important supporting role in disaster evaluation.

The space remote sensing data have also played a significant role in the dynamic monitoring of floods in 1998, 1999 and 2000 as well as the monitoring of the earthquake formed the lakes in the Tangshan area after the Wenchuan earthquake in 2008.

The shortage of available water resources and the contamination of the water environment, one of the major constraints restricting China's sustainable social and economic development.

China has applied space remote sensing technologies in a survey of water resources and environment which has played an active role in the monitoring and the management of water resources and environment. Using SAR images, China collects data on the status and the dynamic changes of the surface and the water body of rivers, reservoirs, lakes and conducts surveys on snow cover, snow lines and glaciers and carry out quantitative remote measurements of the chemicals contained in a water body with the help of high-perspectoral images. These activities have all produced very good results.

China also uses space remote sensing technologies to carry out drought surveys and demarcation(?) of soil erosion and conducts evaluation and surveys on drought and the soil erosion in China which provide a policy basis for decision-making in the fight against drought and the prevention of soil erosion.

In recent years, China has also conducted a large amount of remote sensing surveys on

sedimentations in estuaries, rivers, lakes and the reservoirs by using space remote sensing data. The Chinese Government departments in charge of water resource management have carried out a quantitative analysis on the dynamic changes that have taken place in the waterways and the estuaries of the Yellow River, Pearl River and Liao River.

Remote sensing technologies have also been widely used in China in the evaluation of major water project locations and the assessment of their environmental impact and they have played an important role in a major water project such as the Three Gorges and the Shaolan(?)-D hydro power stations.

Mr. Chairman, with the event of the information age, remote sensing and GIS technologies are bound to become the indispensable tools and means in addressing most of the water problems today. China is willing to work with all the other countries in applying space remote sensing technologies to water conservancy projects and to make our due contribution to resolving the various water problems facing mankind.

Thank you Mr. Chairman.

The CHAIRMAN: I thank the distinguished representative of China for her statement.

The next speaker on my list is the distinguished representative of Japan, Mr. Yasushi Horikawa.

Mr. Y. HORIKAWA (Japan): Thank you Mr. Chairman. Mr. Chairman, distinguished delegates, on behalf of the Japanese delegation, I am pleased to present Japan's experiences and future plans for space-based water cycle observations and their applications.

During recent years, we have witnessed the damaging effects caused by major water disasters around the world, for example, Typhoon Morakot hit in Taiwan last August, Typhoon Ketsana hit the Philippines last September, heavy rain hit near the Macchu Picchu historical sanctuary in Peru this January, heavy rain and rapid snow melt water fell in Kazakhstan and Tajikistan in the spring and a glacial lake outburst flood was caused by a glacial lake of the Hualcan Glacier in the Andean Cordilleras in Peru last April.

I would like to extend my heartfelt condolences and deepest sympathy to all victims, their families and the affected nations.

In each of the afore-mentioned cases, JAXA made rapid response observations using the Advanced Land Observing Satellite, DAICHI, and provided image information that was useful in understanding the aftermath of the disasters.

In addition, the two Japanese geostationary meteorological satellites, HIMAWARI-6 and -7, as an important component of the Worldwide Geostationary Meteorological Satellite Networks, they enforced the Japanese Meteorological Observation and Disaster Monitoring System.

Japan has made contributions all over the Asia-Pacific region as well as in Japan through 30 years of observation by the HIMAWARI series.

Observation date obtained by HIMAWARI is also being utilized efficiently as a basis for research on climate change including changes in water cycles.

Just recently, research has found that global-scale water cycle changes are directly affecting precipitation, water resource management and contributing to water and sediment disasters on a regional and national scale. Because Japan is located in East Asia, its environment is frequently affected by monsoons. Understanding the global water cycle is, therefore, vital for predicting its future and for ensuring and improving the quality of our daily lives.

Water cycle observations need to be made globally and frequently to its short-term variability. Thankfully, satellite observations provide the single most effective means of making global water cycle observations in this way.

For these reasons, Japan, with JAXA as its lead agency, promotes water cycle observation through satellites with the focus on precipitation. JAXA and NASA are working together to observe global water cycles. Data acquired by the Tropical Rainfall Measuring Mission, TRMM, and by AQUA(?), contribute to the analysis of global water cycle mechanisms and to improvements in the accuracy of weather forecasts.

The Precipitation Radar, developed by Japan, onboard the TRMM, is the first space-borne precipitation radar that enables three-dimensional observation of precipitation. The improved Advanced Microwave Scanning Radiometer, AMSAR-E, for EOS-AQUA(?A), is the most advanced passive microwave radiometer in the world. The data of AMSAR-E also contributes to the ongoing observation

of Arctic sea ice which has been quickly declining in recent years. The coverage data of Arctic sea ice recorded the lowest level in the Earth observation satellite monitoring history during the summer of 2007 and the data recorded in 2008 marks the second lowest.

Observation data is being used not only for research but also for weather forecasting by meteorological and disaster management agencies worldwide. Japan also makes every effort to publish the results of such observations, for example, global rainfall maps are being updated on to JAXA's website in quasi-real time.

Mr. Chairman, based on these experiences, a plan is under way to complete the Global Precipitation Measurement Project which is Japan-United States initiative to establish a constellation of satellites to monitor global water cycles. GPM seeks to forecast weather and monitor water cycle variations and water-related natural disasters. The GPM system actually observes rainfall every three hours, a main satellite in the constellation which is similar to TRMM carries a dual-frequency precipitation radar which is the upgraded precipitation radar of TRMM and carries a microwave radiometer as well.

In addition to this, several small satellites in polar orbit which are also part of the constellation carry microwave radiometers. GPM will expand the observation area from tropical regions to the full Earth and conduct highly accurate and frequent observations. Japan is developing the DPR which is a key sensor of GPM. The data from GPM will contribute to improving the accuracy of weather forecasts including the root prediction of typhoons or hurricanes.

Additionally, Japan has been promoting the Asian Water Cycle Initiative, or AWCI, since 2005. The goal of this initiative is to better understand the mechanisms of variability in the Asian water cycle and to improve its predictability. It will then mitigate water-related disasters and promote the efficient use of water resources. Currently, AWCI is led by Tokyo University and 20 countries in the Asian regions. The United Nations University is also participating in the initiative.

The Ministry of Land, Infrastructure, Transport and Tourism has also been making efforts in worldwide disaster damage reduction. The Global Flood Alert System, GFAS, was developed in light of such effort and has been in operation for flood damage reduction by effectively using satellite-based rainfall data. GFAS will also take account of the GPM enabling the prediction of areas of high flood probabilities based upon rainfall data provided by satellites and dissemination water hazard information to member agencies and users worldwide through the International Flood Network, IFNET.

Also the International Centre for Water Hazards and Risk Management, ICHARM(?), was established under the auspices of UNESCO in March 2006 as the Research Centre of the Public Works Research Institute in Skuba(?), Japan. Since then, ICHARM has been planning and executing various activities based on the three principle pillars of research, training and information networking in cooperation with IFNET and JAXA.

ICHARM has developed and promoted the Integrated Flood Analysis System, IFAS, as one of its research activities. Regarding training, it has provided a one-year Master course on Water-Related Disaster Management since 2007. A total of 18 students earned a Masters Degree during the first two years and currently 12 students are enrolled in the Programme. As for its information networking, it has also been recognized as a member of the key organization network established as a mutual cooperation platform for water issues in the Asia-Pacific Region. ICHARM has continuous enhanced its international presence.

Mr. Chairman, demand for space-based observation and prediction of the water cycle and water resources on a global scale continue. Therefore, it is necessary to promote the development and utilization of space-based observations as an effective tool to respond to the associated demands for information.

Mr. Chairman, it is fair to say that we have come to a point where we must target the operations of global water cycle observation and the use of this data in debut with the forecast, river management and food production systems.

Integrating the outcome of space-based and institute observations achieving high-accuracy and high-frequency global water cycle observations using forecast and hazard information for disaster management and agriculture production planning will bring numerous benefits to all of humankind. Japan in full cooperation with other countries will make every effort to achieve these targets.

Thank you for your attention.

The CHAIRMAN: I thank the distinguished representative of Japan for his statement.

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

Yes, the distinguished representative of Syria.

