

# Legal Implications of Space Applications for Global Climate Change

*A Symposium jointly organised by the  
International Institute of Space Law and the European Centre for Space Law*

*On the occasion of the  
47<sup>th</sup> Session of the Legal Subcommittee  
of the United Nations Committee on the Peaceful Uses of Outer Space*

**31 March – 01 April 2008**

## Report of the Symposium

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Climate change and sustainable development have given rise to a growing number of symposia and conferences, most notably in the field of international environmental law. The role of space applications in the management of climate change has been increasingly acknowledged. What is striking however is the almost exclusive discussion of this role within the international environmental arena; space applications and space law are considered generally a subset of measures available for environmental specialists. Deliberations on State practice in regard of international environmental regulatory mechanisms and the global nature of environmental cooperation have generally been rooted in environmental protection studies rather than international space law.

In this context, the Symposium jointly organised by the International Institute of Space Law (IISL) and the European Centre for Space Law (ECSL) points to the usefulness and originality of considering climate change issues from a different perspective. The Symposium, entitled “Legal Implications of Space Applications for Global Climate Change”, was held on the occasion of the 47<sup>th</sup> Session of the Legal Subcommittee of the United Nations Committee on the Peaceful Uses of Outer Space (COPUOS). As has been the tradition from previous years, the Symposium was held on the afternoons of the first two days of

the Legal Subcommittee sitting from 31 March – 01 April 2008. The topic was exceptionally proposed to the IISL and the ECSL in a nod to the role of international space law in addressing environmental, climate change and sustainable development issues from the viewpoint of space technology and space applications.

The Symposium was divided into two sessions. The session on Day 1 (31 March 2008) focused on “Principles and Rules”, presenting the legal framework and interaction between international space law and international environmental law. Four presentations were given by legal experts in the field, followed by an open discussion with delegates and observers of the Legal Subcommittee. Day 2 saw a shift in the emphasis of the Symposium towards “Institutions and Instruments” – the implementation, compliance and enforcement issues related to the legal implications of space applications for global climate change. The delegates and observers of the Legal Subcommittee heard another four expert presentations on this topic. The floor was then open again for queries and comments. Concluding remarks were made by **Professor Dr. Vladimír Kopal**, Chairperson, Legal Subcommittee, COPUOS / University of Pilsen, Czech Republic. Thereafter the Symposium was closed by the chair and all participants were invited to a cocktail reception hosted by the IISL and the ECSL.

## Day 1: Legal Implications of Space Applications for Global Climate Change – Principles and Rules

Chairperson: **Ambassador Dr. Peter Jankowitsch**, Chair, Advisory Board, Austrian Aeronautics and Space Agency, Austria

Speakers: **Prof. Dr. Gerhard Loibl**, University of Vienna, Austria (“Legal Features of the Climate Change Convention: from Kyoto to Bali”); **Mr. Jorge Lafourcade** on behalf of **Ambassador Raimundo Gonzalez Aninat**, Chile (“Space Applications and Climate Change” / “Implicaciones jurídicas de las Aplicaciones de la Tecnología Espacial para el Cambio Climático Mundial”); **Prof. José Monserrat Filho**, Brazilian Society of Space Law, Brazil (“Legal Aspects of Cooperation for Space Monitoring of Climate Change and Sustainable Development”) and **Prof. Joanne Irene Gabrynowicz**, University of Mississippi Law School, United States of America (“Promoting Access to, and Exchange of, Data and Information related to Climate Change: the Legal Perspective”)

**Ambassador Dr. Peter Jankowitsch** opened the Symposium with words of thanks to the delegates of the COPUOS Legal Subcommittee for inviting the IISL and the ECSL to jointly organise the Symposium. He noted that past Symposia have contributed very constructively to the deliberations of the Subcommittee delegates, especially since the topics addressed by the Symposia have regularly been adopted as a single-item agenda issue for the next sitting of the Legal Subcommittee. **Ambassador Jankowitsch** noted that the first session would give a clear overview of the legal principles relating to the use of space technology and space applications for global climate change, providing a strong basis for discussions in the Subcommittee.