Mr. O. AMMAR (Syrian Arab Republic) *(interpretation from Arabic)*: Thank you. Mr. Chairman, as you know, our region, our Arab region, really lacks water so the issue of water resources is one that is very urgent in nature for our countries. We have a growing dearth of water and at the same time, increased demand for water. Our water resources are depleted for a variety of reasons including pollution.

Remote detection, remote sensing, as you know, gives us some scientific methods that are highly sophisticated to improve our water management systems and thanks to the Syrian Authority for Remote Detection, we are trying to settle our water-related problem by identifying new deposits or launching studies to ascertain our water resources in our territory but also protecting water resources, the existence we are or become aware.

There are various areas where we have established cooperation with authorities and ministries in this area. However, we have identified one difficulty in terms of access to satellite data. As a developing country, it is difficult for us to get satellite imagery with the required precision and at the proper point in time or else we have to purchase such data and this is every expensive. A lot has been said about international cooperation in the area of outer space but it is quite difficult to get appropriate data for these or other aspects that we have on our agenda. We need a mechanism that will enable our countries to get satellite imagery via the United Nations and this would be of the greatest use for developing countries where there are no advanced technology programmes. It would also make it possible to make proper use of outer space. If such data are not accessible to all, individual States would, of course, all wish to have their own space programme which would make a further contribution to saturation of outer space.

So we truly have to give thought to the problems of those countries that do not have such advanced satellite programmes to access information via the United Nations and thereby engage in research for the benefit of their peoples and avoid debris at the same time.

Thank you.

The CHAIRMAN: I thank the distinguished representative of Syria for his statement.

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

I see none.

We will continue and hopefully conclude our consideration of agenda item 12, Space and Water, tomorrow morning.

Space and climate change (agenda item 13)

I would like now to begin our consideration of agenda item 13, Space and Climate Change.

I now turn to the list of speakers. The first speaker on my list is the distinguished representative of, there are two actually, Germany and France, sharing a common declaration.

Please Germany and France, you have the floor.

Ms. A. FROEHLICH (Germany) *(interpretation from French)*: Mr. Chairman, distinguished delegates, last 4 February was the date that a decision was taken to conduct a French-German outer space mission to study methane. This was an initiative to pool their capacities in terms of satellite Earth observation, the knowledge about climate studies. This French-German detection and monitoring of methane mission is a significant contribution for all countries concerned by climate change. The importance of methane has been mentioned in the forty-first report of the International Group of Experts on Climate Change and this report indicates that there has been a recent increase of methane in the atmosphere which is not really completely understood. This is especially important since methane is the second most important greenhouse gas, 25 times higher than CO^2 and there is a concentration of methane which has doubled since the beginning of the industrial where CO^2 has risen 30 per cent. Our knowledge of human origin methane emissions is weak in comparison to what we know about CO^2 and methane emissions have increased over time especially because of the methane reserves which are trapped under the Arctic surface which is called permafrost and the increase of temperatures which accelerate ice melt results in having our researchers worried about the consequences of the liberation of this methane that is imprisoned in Arctic ice. This is not thoroughly taken into consideration for the time being in climate change models.

Thank you.

Mr. M. HUCTEAU (France): Mr. Chairman, this climate mission will be developed and implemented in a joint cooperation. The mission is named Methane Remote Sensing Leader Mission, MERLIN, will be launched within the time frame of 2014. It will be operated for three years in space. Germany will contribute the instrument payload, a methane integrated part differential absorption radar. France will contribute its space province small satellite platform, called Myriad, and will operate the mission.

Both countries will establish their own data processing chains to provide the joint science community with the mission data. The objective of the mission is to provide global information on atmospheric methane concentration with accuracy better than two per cent and with a high special resolution also under varying weather conditions.

The German-French climate mission will advance the knowledge on the contribution of human activities to the atmospheric methane amount caused by an algaeic(?) production, wide tyres, wetland changes due to the climate change, melting of permafrost soils and ocean sediments, together with Igraz(?) and their interaction with the Earth climate.

The satellite will contribute significantly the Global Climate Observing System and to the Global Earth Observation System of Systems. And more, it will contribute significantly to climate change forecast and to the control of the Kyoto Protocol Aims on Methane Emission Regulation.

Mr. Chairman, distinguished delegates, we thank you for your attention.

The CHAIRMAN *(interpretation from French)*: I thank you very much representative of Germany and the representative of France for your joint statement.

(Continued in English) The next speaker on my list is the distinguished representative of the United States of America, Mr. James Higgins.

Mr. J. HIGGINS (United States of America): Thank you Mr. Chairman. The United States commends the Committee for including this important topic on its agenda. Satellite observations are truly an indispensable tool in the search for fundamental knowledge about the impact of society on our environment and the implications of global climate change for society.

This is a grand challenge to find as a major scientific thrust is compelling for both intellectual and practical reasons. Satellites, with their unique perspective of the Global Integrated Earth System, offer the potential for major breakthroughs.

In 1960, the United States launched its first robotic mission to explore Earth's environment from space and continues to make significant strides in developing satellites and instruments. These systems provide a baseline of observations of the Earth's environment, such as global land use and land cover changes since 1972, an Arctic ozone hole since 1978, summertime depletion of the Arctic sea ice since 1978, total solar irradients at the top of the atmosphere since 1978, global sea level rise since 1992, global ocean phyto-plankton abundances since 1997 and Greenland and Antarctic ice sheet volumes since 2002.

The United States shares in the common global goal to understand Earth's changing climate, its interaction with life and how human activities affect the environment.

Using the satellite observation scientists around the world have demonstrated that global warming is, without doubt, occurring. Global deforestation is proceeding rapidly, reducing the ability of our terrestrial biosphere to absorb carbon dioxide from the atmosphere.

Because of global warming, the recovery of the ozone hole over Antarctica is not happening as fast as anticipated when the Montreal Protocol was developed. The summertime sea ice coverage in the Arctic is being dramatically reduced by warming ocean waters and by increased air temperatures. These warming events have happened much faster than expected causing increased heating of the atmosphere.

Global sea levels are rising at a much faster rate than anticipated. Global marine life is being diminished by increasing heating of the ocean from the atmosphere and by increased absorption of carbon dioxide from the atmosphere.

The Greenland ice sheet is losing more mass each year than three times the total amount of ice occurring in the Alps. Melting of Greenland and mountain glaciers and the heating of the oceans are major reason for global sea level rise.

Many more examples exist of the Earth's changing climate observed from satellites. It is a worthy testament of our collective science and technology endeavours that satellite observations are a

primary source of scientific understanding of the Earth's changing environment and thereby form the foundation for subsequent actions by society.

Mr. Chairman, NASA presently operates 13 research satellite missions that provide high spatial and temporal resolution high-accuracy wall(?) calibrated sustained observation of the land surface, oceans, atmosphere, ice sheets and biosphere. It is noteworthy that nine of the 13 satellites have international partners, illustrating the value of cooperation in the peaceful use of space.

Research satellites also serve society on a daily basis. Six of the 13 missions provide data for operational forecast for inter-quality, harmful alga-bloom and weather. The United States is now developing eight research satellite for launch in the 20-10-2015 period and several of these involve international partners.

The United States National Oceanic and Atmospheric Administration, NOAA, currently has five geostationary satellites and five polar orbiting environmental satellites devoted to improved weather forecast in orbit.

Two geostationary satellites are operational, two are in on-orbit storage, and a third operational spacecraft provides coverage of the South America region.

In polar orbit, NOAA operates two primary and three residual spacecraft. Additionally, NOAA operates the JASON-2 Ocean Surface Topography Spacecraft, developed by NASA and the French Space Agency, CNES, with the European organization for the exploitation of meteorological satellites, EUMETSAT.

The United States continues to infuse new technology into its next generation of operational geostationary and polar orbiting satellites.

NASA developed new technology for satellite observation system and NOAA maintains the operational system for atmosphere and ocean.

Through a partnership between NASA and the United States Geological Survey, USGC, the United States operates the LANDSAT satellites for land use and land cover changes.

Working in partnership with other nations is a central precept of the United States Satellite Observation Strategy for Weather and Climate. United States satellite observing activities contribute significantly to several international observing systems principally sponsored by elements of the United Nations, such as the World Meteorological Organization, the Intergovernmental Oceanographic Commission, and the Food and Agriculture Organization.

The United States continues its leadership role in the intergovernmental Group on Earth Observations, GEO, in its development of the Global Earth Observation System of Systems, GEOSS.

The GEOSS will be a comprehensive and coordinated system of observing systems through which satellites and other observations are intended to flow seamlessly to users. This is a challenging endeavour what one that promises great benefits to both developed and developing countries.

Mr. Chairman, the United States strongly supports the International Committee on Earth Observation Satellites, CEOS, and the CEOS Virtual Constellations for GEO and a set of space and ground segment capabilities are operating together in a coordinated manner. Current constellations include atmospheric composition, land surface imaging, ocean colour radiometry, ocean surface vector winds, ocean surface topography and precipitation measurements. The United States co-leads all six of these constellations.

The United States continues to demonstrate the immense value of satellites to observe the changing global climate and for developing new fundamental knowledge on the Global Integrated Earth System. A combination of satellite observations and increased understanding will improve international security, enhance economic prosperity, mitigate impacts of short-term and climate-related hazard and strengthen global stewardship of the environment.

In the SERVIR Programme, the United States is striving to share practical benefits by helping to establish data access, along with analysis and visualization capabilities to support local and regional decision-making for environmental and disaster management in the developing world. Two SERVIR network are currently in operation in Central America and the Caribbean and in East Africa, with other regional networks in the planning phase.

The United States will continue to work with the international community to enable comprehensive, coordinated and sustained Earth observation systems for the benefit of humankind, today and into the future.

To achieve this vision, the United States policy is to maximize rapid, free and open access to data from its civil satellites and disseminate tools and knowledge to use this information so that we all may observe and understand that global climate change is occurring yesterday, today and tomorrow. The United States urges all countries to implement similar policies for open and transparent data-sharing.

Today, there is a growing understanding of the interaction among our planet's atmosphere, oceans, land and eco-systems. Through Earth observations, we will be able to work together across all nations to understand, protect and enhance quality of life on our fragile home planet.

Thank you Mr. Chairman.

The CHAIRMAN: I thank the distinguished representative of the United States of America for his statement.

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

Mr. M. D. SUBARI (Malaysia): … *(no microphone)* … Thank you Mr. Chairman. My intervention in this agenda item will be brief, just to respond to this meeting on the utilization of satellite images in our weather and climate prediction activities.

Mr. Chairman, distinguished delegates, ladies and gentlemen, satellite data is playing an important role in the operation of weather forecasting, both for public and aviation purposes. Geostationary satellite images have been extensively used by the country in detecting and tracking of severe weather systems especially during the North-East monsoon flooding season. First, having forecasters to issue a timely warning and prediction and therefore leading _____ losses of life and property.

Through its operational agency, the Malaysian Meteorological Department, or MMD, two Earth ground receiving stations and processing systems to receive data from the geostationary satellite and NDSAT-1R and PENYUN(?)-2 were set up.

At the same time, the MMD also receives and processes satellite data from polar orbiting satellites which are mainly from the NOAA series, 19, 18, 17, 16 and 15.

Latest satellites imageries are the MODIS data from TERRA and AQUA, expend(?) satellites and PENYUN-1 satellites.

Mr. Chairman, we will continue our expedition of satellite images for our weather and climate management activities.

I thank you Mr. Chairman.

The CHAIRMAN: I thank the distinguished representative of Malaysia for his statement.

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

I see none.

We will continue and hopefully conclude our consideration of agenda item 13, Space and Climate Change, tomorrow morning.

Use of space technology in the United Nations systems (agenda item 14)

I would like now to begin our consideration of agenda item 14, Use of Space Technology in the United Nations Systems. Today we will hear only intervention under this agenda item as the delegate is scheduled to leave tomorrow morning.

And I recognize the distinguished representative of Colombia, His Excellency Mr. Ciro Arévalo Yepes.

Mr. C. ARÉVALO YEPES (Colombia) *(interpretation from Spanish)*: Thank you so much Mr. Chairperson. I see that the reactions especially here on my right have been reactions that convey surprise but there is a little adjustment that I would like to announce which is as follows.

I asked for the possibility of making this statement in order to save time. It is Thursday that I will have to leave but in the interest of courtesy, I wanted to give delegations time to react after my presentation or statement, though yesterday I did have some formal consultations in respect of United Nations space technology. But if you think it is appropriate Sir, perhaps we could have some time for the first incoming reactions to my statement. But if there is not sufficient time, I am entirely in your hands Sir.

I will make a brief statement because, of course, the proposal is well known. I will be proceeding in three chapters, process, content and the evolution of the initiative.

Process. This is motivated by the need to make all the international cooperation resolutions effective, particularly the 1996/1721, 1971, but, of course, this is all applied to a context of great change that we are experiencing. Thanks to a series of contributions and persons that have assisted and I would like to pay tribute to them here and now and say how grateful I am, I got some input and on the basis of what I got from consultations, there are several regions of the world, as I said during the fifty-second session. Conference Room Paper 12 contains those.

Subsequently, the General Assembly, which received a constructive report on this suggestion, then decided in resolution 64/86 that we should continue our consideration of this proposal at the present session. Now in February this year, 16 February to be more precise, when the Scientific and Technical Subcommittee met, we did a round of consultations and this was, as I say, during the Subcommittee meeting, many countries came forward with comments and this was done on the basis of CRP.12. I would like to say how grateful I am to each and every one of the participants making a special effort to provide input to this very interesting session as I said and assisting me in my task.

And finally, I would like to say that between then and now, there have been a series of consultation as well in writing as a result of the request that was put in at that point in time and also some documents. The document we are coming forward with now, and I will briefly summarize it or say a few words on the subject, does contain these elements.

My predecessor, Mr. Brachet(?), and in due accompanied me on the occasion of that meeting and you made very constructive comments, yours in particular on governance, the importance of global governance, and they were, of course, taken on board in the new text.

Now, the document is one which is A/AC.105/L.278, “Towards a United Nations Space Policy” is the title of that text. It is available in six languages, so the six United Nations languages because it is a working document. And I see that some delegations did mention the need to devote more time to the perusal of this document in their own language.

There are six chapters. One is introduction, giving the legal basis. So in essence there is a reference to 64/86, the General Assembly resolution. Subsequently, we find a description of space and how it is perceived, a critical vision or review.

The second chapter is on space and the United Nations and this gives you the history of what was done within the United Nations, what space has done for the United Nations and what the United Nations have done for space, so to speak. I have to clarify it because this is a comment I have heard from several delegations that this suggestion has two dimensions, the first being the United Nations as an object of global governance, I would say where we are listing all the results that were achieved, both in terms of the various international instruments and the resolutions, and, naturally enough, the United Nations as a subject in terms of the implementation of that policy. So there are two sides to the coin.

And the second side, of course, has to do with the fact that the World Bank and 25 members of the United Nations family normally resort to space-based systems.

Now, Page 5, paragraph 10, 213, this is where we try to have a perspective approach.

Now Chapter Three is more effective governance, the need for more effective governance because we have governance but it needs to be more effective on outer space matters.

And here we have subtitles, “Stable Order in Orbit”. Then (A) growing amount of space debris and this threatens sustainability, long-term, of space activities.

(B), the integrated approach to the use of space policy. Therefore, that might help us make a contribution precisely in terms of accession to treaties.

(C) Need to establish a supportive environment for new space users and space-faring countries. This is a special item in that it is extremely relevant because many countries, Sir, are either preparing or modifying their national policies. But, there is a lack of a conceptual framework that could guide them in terms of their own approaches. Obviously they have the treaties but, Mr. Chairman, this is not the only guidance, as you see, a central source but it needs to be supplemented and brought up-to-date with other contributions.

And (D) utilization of space for the benefit of all humankind. Here we refer to the significance of stepping up the operational system especially COPUOS and the Office for Outer Space Affairs together, more particularly the UN SPIDER and GNSS, in a more consolidated manner.

Then Chapter Four, the guiding principles for a United Nations Space Policy. Without guiding principles, you cannot have policy and the reference needs to be in there.

In essence, what we seek to do here is to make new players aware of where we are going and subsequently there are several sub-titles, space environment, to be used in a responsible and fair manner. Then, not just international instruments but also international best practices are an issue. This is absolutely necessary.

In 29, we have the interregional approach. We have made reference to this on several occasions. Today, I was pleased to note what JAXA is doing in Japan, see how there is this inter-connection with Latin America, and then means to apply State policy, that there is a latter portion, State cooperation fora, space cooperation fora and regional programmes how to step up orbital aspects, promote dialogue between States that have space activities, those using space and other organizations. And finally, where are we going, the way forward.