The first expert speaker was **Professor Dr. Gerhard Loibl**, University of Vienna, Austria. His presentation, entitled “Legal Features of the Climate Change Convention: from Kyoto to Bali” laid the groundwork for the context of the Symposium. **Prof. Loibl** discussed the historical development of the United Nations Framework Convention for Climate Change

(UNFCCC), including the negotiations of the Kyoto Protocol and the recent conference in Bali, Indonesia. First looking at the schedule of negotiations, **Prof. Loibl** noted the lengthy negotiations needed to finalise the Kyoto Protocol, as specific details relating to the compliance and financing systems, in particular with regard to the developing States, had to be drawn up. This process carried on until the conference in Marrakech, Morocco, and only then did the Kyoto Protocol become ratifiable for all Annex I State parties. **Prof. Loibl** then discussed the current situation of the UNFCCC negotiations, drawing the attention of the delegates to the fact that the Kyoto Protocol was further stalled by the U.S. refusal to ratify the Protocol. He noted that it was only the 2004 Russian Federation ratification that triggered the Protocol, when more than 55% of the Annex I Parties’ emissions were covered by ratifications. **Prof. Loibl** turned thereafter to the discussion relating to the situation after 2012. The Bali Conference aimed to set out the future process of negotiations, including a plan of meetings to decide upon the actions after 2020. With the Bali Action Plan, **Prof. Loibl** believes that there is now a roadmap for international and national mitigation mechanisms, such as technology development, technology transfer, and the support of development countries. **Prof. Loibl** further discussed the proposals to review Article 9 of the Kyoto Protocol, and the issues of whether and how new States parties may join the commitments as listed in Annex B to the Protocol. The second issue of Article 9 reform focuses on voluntary commitments of developing States to reduce their emissions, and how these can be incorporated into the UNFCCC framework. **Prof. Loibl** also delved into the compliance system of the UNFCCC and Kyoto Protocol, particularly noting that the Protocol mechanism broke new ground with its two-part compliance system of facilitative and enforcement branches. The latter branch in particular becomes more significant this year, as with 1 January 2008, data submitted by Annex I parties will be decisive in the trade of emission certificates, participation in the clean development mechanism, and the progress of the joint development mechanisms.

The broad overview of the UNFCCC framework and international environmental law was put in context by the next speaker,

**Mr. Jorge Lafourcade**, who made the presentation on behalf of **Ambassador Raimundo Gonzalez Aninat**, Chile. Entitled "Space Applications and Climate Change" / "Implicaciones jurídicas de las Aplicaciones de la Tecnología Espacial para el Cambio Climático Mundial", the presentation aimed at focusing the principles and rule of the UNFCCC framework with regard to the specific purpose of the Symposium at hand. It was noted that the 1967 Outer Space Treaty (OST) is the most important international space law convention, and defines briefly the elementary aspects of outer space as the common heritage of Mankind. The OST also marked a qualitative change to traditional international law since it sought out new challenges in the global context, such as the peaceful uses of outer space in consideration of the global public good and human environment as provided for in Article 9 OST. In the opinion of the author, the mandate in Article 9, in the context of the principle of the common heritage of Mankind, is mandatory, and possibly a non-derogable norm. This is especially so in light of the various ambient developments since 1967, including the political changes in strategic alliances, commercialisation, new actors and novel space technology. However, two issues in particular complicate the implementation of space applications for the global public good: terrorism and intellectual property rights. In the first instance, the author is of the opinion that terrorism has exacerbated the trend towards secrecy over data due to national security legislations. The 1986 Principles Relating to Remote Sensing (RS Principles), in particular Principles 1, 4, 10 and 12, relate to the provision and use of earth observation data for climate change issues. However, the author contends that these Principles are vague and therefore weak, and in particular lacking, especially since there is no mention of global warming. The author warns of a watering-down of multilateralism to a matrix in which commercial parties and certain States seek to protect unilateral interests. Against the background of the 1996 Space Benefits Declaration, this would be contrary to the fundamental principles of international space law. The author advocates international legislation in step with the realities and needs of present and future scenarios, and proposes a resolution by the United Nations General Assembly to provide technological parameters for States to apply space

technology in the face of global climate change.