So this in general terms is the list of the salient features of this document which is, of course, subject to modification and adjustment. It is a rolling document, as we would say in English.

What is the next step forward? Well, Sir, it is to continue to listen to the comments in order to further improve the document which, as any document of such a nature, is, of course, subject to improvement. And here I would like share with you some impressions that I got and input from many delegations in that the topic is, some have said that they need more time, we are not applying any pressure. On the contrary, we would suggest that it is fine to give more time to attend to the matters so some delegations are requesting more time. They want it to remain on the agenda they said but quite a few have come forward to say, one here, for example, that the topic should have a more proper special place on the agenda, one that is better selected and I share that view. And here, I would suggest that at least for next year, for just one year not a permanent item on the agenda but rather for at least the duration of a year, we might have the aspect as an independent agenda item that would get input for quite a number of other areas.

And we will continue with the Working Group. It is an Open-Ended Working Group. It is informal in nature. And I was privileged in that the Vice-Chairperson, Ambassador Raimundo González, is accompanying us, is assisting us in this process. I am very grateful. And I have two or three additional people. Sergio Camacho has also come forward, he is well aware of the United Nations system, and my dear friend, Annettee Froehlich. From the very outset, she provided valuable support. And Mr. Tarabzouni and you see that there are quite a few individuals, they are all welcome. It is an open-ended informal group, I would say.

By way of conclusion, Sir, I would like to say that I am entirely in your hands and, of course, willing to hear comments from the Committee. Perhaps we could have a small "tool de table" and provide reactions, if there are anyway, otherwise tomorrow, and we will, of course, continue our consideration of the topic. I am entirely available to cover any concern. I do apologize for taking so much of your time.

The CHAIRMAN: I thank you Ambassador, Mr. Ciro Arévalo Yepes, for your presentation on the topic of space policy. Because we have four plus one technical presentations this afternoon and we do not start another agenda item now, I just leave no more than 10 minutes for some reactions.

The first is the distinguished representative of Ecuador who has the floor and then you Professor Kopal. Thank you.

Mr. J. ROSENBERG (Ecuador) *(interpretation from Spanish)*: Thank you so much Mr. Chairman. Ecuador would like to be one of the first countries to take the floor in support of this excellent exercise that has been done by Ambassador Arévalo. We said this already when we made our statement, our national statement.

In the area of space policy, the United Nations have quite a lot to do yet and this will figure prominently in the century. We are very pleased to note that developing countries such as the one Ambassador Arévalo is representing, he is from Colombia, is playing a leadership role here. Fifty years ago, there were very few countries, initially just two. That because of circumstances had a virtual monopoly and this has changed fortunately. Developing countries like Colombia, or my own, are able to cooperate in this area and we are in very good hands, I think, with Ambassador Arévalo in charge of this initiative.

Ecuador, likewise, would wish to support this exercise and we have already said so to Ambassador Arévalo. You have, of course, heard that space activities such as research, symposia in my country are now very significant also because of the Space Conference of the Americas and the support we receive

from so many experts of the region. I see them in the room and they are giving us every support and we want to continue in this way. The Pro Tempore Secretariat will be handed over to Mexico in just a few weeks. I think that we have a good track record in Ecuador and we would like that to continue in the future so you may rely on the cooperation of this delegation, and here I say the Ecuador, the Secretariat, of course, may rely on us and so may Ambassador Arévalo.

I thank you Mr. Chairperson for having made this possible today, this statement. I would like to clarify that what Ambassador Arévalo was saying was that he would travel not in the morning hours but in the late hours of the day so it is my understanding he would be available for consultations tomorrow which is a good thing because this topic is a very important one for us.

Thank you.

The CHAIRMAN: Thank you distinguished representative of Ecuador for your intervention.

Now the distinguished representative of the Czech Republic has the floor.

Mr. V. KOPAL (Czech Republic): Thank you very much Mr. Chairman. I, too, would like to say a few words on the document L.278 as it was now introduced by our distinguished colleague and friend, Ciro Arévalo, the former Chairman, your predecessor.

As a matter of fact, I followed his initiative and efforts to develop this subject for a longer time and read also the first versions of his paper and read very carefully also the present version. I believe that it is a rich document, a rich document full of ideas and suggestions which deserve our attention and consideration. To some extent, it is a continuation of the efforts of another foregoing Chairman of our Committee, Mr. Gérard Brachet, which already brought a number of ideas and suggestions on a similar topic. And I believe that we indeed should still continue the discussion. It should not be finished now by saying a few words only on the presentation and on the paper. But indeed it is necessary to continue and perhaps indeed the idea of having it as a separate item, as a single issue item for discussion for the next year's agenda would be a reasonable and good solution.

Of course, there are also some ideas that may be opposed or that may be commented in a less favourable way, I would say, but still all of them are very essential.

Also the title to me seems to be a little bit unusual. I do not know if we can speak about a United Nations Space Policy. I understand that the United Nations is a very important tool, a very important forum for establishing the policy that would emerge from the policies of States members of the United Nations. Perhaps we could speak more about United Nations Space Programme which is less certain and less binding. But it is a question and there are some other questions that might be still considered. And, therefore, I would, once again, support the idea of including this topic on the agenda of the Committee next year as a single issue item for discussion.

Thank you very much.

The CHAIRMAN: I thank the distinguished representative of the Czech Republic for his intervention and proposals.

We will continue our consideration of agenda item 14, Use of Space Technology in the United Nations Systems, tomorrow afternoon, in accordance with our schedule of work. So we will oralize this document, L.278, tomorrow afternoon.

Technical presentations

Now we start with the technical presentations.

I give the floor to the Secretariat for an announcement.

Mr. N. HEDMAN (Secretary, Office for Outer Space Affairs): Thank you Mr. Chairman. An announcement here in connection with item 16, Other Matters, that we had planned to start already this afternoon to concentrate first and foremost on the issues of the organizational matters and I then referred to the non-paper that was circulated last week, a non-paper by the Secretariat in consultation with the members of the Bureau.

The Secretariat realizes that we have now four presentations plus a video this afternoon so it is impossible to start debating the organizational matters. So, Mr. Chairman, the Secretariat believes that tomorrow morning we should have quite a good discussion on, an in-depth discussion on the organizational matters and have reactions to the non-paper 1 that you have all received.

Thank you Mr. Chairman.

The CHAIRMAN: I thank the Secretariat for the announcement.

Now, the first presentation is given by Mr. Charles Baker of the United States, NOAA, and it is entitled "50 Years of Operational and Environmental Satellites: the United States Experience". Mr. Baker, you have the floor.

Mr. C. BAKER (United States of America): Thank you Mr. Chairman. It gives me great pleasure to be here today to commemorate that this year marks the fiftieth year since the first environmental satellite of any type but because we have an unbroken record of continuity in our satellites, we are celebrating 50 years of operational environmental satellites.

On 1 April 1960, TIROS-1 was launched by our National Aeronautics and Space Administration, as the first weather satellite as it was then called. It was 450 miles above the Earth in a 50 degree inclined orbit. It weighed 122 kilograms with two television cameras, two video recorders and the necessary power and communication systems to run the satellite and bring the data back to Earth. It was a major advance in the world of weather forecasting because for the first time weather forecasters could see cloud formations from above as they developed and as they moved across the Earth.

Over the ensuing 50 years, the United States has made a number of advances in environmental satellites. We have expanded from visible imagery to infrared imagery. We have added vertical temperature and moisture profiles, which are called soundings(?) that use both infrared and microwave instruments. We have added centuries of look up at space so that we are able to forecast space weather. We have added ozone sensors and it is through the use of these satellites that much of the earlier research on the ozone hole over the Antarctic came out. And we have developed a series of data products used not only in weather forecasting, but as my associate from NASA described a few moments ago, also in climate monitoring.

In 1975, we augmented the Low-Earth Orbiting Weather Satellites with high altitude geostationary satellites which provide the perfect complement. The Low Orbiters cover the whole Earth every 16 orbits and provide very high-resolution data because they are only several hundred miles above the Earth. The geostationary satellites are 22,000 miles above the Earth and so the data is further away but those satellites are able to turn with Earth and provide a long look at a single location which is particularly critical during severe storms.

Here is an image from yesterday morning from one of our polar satellites from the AMSU(?) Sounder looking at rainfall out in the Atlantic Ocean between Brazil and the West Coast of Africa. And this is a tropical depression which is starting to show some cyclonic characteristics and so weather forecasters in the United States are very worried that this might become the first hurricane of the 2010 season in the Atlantic.