**Prof. José Monserrat Filho**, Brazilian Society of Space Law, Brazil, made the next presentation, entitled "Legal Aspects of Cooperation for Space Monitoring of Climate Change and Sustainable Development". *Prof. Monserrat* noted that climate change is the single largest scientific issue in the world, and that cooperation for space monitoring of climate change for sustainable development is a new issue facing international space law. Space monitoring of climate change for sustainable is a complex of space infrastructure that integrate earth observation and telecommunications assets. However, *Prof. Monserrat* noted that space monitoring is not a legal concept, and also did not find expression in the 1986 RS Principles or in the UNFCCC. He argued that since space monitoring is a remote sensing activity however, it should be conducted according to the 1986 RS Principles, in particular Principle 12. Principle 12 provides that all sensed States should have open access to data on their territories as soon as the data is produced, and *Prof. Monserrat* is of the opinion that this is applicable also to data relating to climate change and sustainable development. In April 2007, the United Nations Security Council recognised the threat of climate change and its environmental, social and economic impacts, in particular its threat to the maintenance of international peace and security. In this context, space monitoring is increasingly crucial, and should be subsumed under the "systematic observation and development of data archives" for sustainable development as envisaged under the UNFCCC and the Kyoto Protocol. Pursuant to Article 4 UNFCCC and Article 10 Kyoto Protocol, and against the background of the 1996 Space Benefits Declaration, *Prof. Monserrat* moots that there is a strong commitment to cooperation. He then recommends that the concepts of "space monitoring", "climate change" and "sustainable development" be defined for greater clarity and consistency, especially with respect to earth observation activities. Due to the complexity of the legal aspects underlining cooperation in this field, *Prof. Monserrat* proposes that the COPUOS Legal Subcommittee should consider this issue under a 3-year Workplan.

The last presentation on Day 1 of the Symposium was given by **Prof. Joanne Irene Gabrynowicz**, University of Mississippi Law School, United States of America on the issues of “Promoting Access to, and Exchange of, Data and Information related to Climate Change: the Legal Perspective”. Taking the perspective of a practising lawyer in advising a client, *Prof. Gabrynowicz* noted that the technologies and practices relating to climate change develop generally quicker than the law, especially since law is reactive while technology development is proactive. She also noted that issues relating to the climate transcends all organisational elements of legal institutions, jurisdictions and competences, and as such is very complex. The collective data sources for climate change also span a multitude of mechanisms, ranging from space-based assets to aerial and other in-situ data sources. *Prof. Gabrynowicz* described the three levels in the legal landscape for data procurement: International, national and sub-national. With so many principles and regulations, *Prof. Gabrynowicz* then proceeds to question what should be taken from the law. In the short term, she advocates the strengthening of coordination and communication among data providers such as world data centres, as well as to build upon scientific conventions of openly publishing and certifying data sets. In the medium-term, she proposes distinguishing between scientific and commercial data. The long-term goal as stated by *Prof. Gabrynowicz* is the establishment and maintenance of open archives for the repository of data. *Prof. Gabrynowicz* argues that to promote access to and exchange of data, there should be a presumption of openness, which should be institutionalised with some recognition of the need for clearly worded legitimate exceptions. There is also a need to harmonise and clarify inconsistent definitions and to publish relevant legislation in open source format.

Delegates and observers of the Legal Subcommittee were then called upon by the Chairperson to make their queries or comments. The delegate of **Colombia** started with a comment that the methodology of the Kyoto Protocol leads to an extremely complex mechanism for the exchange of data on climate change. He noted that the re-definition of terms is particularly necessary, and then asked the panel of speakers as to

the description of the ideal international legal framework for data provision. **Prof. Gabrynowicz** answered that her proposal of a presumption of openness at the international level would be the starting point in the generation of an ideal international legal framework.

**Prof. Dr. Frans G. von der Dunk** then commented that various speakers referred to the 1986 Remote Sensing Principles, and asked for an opinion on how the RS Principles could be made applicable to climate change, especially in light of the fact that the Principles were drafted specifically for the earth observation of land for economic use and not for climate change. **Prof. Monserrat Filho** answered that the concept of remote sensing is general and therefore there should be an identification of those remote sensing activities that relate to climate change. **Prof. Gabrynowicz** noted that the word “environment” appears in the RS Principles, and proposed that the scientific relationship between “environment” and “climate” should be resorted to, so as to clarify the law.