As you know, we are having a major environment disaster in the Gulf of Mexico and what we do not want is a hurricane to enter that Gulf right now so we are watching this extremely closely. That is yesterday's image.

This pair of pictures shows the evolution of capabilities of our geostationary satellites. The image on the left was from 1967 from the first research satellite to attain geostationary orbit. And the picture on the right is from one of our current geostationary satellites. And as you can see, the technology has improved greatly and we are very hopeful that with a new generation of geostationary satellites, known as GOES-R, that we will be able to improve that image quality significantly but even more importantly, we will be able to paint the image in a matter of a few minutes instead of 30 minutes that it takes to pain that image today. And at the same time as we are painting the full disc image, we will be able to zero in on a local area where perhaps a hurricane or a severe storm is present.

This image was taken from the GOES-13 satellite two weeks ago of the coast of Guatemala near the Yucatan Peninsula, where the first Pacific tropical storm of the 2010 season, Agatha, had just crossed from West to East or from South to North, depending on how you view geography in this picture, and this illustrates why these satellites are so important because not only do they provide weather forecasting but they provide the launches and the warnings necessary to protect lives and property in the United States and in our neighbouring countries.

Our requirements for these satellites are simply stated. Two polar satellites, one in the morning, one in the afternoon, in terms of their equatorial crossings, two geostationary satellites, one over the East Coast of the United States, one over the West Coast of the United States.

It is not as easy as it may seem to maintain continuity of those observations. It is critical that we have the continuity because the data is essential to the miracle of weather prediction. The satellite products

are used by weather forecasters and the data supports watchers and warnings of severe weather.

What are some of the things that threaten continuity? Launch failures are certainly our number one fear. On-orbit failures prior to the completion of satellite design life. Launch delays caused by development problems. And the high cost of satellite development.

And so we believe that international collaboration has proven to be a means of mitigating some of these threats to satellite continuity. Let me give you some examples.

In 1986, lightening struck the launch vehicle that was intended to carry GOES-G into geostationary orbit. You can see in the right hand picture the rocket exploding because of the lightening strike. And as a consequence, that satellite was not in orbit when we needed it.

At the same time, GOES-I, the first of a new generation of satellites had some major development problems causing a five-year delay in its scheduled launch. The combination of those two events caused our constellation to drop to a single satellite on-orbit by 1990. This was a problem for our nation and so we turned to our friends in Europe for assistance. And international collaboration again provided the solution. From 1991-1995, METEOSAT-3, a European geostationary satellite was operated first at 50 degrees west then at 75 degrees west in support of the United States. During those years, several major hurricanes struck the East Coast of the United States and the European METEOSAT satellite provided the necessary information to save lives and property in the United States.

We have not only used the satellites of others but have loaned our satellites to others. Japan had a similar problem to that which affected us where they had a launch failure in 1999 and, as a result, there constellation dropped below what they needed and so we agreed to provide back-up and the United States moved GOES-9 westward to 155 degrees East in 2003 where it stayed until November 2005 until Japan could launch MTSAT-1R to replenish their constellation.

Because of the high cost of satellites, the United States and Europe began engaging in discussions more than 15 years ago about dividing up the polar orbits between the two satellite operators in order to reduce total overall cost and permit better quality instruments to be designed and fielded. And since both the United States and Europe want data from mid-morning and early afternoon orbits, we decided to collaborate, and as a consequence, Europe has taken responsibility for the mid-morning orbit with the METOP(?) series of satellites and the United States has taken responsibility for the afternoon orbit using the POSE(?) satellites and then in the future satellites known as JPSS, formerly known as NPOSE(?). Each is flying some of the others instruments on its satellites and since 2007, full two-way data exchange has been taking place. And our hope is this polar orbiting cooperation can be expanded to include other nations in the very near future.

There are many research satellites flying by all nations but these are just the United States research satellites and many times the difficulty of transition research satellites in their operations is exacerbated by the high cost. And so up in the upper right hand corner, circled are JASON and JASON-2 and recently we were able to arrive at an agreement with CNES, EUMETSAT and NASA and NOAA to build a JASON-3 which will replace JASON-2 after its life ends and we think this is a very good and successful pattern for transitioning research satellites to operations, again by using international cooperation.

Three other quick examples. Search and rescue. Last weekend, 16-year-old Abby Sunderland, who was attempting to sail around the world as the first solo attempt by a teenager to make that trip ran into a severe storm in the Indian Ocean and the mast broke on her sailboard. And so she sent a distress signal, which was initially picked up by an Indian geostationary satellite, INSAT-3A, and subsequently by a NOAA polar orbiting satellite and the information provided by those environmental satellites allowed her to be rescued and I am sure if you have been watching the news on television, you have seen her interviewed on television in the last few days.

Our data collection system is a joint venture with France where we are able to relay data from _____(?) in the ocean and ground-based sensors to fill a vast multitude of environmental data needs, again relaying the data through the satellites. And finally we use the satellites not only to collect data but to broadcast data to users both in the United States and in other nations so that nations without satellites of their own can make use of the satellites for weather forecasting and climate monitoring.

And finally, we believe that not only is bilateral cooperation important but multilateral cooperation is essential for Earth observations because no nation can afford to collect all the observations it needs. The task is so large, it is vital to divide up this

task amongst space-faring nations. You have already mentioned this afternoon of some of the organizations that are seeking to bring that to pass, the Group of Earth Observations, the Committee on Earth Observation Satellites, the World Meteorological Organization's Space Programme, and the Coordination Group for Meteorological Satellites. This is important work but I think the most important aspect of this work is not the building of satellites but a philosophy, a principle of full, open and timely sharing of environmental data across international boundaries because when that data is shared, it multiplies in value and so my Government is very much committed to seeing that principle achieve reality in this world.

Thank you very much for the opportunity to be with you and to celebrate 50 years of environmental satellites.

The CHAIRMAN: Thank you Mr. Baker for your presentation.

Are there any questions or comments?

I see none.

The second presentation that will be heard this afternoon will be by Mr. Arcady Galper of the Russian Federation Moscow State Engineering Physical Institute who will give a presentation entitled "Gamma Ray Astronomy on the Way to Uncover the Mystery of Dark Matter of the Universe".

Mr. A. M. GALPER (Russian Federation) *(interpretation from Russian)*: Chairman, thank you very much for giving me the floor and making it possible for me to speak here at this meeting and tell you briefly about the new project which is at present ongoing in Russia.

I would like to draw your attention to the way this diagram looks. This is the distribution of the various ranges of electromagnetic radiation. Here you see that the gamma ranges of the more are high energy radiation type. It is clear that this sort of radiation is one that promises much data indeed and gamma astronomy is a very promising information and technology for this reason.

Now here you have an example of where the gamma radiation of high energy comes from. Here you have a photo of an expanding cloud or shock front of supernova. This sort of cloud can exist for some hundreds of thousands of years and is a very powerful accelerator of protons and electrons, high energy particles. Here on this slide, I am showing you that there is a very high energy acceleration mechanisms that exists not only at the stage of the supernova explosion and the time of formation of this wave, it can be a constant phenomenon. For example, if you have a dark hole, a black hole and one with a magnetic pole, there you have particle acceleration taking place and that can form particles which are even higher energy, even higher than our fastest accelerators on Earth can produce. And this is an enormous collider, this is what we have been hearing so much about recently but that is not gamma astronomy, *per se*, yet. These high energy particles are going into the interstellar expanses of our galaxy and interacts with other matter there. That produces ever so many other particles and most of these particles are not stable. They break down and once they have broken down, what is produced is gamma quanta(?), high energy gamma quanta.

By way of another example, here I am showing you how we see the microquasar's today. The accelerating mechanism works in the same jets or currents that we have rotating around these objects in outer space. This is how these gamma quanta with high energy are produced following interaction with interstellar gases.

Now, here I would like to demonstrate yet another very interesting phenomenon which also is in the focus of our attention that we have all heard about many times over, most of the matter in our Universe is invisible. It is not just cooled down matter which are in some range of electromagnetic activity, it is a completely different sort of matter which is only rendered visible if there is electromagnetic activity and we believe that this matter clumps. Here you see on this slide which is in the middle of this screen, there is conglomeration of clumps. Of course, it is very important to understand exactly what the nature of the particles of black matter is, dark matter. There are theoretical models which are known to date, and according to these, these are completely different particles, completely different from our matter which is protons, neutrons, electrons, etc. These are particles which most probably are invisible since they do not radiate anything and they only engage in very weak interaction and they have very high mass, that is especially interesting, thousands of times greater than our protons, for example.

Now these are the theoretic of our knowledge today but all of this, of course, has to be tested. And one of the characteristics of these particles is that which renders them visible. They either break down or evolve into annihilation patterns but either one of these alternatives produces gamma quanta, electrons, positrons, protons, anti-protons, and on the basis of

this, you have all of the physics-based which seeks to determine these in outer space. Here, for example, you show two particles X and X and T interact, producing various particles, and on the other side you see our galaxy. We as observers with the Sun and you have it here where it says you are here in red, you can watch the quanta produced, etc.

So this demonstrates that gamma astronomy is an integral, a very significant part of, not just astronomy, but also the physics of elementary particles and astrophysics and cosmology, *inter alia*.

Of course, gamma astronomy is an activity which goes back in time. The first telescopes appeared in outer space in 1968-9. That was the ANNA equipment, mounted on the COSMOS. Following that we have the SAS-2, the American outer space vehicle, then that was followed by COS-B. That was followed by GAMMA-1 with Russia and France participating.

And then we see future developments, which are very interesting, bring us to date. Indubitably, a very outstanding flight was done by the EGRET, run by the United States. That was followed by the Italian AGILE. And now what we have in outer space is an international project which is comprising United States scientists primarily, that is the FERMI-LAT telescope.

Here you see the information produced by the FERMI-LAT. Now we can study discrete particles and here you have identified the positions where very clear discrete sources can be noted. Half of the sources which were registered by the FERMI-LAT have not been identified completely, in other words, they have not been attributed to any optical object or radio object, which means that the angular resolution is not sufficient to date and, *inter alia*, the energy radiation and resolution used by the FERMI-LAT is to date not completely satisfactory or adequate so we have to think in terms of the next generation of telescope and this is going to be meant for the study of discrete gamma radiation as well as investigation of various processes and the characteristics of dark matter. This is what the Gamma-400 experiment is focusing on, 400 is the energy level that this was calculated for. Now we can talk in terms of 1,000 giga-electronic volts. That is the level of energy gamma quanta energy registration.

Now the main principle of the work of this new telescope resides in the following. In the converter, where there is conversion and the calorimeter where there is gauging of the particles. These two have been spread out, they have been separated and in this fashion, one can more easily and better identify the covered discrete sources as well as the gamma radiation which comes from the isotropic sources in our galaxy and interstellar galaxy.

This is the physical scheme of the telescope in question. In blue, on top, you have the converter and then underneath you have the CD-7, that is the strip coordinate detectors, underneath the coordinate calorimeter, in other words, all of the equipment involved in this telescope is presented to allow for a higher resolution, angular and other resolutions, energy resolutions as well.

This is the telescope. It is two and a half tons worth of telescope. It is going to be mounted on the Navigator Spacecraft. *Inter alia*, we are going to be launching the Gamma-Astron as well as other ultraviolet, X-ray gamma equipment arrays, all of that is going to be launched on this sort of craft.

Here you have the possible trajectory which probably is going to be run in 2015 more or less, possible 2016 is more realistic. Then the trajectory is going to be transformed into the environment and then this spacecraft is going to be flying at a 1,000 to 150,000 kilometres.

That is basically what I wanted to share by way of information in my brief comments here. At present, we intend to run this jointly with the Italian physicists who are involved in work on dark matter. This experiment is open to any other participants, any scientists who are already possibly involved in gamma astronomy or who would be interested in joining our efforts.

Thank you very much for your attention.

The CHAIRMAN *(interpretation from Russian)*: Thank you very much Mr. Galper.

(Continued in English) Are there any questions or comments on the presentation of Mr. Galper?

I see none.

The third presentation for this afternoon will be made by Mr. Juan Acuña of Chile, who will make a presentation entitled “Space in Chile: Past, Present, Future”.

Mr. J. ACUÑA (Chile) *(interpretation from Spanish)*: Thank you Mr. Chairman. Mr. Chairman, distinguished representatives, as a Director of the Chilean Space Agency, I will make this presentation for the main purpose of thanking the international

community in a personal manner and on behalf of the Government of Chile through the Under-Secretary of Economic and President of the Chilean Space Agency, thanking all for the very important and timely support received from various organizations, especially on the occasion of the recent earthquake in Chile. They have provided satellite images.

At this point in time, the Chilean Space Agency reports to the Ministry of the Economy. The mandate established by the President is the implementation design of policy, plans and programmes.

This projection shows the timeline and the main space activities in Chile. They start in 1958 with a Convention, an Agreement between NASA and the University of Chile. And then we have min-satellites that are experimental in nature, FASAT and at present SSOT, the Earth observation satellite system which will be launched at the end of this year or the beginning of the next.

Here we see the main activities of the Agency for this year, the work after the earthquake, international meetings. The Agreements we have entered into are Satellite for Research Purposes for Communication and the Launch of the Earth Observation Satellite.

As part of the Strategic Plan of the Chilean Space Agency, the mission being promotion standardization and coordination of space activities in Chile.

In the context of the work of the Chilean Space Agency, I would like to say that the main areas of interest are the scientific and technical activities, space policy, international relations and national relations, *inter alia*.

As for the scientific and technological areas, our main aspect that we are interested in is Earth observation and providing support for technology for natural resources and their exploitation and this is very important for developing countries such as my own.

As I was saying, towards the end of this year, or the beginning of the next, we will be placing on-orbit a Chilean Earth observation satellite and because of its features, it will be basically intended to provide support for how to use natural resources, the environment and territorial planning as well as emergency or disaster management support. You see that as far as resolution is concerned, we have panchromatic resolution of 1.45 metres, a multispectral resolution of 5.8 metres, and a _____(?) re-visit period of 37 days.

In our opinion, the main applications have to do with satellite images but we think all applications are important and I would like to specifically refer to agriculture, natural disasters, environmental issues and territorial planning applications. By way of an example, let me describe one application that has to do with the natural resources and how we plan their use in three bases in the productive area of Isen, at the southern most tip of Chile. To do this, we have thematic maps that are being produced and for this project we have received major support from Argentina consisting of the satellite radar images and provision of such imaging products from Italy. A very important project.

This year relates to the earthquake that occurred on 27 February this year. We have a multi-sectoral approach intended for decision-taking using remote sensing which is airborne, that is on an aircraft or a satellite. And several organizations were part of the Working Group. In presenting this, we would like to show how the satellite images were used.

Here we have an aerial image showing the damage done by the earthquake-triggered tidal wave in the southern area of Chile. The following projections show the working method of the Group and the information was coming in the day after the earthquake and the tsunami occurred. The Chilean Space Agency is working together with the National Disaster Office of Chile and the Charter was activated on the 27 February, together with the Agency of Argentina, CONAE.

The second phase consists of coordination where information is registered and processed in the SIREN system of Chile thus integrating all the satellite images that come in.

The third phase in the work of the Group is shown here and it covers the flooding areas. It was done by specialists from universities and the National Geology and Mining Service and subsequently the National Statistical Institute of Chile included information of the areas that were affected, how many inhabitants and how many dwellings also were damaged.

Finally this information was distributed via several mechanisms, either physical or through data networks so that those taking the decisions have appropriate information that they require to do their work.

Here, I am showing the flooded areas views, aerial images, as well as satellite information from the Rapid Eye Probe.

Here I am showing two cities that were affected by the tsunami. They provided an assessment of the area that is flooded, the population and the dwellings that were damaged. So a lot of this information is used for purposes of decision-taking.

We see that there is information on inhabitants in keeping with the census and this was then compared with the flooded areas and the satellite images.

Two major Internet sites were set up with information. One, the Geo-Group and the other one by EADS, through SPOT Image and INFOTERRA, and this gave access to the images that were processed during the earthquake.

Here I am showing the list of some of the satellites which were giving information starting on the second day, 28 February, after the earthquake.

Now I am showing the list of various agencies that triggered the Charter. You see that there is active participation of several agencies that are part of the Charter and also in connection with this international organization.

Now turning to another subject, Chile has initiated the Pre-Feasibility Economic and Technical Studies to Develop a Communications Satellite Project for my country. It is spearheaded by my Agency and furthermore five Ministries of the Government of Chile and we hope to get a first report towards the end of this year.