The delegate of **France** then pointed to the 2007 Directive issued by the European Union (EU), which obliges member States that collect earth observation data to free up databases according to international standards. It was noted that satellite data providers, EU member States and some data users have funded this operation, and there is access to information that is freely available.

**Mrs. Tanja Masson**, *President, International Institute of Space Law*, then asked the panel as to their views relating to the Chilean proposal to review the 1986 Remote Sensing Principles, whether the Principles should be adapted to current demands, whether a new treaty would be the solution, or whether working agreements between agencies (e.g. INSPIRE) would be the best path. **Prof. Gabrynowicz** pointed to the Disasters Charter as a good point of reference, noting that the activities may be different, but the value of the Charter is that there is practice evolving based on actual events. **Prof. Monserrat Filho** noted that the present level of remote sensing activities deserves a better document than the RS

Principles and it is necessary to update the Principles.

The delegate of **Algeria** then noted that there is a difference in the nuances between States. He noted that it was a question of negotiation after a sound understanding of what other States are doing for climate change. In particular, developing States should define precisely their negotiating positions so as to understand the global scenario better. Spatial remote sensing data is particularly crucial, and in this context the COPUOS should provide a forum for States to work towards the benefit of all.

**Prof. Sergio Marchisio** mentioned that one of the most controversial issues in the UNFCCC is with regard to its Article 4 precautionary approach. This approach fixes scientific, social and economic fields as one of the main objectives of the convention, including a specific reference to data archives. He noted that planet monitoring is one of the most important tools to constantly monitor climate changes and global temperature. He then tabled the question as to whether this reference in the UNFCCC is sufficient, or whether there is room still for critique. **Prof. Loibl** answered that the question of data collection has not played a prominent role in the negotiation so far. The issues relating to making the Kyoto Protocol operative, as well as post-2012 actions were focused on, with data collection taken for granted. **Prof. Gabrynowicz** further noted that the interesting point about data access and climate change is that different types of data are necessary. As such, political will to cooperate is necessary.

The delegate from **Belgium** commented thereafter of his uncertainty after listening to the Symposium that the debate is really of a legal nature. He mentioned that if it is, there are questions as to whether the issues at hand relate to the 1986 RS Principles, and whether at all the focus should be on space applications, when it should be on climate change. Space monitoring worried the delegate because there may well be developing regimes of law which are contradictory when seen from the perspective of space applications. The delegate instead proposed that this should be left up to the experts on climate change, since in itself climate change is not a legal

problem. The only legal issue at and is that access to available data may be prevented due to a lack of knowledge and the lack of a coherent approach to data provision and use. **Prof. Gabrynowicz** noted that the lack of knowledge as to the availability and use of data poses the greatest challenge to the use of space applications for global climate change.

## **Day 2: Legal Implications of Space Applications for Global Climate Change – Institutions and Instruments**

Chairperson: **Prof. Sergio Marchisio**, President, European Centre for Space Law

Speakers: **Dr. Evangelina Oriol Pibernat**, Centre for Earth Observation, European Space Agency (ESA/ESRIN), Italy (“Coordination Instruments and Satellite Observation of the Climate System: the Contribution of CEOS”); **Dr. Gisela Süß**, European Space Agency (ESA/HQ), France (“Monitoring the Environment for Climate Change: the Case of GMES”); **Ms. Masami Onoda**, Japan Aerospace Exploration Agency (JAXA) / University of Kyoto, Japan (“Monitoring the Kyoto Protocol and Beyond: Greenhouse Gases Observation & the Global Forest Carbon Monitoring System”); **Prof. Dr. Frans G. von der Dunk**, University of Nebraska, United States of America (“Legal Aspects of Climate Monitoring by Means of Treaty Law”); **Prof. Dr. Vladimír Kopal**, Chairperson, Legal Subcommittee, United Nations COPUOS and University of Pilsen, Czech Republic (“Concluding Remarks”)

Day 2 of the Symposium was based on the theme of “Legal Implications of Space Applications for Global Climate Change – Institutions and Instruments”. **Prof. Sergio Marchisio**, President, European Centre for Space Law, chaired the session. Prof. Marchisio opened the session with a look at the 4<sup>th</sup> Assessment Report of the Intergovernmental Panel on Climate Change (IPCC), noting that the Earth could warm by as much as 6 degrees Celsius by 2030. He concluded therefore that space agencies and other mechanisms for international cooperation must understand the seriousness and urgency of climate change, and to begin work on this field.

**Dr. Evangelina Oriol Pibernat**, Centre for Earth Observation, European Space Agency (ESA/ESRIN), Italy launched the second session with her presentation on “Coordination Instruments and Satellite Observation of the Climate System: the Contribution of CEOS”. *Dr. Oriol Pibernat* gave the historical development of the Committee of Earth Observation Satellites (CEOS). CEO was formed in 1984 with a view to harmonising and coordinating earth observation activities worldwide. It now has twenty-six members, mostly consisting of space agencies; and twenty associate members, which are national and international organisations that do not own any space assets. The European Space Agency (ESA) is a founding member of CEOS. Next *Dr. Oriol Pibernat* turned to the discussion of the Group on Earth Observation (GEO), and the Global Earth Observing System of Systems (GEOSS), which was launched in 2003 to integrate not only space-based systems, but also air-, land- and ocean-based systems that monitor the climate through a data management system that assessing various societal benefit areas affected by earth observation. *Dr. Oriol Pibernat* also discussed the Global Climate Observing System (GCOS), in particular focusing on its Implementation Plan. This Plan has several crosscutting actions of integrated products, reprocessing, re-analysis and archiving, so as to enable a complete atmosphere and climate monitoring database. She also considered the role of the various space agencies throughout the world, the CEOS virtual constellations, ESA, and the European Global Monitoring for Environment and Security (GMES) Programme in the GCOS.

“Monitoring the Environment for Climate Change: the Case of GMES” was the title of the presentation given by **Dr. Gisela Süß**, European Space Agency (ESA/HQ), France, which flowed seamlessly from the earlier presentation. *Dr. Süß* described in detail the purposes, operations and architecture of the GMES system. She noted that the GMES is an EU-led initiative, with three elements: services, in-situ and space. The services component produces information services in response to the European policy priorities in environment and security, and relies on data provided by the in-situ and space components. The in-situ

component is mainly a national responsibility with coordination at the European level, and can be ground-, air-, sea- or space-based. The space component sees ESA with a two-fold role. ESA is the development agency for dedicated space infrastructure, including earth observation missions developed specifically for GMES (“Sentinels”). ESA also has a coordinating function with its Member States, EUMETSAT and other intergovernmental organisations, as well as private and commercial actors. The latter function sees ESA providing its long experiences in third-party mission schemes to the GMES programme. *Dr. Süß* then spoke on the cooperation between the European Commission (EC) and ESA, both generally and specifically on the GMES initiative. She traced the timeline on the EC-ESA cooperation, noting that the December 2005 ESA Conference of Ministers in Berlin provided 255 million Euro for Phase 1 of the GMES Space Component Programme, and that January 2007 saw the approval of the EC Framework Programme 7, with 1.2 billion Euro allocation to GMES. Funding was further augmented in September 2007 with an investment of 501 million Euro into Phase 2 of GMES. The overall indicative EC budget for the GMES Space Component is 710 million Euro. *Dr. Süß* then turned to the ESA-EC Agreement on GMES, indicating the legal issues arising from conflicting procurement rules. She also discussed governance and data policy issues relating to GMES, and noted that the GMES is an on-going project with great promise.