For my country, space activities and their promotion are a very important aspect and that is why we support the following three international activities that will occur in my country.

The first Seminar is Remote Sensing and its Use Intended for Disaster Management and this will be organized in Valparaiso, just 100 kilometres from Santiago, on 28 July next. You can see the agenda reflected. Four countries will be participating and some international speakers are expected.

And other activities covers the Latin American Remote Sensing Week which is to be held for the very first time in Santiago de Chile on 4-8 October this year. The Agency is well represented at this event, including the Workshops that will be on the subject of satellite images.

Finally, another activity comprises the Preparatory Meeting for the Sixth Space Conference of the Americas, organized by the Chilean Space Agency and the Ministry of Foreign Affairs.

To conclude my statement, I would like to list the following items and I will summarize them.

Chile is pleased to be a member of this Organization ever since 2002. Towards the end of 2008, through a Presidential decision, the Chilean Space Agency became part of the Ministry of Economy. The main tasks we have for the present year are the following: civil exploitation of satellite images, especially the future Chilean satellite; a feasibility study of the communications satellite; national and international strategic alliances; and the promotion of space technology, and, furthermore, regional integration is being considered.

We would like to say that we are very grateful for the outstanding support that we received from the international space community. Hundreds of images coming in immediately prior to and after the earthquake and subsequent tsunami on 27 February 2010. Several international organizations came to Chile, such as UN SPIDER. The representative of UN SPIDER held several meetings with Chilean participants. And there were Internet sites for the dissemination of information. Information received and which is still coming in was of the greatest possible use in the reconstruction period and during the emergency. So I really would like to thank all of those who stepped forward from the very depth of our heart for the assistance that they provided.

Thank you Sir.

The CHAIRMAN: Thank you Mr. Acuña for your presentation.

Are there any questions or comments?

I see none.

The fourth presentation for this afternoon will be made by Mr. Pedro Russo, Global Coordinator of the International Year of Astronomy, and will make a presentation entitled “Achievements of the International Year of Astronomy: its Legacy and Way Forward”. Mr. Russo, you have the floor.

Mr. P. RUSSO (United Nations Educational, Scientific and Cultural Organization): Thank you Mr. Chairman. Mr. Chairman, distinguished delegates, it is a great pleasure to be here today on behalf of the UNESCO International Astronomical Union, to give a short overview about the many achievements, the legacy and also the way forward of the International Year of Astronomy.

I would like you to see this short overview of IYA, the International Year of Astronomy, as a token of gratitude from the IAU and UNESCO to all the delegations present and to all the countries that supported IYA at all different levels especially at national level.

I will start my talk with a very brief overview about the strategic planning of international astronomy.

Everything started back in 2003, at the time the President of the International Astronomical Union, the Italian Astronomer, Franco Pacini, decided to propose to the General Assembly of the International Astronomical Union this idea to celebrate in 2009 the International Year of Astronomy as a unique way to celebrate the main achievements of astronomy and also to celebrate the 400 years of the first observation through a telescope by Galileo Galilei. Of course, the astronomical community, the professional astronomical community received this proposal were very excited and decided to contact UNESCO to get the forma endorsement and the formal support from UNESCO to move this idea forward.

So in 2005, UNESCO endorsed the International Year of Astronomy.

After this moment, it was time to prepare the project, define the project, to define the vision, the goals, the building blocks and, of course, it established as well an international body to oversee the organization of the International Year of Astronomy.

This slide we can see some of the ideas that we had back in 2006, like the definition of the building blocks that now we call the Cornerstone Projects that provide the main resources to all the countries around the world to implement the International Year of Astronomy. And here you see different things from the blocks like the Cosmic Diary to Protection of the Dark Skies to a series of webcasts from the top level astronomical facilities around the world.

And I think it is clear from these ideas that it was the intention of IAU and also the intention of UNESCO to celebrate the International Year of Astronomy as a mainly educational and public outreach project and not as a research project.

In 2007, we had different meetings with the so-called SPoCs, Single Points of Contact. These are the main points of contact at the national level and we had a meeting in Garching, Germany, near Munich, and also an international meeting in Athens in October 2007 and both meetings were extremely important to define the Programme together with different partners and stakeholders. And the Secretariat was established in July 2007 and I was the Coordinator for that Secretariat.

Then we had some good news on 19 December 2007. The United Nations, the General Assembly proclaimed 2009 as International Year of Astronomy and also designated UNESCO as the lead organizing agency together with the International Astronomical Union to coordinate and implement the International Year of Astronomy.

So in 2008, we are extremely busy preparing all the different kinds of activities, together with the organizational nodes, together with the national nodes, cornerstone projects, special projects, etc. And, of course, in 2009, we implemented all the ideas and all the preparations that we had before.

Just a very brief overview the vision and the goals and I will just go back and I will just read out loud the first vision, the vision of IYA. Everyone should realize the impact of astronomy and other fundamental sciences on our daily lives and understand scientific knowledge can contribute to a more equitable and peaceful society and this is an extremely good vision and then we laid down the goals from this vision.

So some numbers. In the end, we had more than 148 countries involved in the International Year of Astronomy. We had more than 40 organization nodes, we call it organization nodes, organizations they have their activities not only in one country but in several countries like the European Space Agency or the European Southern Observatory.

Special projects. Those are independent global projects. They have independent funding in the parent organization but still they are aligned with the vision and goals or IYA and the cornerstone projects, the building blocks from the IAU and UNESCO and those were coordinated by us and they received some funds also from the Centre of Coordination.

Here in this road map, every country that you see that is marked in red is a country with a national node. So it is a country where we have national committees working hard to implement the International Year of Astronomy and we had more than 148 countries involved and this makes IYA the biggest network area in science and the biggest event in education and outreach, also in science.

Some cornerstone project. Here the logo is from the different corners on projects and they range from activities with teacher training, like the Galileo Teacher Training Programme, to the protection of the World Heritage in Astronomy, together with UNESCO, and the World Heritage Convention. The Cosmic Diary, where we invited bloggers, professional astronomers from more than 70 countries to blog about their lives, their research, their hobbies.

Some activities with the Sidewalk Astronomers, Galilean Nights, one also for astronomy, two main events that we had in April 2009 and October 2009 and together they managed to gather more than three million people and many others.

I will give you now some images, some impressions from all around the world.

This is the General Assembly in Rio de Janeiro just to tell you that the professional astronomy community was extremely engaged in the Programme as well as the amateur astronomers, here we see now observing the sky in Antofagasta in Chile. The Science Centre's Planetarium was extremely engaged and we had numbers that the public increased by 50 per cent of the Planetariums from around the world because of the International Year of Astronomy during 2009.

The educators. This is an activity in Turkey where different school teachers from all around the world were extremely engaged with international astronomy.

The political support, and here we see some of the different examples of the support that we received like the United States President Obama hosted a party with his family on the lawns of the Whitehouse. This was one of the highlights of the activities in the United States.

Also at the time, Belgian Prime Minister and now President of the European Union in one of his speeches support astronomy and also supported the International Year of Astronomy and had the opportunity to look through one of these Galileo telescopes, very cheap but very high quality telescope, and many others.

Some non-traditional events in non-traditional venues. Here is an opening event in Spain where an orchestra from Cuenca gave an extremely nice concert supported by visuals in astronomy and space.

A train in Slovenia was named after the International Year of Astronomy and had different panels with the images from outer space, in this case the planet Saturn.

An exhibition in a prison in Coimbra, Portugal. Also there were events in different places but I am just showing some non-traditional venues.

Another one, the same exhibition but this time in Switzerland and this exhibition travelled in more than 70 countries and more than 700 locations, an extremely expressive number.

More than 70 postal agencies issued 150 new stamps to honour and be inspired by the International Year of Astronomy during 2009, I think, is the biggest number of stamps issued in this specific topic, I think, is a world record.

The same with coins. Thirteen national Mints issued different dozens of coins from all around the world and here are some impressions from the Vatican, Italy, Australia, Canada.

A children's design of a garden exhibition in the United Kingdom. Here it is also to honour the astronomy and the International Year of Astronomy and an exhibition in a shopping mall in the United States.

The ferrying of the Ariane-5 at the launch of the Herschel-Planck mission. Two important missions for astronomy from last year had the banner of IYA as well as the motto of the International Year of Astronomy at the University also discover.

Some astronomy pictures in Metro Stations in Paris and a Galileo Mobile, an extremely nice project, educational project, that travelled around the Andes in South America, in this case in Chile, Bolivia and Peru and they reached many communities that usually do not have access to the top level astronomy and this was a project led by the Max Planck Institute in Germany.

And an astronomical exhibition in Baghdad, Iraq, and the same images that we saw in Switzerland by the Lake are the same images in here in this

astronomical exhibit and it is amazing how people found the different solutions to display these amazing images and to receive every day from the Universe.

A university lecture in Mozambique. World Space Week 2009 also in the framework of the International Year of Astronomy this was in Bangladesh. They are observing Jupiter with a Galileo telescope in Ghana. A travelling exhibition in a very different way in India. Star _____(?) doing one of our projects with also in astronomy in Viet Nam.

And I will give you just some preliminary results of the evaluation that we are now doing of the International Year of Astronomy.

Here you can see the Google News Reference Volume for the keyword 'astronomy' between 2004 and 2009 and you can see that there was a considerable increase of the reference volume of news from Google in 2009 and the funny thing is that we can identify every single pick that we see in this plot, like the opening event, one also for astronomy, the total solar eclipse, in Asia, and many other events. So I think it is clear that the interest for astronomy was extremely important to raise the awareness of astronomy worldwide.

So far we received 50 per cent of the reports from all around the world and the support that the countries received from their governments or from their funding agencies reaches 70 million Euros. We have reports from more than 50,000 activities from all around the world and the number of people reached by the International Year of Astronomy, and please, bear in mind that these are just the 50 per cent of the results of all around the world is around 102 million people that were reached by the International Year of Astronomy. It makes this project extremely successful.

By the end of 2009, we had this question. Do we want to save the intention(?) for astronomy? What do we want to do next? So here is an overview what we are doing now to keep the momentum, to keep to the same level of activities as the International Year of Astronomy. Here, once again, the cornerstone projects and you can see that we want to continue most of the activities and most of the activities will continue with the same task groups, the same people working and the same people implementing their projects.

Moreover, the national nodes, they also want to continue their activities and we have some very clear support from all of the 148 countries involved and some of them they still have several activities to promote astronomy and space science in their countries. So all the 148 countries, they are still engaged in promoting the International Year of Astronomy.

Earlier this month, the International Astronomical Union selected the South African Astronomical Observatory as the host institute for the Office for Astronomy Development. This will be the Office that will implement a new Strategic Plan that was done by the International Astronomical Union for the decade from 2010-2020 and it has some components in education and public outreach in developing regions. And they also want to establish some regional nodes for astronomy development with the graduate schools for different students at different levels, some PG programmes, teacher training courses, provide inputs for different programmes at lecture level, will lead the regional funding activities and there are some task forces for astronomy for universities and research, astronomy for children's schools and, of course, astronomy for the public. The three main components, the public, the high school primary students and, of course, university and research. And some of them are already taking place in cooperation with UNESCO and the United Nations Office for Outer Space Affairs. And the Office for Astronomy Development will be the body to implement this Strategic Plan, that you can access and if you want to have a copy, please let me know.

I will just also take the opportunity to say that I have a few DVDs with a movie about the history of the telescope available and I will add some copies to the desk over there but if you did not get a copy, please let me know and I will be very happy to provide you one or to send it to your home address. As well, I have the draft report for the International Year of Astronomy, just a document with around 1,000 pages and you are free to browse and to see activities in your countries.

And once again, I would like to thank the support from UNESCO, from the United Nations Office for Outer Space Affairs, and, of course, all the organizations associates and global sponsors that made the International Year of Astronomy a huge success and I know that some of the representatives are here and so once again thank you.

The CHAIRMAN: Thank you Mr. Russo for your presentation.

Are there any questions or comments?

I see none.

We have just been informed by the Japanese delegation that they ask for permission to make the presentation tomorrow morning. Some samples of their _____(?) are not yet included in the movie maybe and they want to do so.

Because we still have a few minutes, I will give the floor to the Secretariat for some announcements.

Mr. N. HEDMAN (Secretary, Office for Outer Space Affairs): Thank you Mr. Chairman and distinguished delegates. First of all, the Secretariat would like to briefly inform you about a couple of documents that have been distributed today in the pigeonholes.

The first document is a non-paper, Non-Paper No. 2, and it is about language used in the reports of the Committee and its subsidiary bodies for reflecting the views and participation of regional groups. Delegations will recall that upon a request by some delegations, this session, the fifty-third session of COPUOS should discuss the reporting language on reflecting views of regional groups. So this paper has been produced by the Secretariat to give delegations an understanding and a background for these discussions.

Under the first heading, this is the procedural terminology adopted in 1978 of the Legal Subcommittee and the Committee then endorsed. Under the second heading, it is the view expressed by regional groups and that is the precedent that we have so far from 2005. And then the Secretariat has also put two other examples under a heading "Other Examples" and they do not relate to a specific statement on behalf of a regional group, but they relate to a country, a State, a member State that has been speaking on behalf of a regional mechanism. And so the Secretariat put these two examples there on this paper as well.

Now, tomorrow morning, as announced by the Chair, we will begin agenda item 16, Other Matters, and we will concentrate tomorrow morning on organizational matters, the issues that have been prepared in Non-Paper 1 and we will also bring up for consideration the issues that I have just now read out in Non-Paper 2. So there will be a focused discussion on these two issues, organizational matters.

Then, when we continue our deliberations of agenda item 16, Other Matters, tomorrow afternoon and on Thursday, we will, of course, go back to the composition of the Bureau for the period 2012-2013, membership of the Committee, with the application of Tunisia, observer status which comprises applications by two organizations for permanent observer status, as well as the mandated discussion on the rules and procedures of granting permanent observer status. And delegations will also recall that a Conference Room Paper has been distributed today in all pigeonholes. It is basically the Conference Room Paper that was produced last year with information on the status of observer status or consultative status with ECOSOC of non-governmental organizations and this document that we have distributed today contains some updates in that regard.

Distinguished delegates, finally, I would like also to give you some information on two other documents that will be considered under agenda item 15, which is Use of Space-Derived Geo-Spatial Data for Sustainable Development.

Last week, delegations were presented with Conference Room Paper No. 7 and that document, which I have already related to last week but I would just like to repeat, contains a draft report for consideration by the Committee under this particular agenda item number 15. It comprises introduction, summary of discussions in the Committee, activities undertaken by United Nations entities and lastly, a section on conclusions and recommendations.

Now, today, delegations have received an Addenda, Addenda.1 to Conference Room Paper 7, because the Secretariat has received from the delegation of Brazil a revised set of conclusions and recommendations on ways and means to foster international cooperation with a view to building up national infrastructures to use geo-spatial data.

So, Mr. Chairman and distinguished delegates, when we consider the draft report, we will go through the draft report, as contained in Conference Room Paper 7 up till Section 4 and then we will consider the separate document updated by the delegation of Brazil, based on consultations held since the last session in 2009.

So these two documents should be seen together, Conference Room Paper 7 and Conference Room Paper 7, Addenda.1.

Thank you Mr. Chairman.

The CHAIRMAN: I thank the Secretariat for the announcements made.

Are there any comments on the announcement made by the Secretariat?

I see none.

Distinguished delegates, I will shortly adjourn this meeting of the Committee. Before doing so, I would like to inform delegates of our schedule of work for tomorrow morning.

We will convene promptly at 10.00 a.m. At that time, we will continue and hopefully conclude our consideration of agenda item 11, Space and Society, agenda item 12, Space and Water, and agenda item 13, Space and Climate Change. We will begin, it was already announced, agenda item 16, Other Matters, _____(?) organizational matters.

There will be three technical presentations in the morning, Japan, with the presentation about the sample of the asteroid brought to Earth. There will be a presentation by Germany entitled "Volcanic Ash Layers over Europe: Air-borne Observations with the DLR Falcon Researcher Craft in April-May 2010". And also a presentation made by Japan entitled "Mission Objectives and UN Status of GOSAT-IBUKI", and a presentation by India entitled "OCEANSAT-2: Meeting Global Demand".

Now I would like to invite all delegations to the Austrian Heurigen event which will take place tonight at 7.30 p.m. Delegates have received invitations in their pigeonholes.

Are there any questions or comments on this proposed schedule?

I see none.

This meeting is now adjourned until 10.00 a.m. tomorrow morning.

The meeting closed at 5.57 p.m.