**Ms. Masami Onoda**, Japan Aerospace Exploration Agency (JAXA) / University of Kyoto, Japan, was the next speaker. Her presentation addressed the topic of “Monitoring the Kyoto Protocol and Beyond: Greenhouse Gases Observation & the Global Forest Carbon Monitoring System”. *Ms. Onoda* introduced the early forms of use of earth observation data in international institutions, and explained the relationship between earth observation data and the arms control regime. She then turned to the present institutional model of information gathering, decision making and risk assessment, considering the structure in light of the legal context and its contribution to climate change issues. *Ms. Onoda* noted that earth observation is generally used for both environmental and compliance monitoring,

and made references to various international treaty regimes in this regard. She then focused on the UNFCCC, emphasising the change in terminology from space “monitoring” to “systematic observation”, a change that originated in the Vienna Convention for the Protection of the Ozone Layer. The Japanese GOSAT and American OCO missions were then discussed in the context of the UNFCCC obligations and the Kyoto Protocol mechanisms. *Ms. Onoda* discussed the potential of geo-information data in realising the goals and obligations of the UNFCCC framework, in particular with regard to the IPCC Guidelines. She illustrated this potential with an example from a project helmed by the Japanese Ministry of Environment on forest carbon monitoring, where satellite data is used to derive information on the status of forest cover mapping and the identification and quantification of changes. *Ms. Onoda* then discussed the integration of political requirements and technological solutions, mooting that it is essential to achieve optimal institutional procedures and space systems design. She noted that international space law is silent on these issues and proposed that greater transparency and cooperation between States may be the best way forward.

The last presentation of the Symposium was given by **Prof. Dr. Frans G. von der Dunk**, University of Nebraska, United States of America, on the topic of “Legal Aspects of Climate Monitoring by Means of Treaty Law”. In his presentation, *Prof. von der Dunk* took a bird’s eye view of the topic, presenting four essential aspects on the theme: Dispute settlement, reference to satellite data in treaties, authenticity guarantee of satellite data, and the inclusion of quantifiable parameters. On the issue of dispute settlement, *Prof. von der Dunk* argued that any dispute settlement mechanism in this regard should be tailor-made to the topic in view of its technical complexities. Referring to the International Tribunal on the Law of the Sea and other specialised tribunals, he argued that a specialised tribunal is necessary for this theme. Secondly, *Prof. von der Dunk* mooted that satellite data should be specifically referred to in treaties, as was done in the 1998 Aarhus Convention. Thirdly, he discussed the necessity to certify data authenticity so as to establish a clear audit

trail. Lastly, he mooted the determination of objective, measurable parameters by a recognised body such as CEOS or GEOSS, so as to provide standards for data provision and use. In looking to the future, he noted that treaties would be useful for reinforcing use of earth observation data in combating climate change if they are properly developed, with a special focus on enforcement issues.

The Chairperson then opened the floor for comments and questions. **Dr. Peter van Fenema**, the observer from the *International Astronautical Federation*, asked **Dr. Süß** whether, with the European GMES system specifically addressing both environmental and security needs, one use may interfere with the other through the guise of national security. *Dr. Süß* acknowledged the conflict. However, she replied that at present it is difficult for her to make a proper statement as the GMES data policy is being elaborated. Further, ESA should only comment on this issue together with the EC.

The delegate from **France** then noted that there should be an establishment of a database with data from all available earth observation satellites. He then asked as to the actions undertaken to take into account the interests of the developing States, which level of data will be made available, and how such data would be made available. **Dr. Süß** explained that the international exchange of data is being considered within the elaboration of the GMES data policy. She said that the time is not yet right to deal with this issue, since the coordination of the existing satellite data is still being discussed. **Dr. Oriol Pibernat** further added that the GEO is currently examining the aspects raised with regard to developing States, and that this will also be raised at all levels with the GMES initiative when the time is correct. **Prof. Monserrat Filho** then asked the panel and the delegates whether they would agree to this proposition being discussed by the Legal Subcommittee on its regular agenda. **Prof. Marchisio** indicated that **Prof. Kopal** will address this last issue in his “Concluding Remarks”.

**Prof. Dr. Vladimír Kopal**, Chairperson, Legal Subcommittee, United Nations COPUOS and University of Pilsen, Czech Republic, then proceeded with his “Concluding Remarks” to the Symposium.

*Prof. Kopal* opined that the Symposium was very substantive and rich in advice and legal observations. Some contributions were very instructive and academic, such as that from **Prof. Loibl**, which was very instructive on the principles and regulations of environmental law. The reports presented by **Ms. Onoda**, **Dr. Oriol Pibernat** and **Dr. Süß** showed how complex the situation with regard to environmental monitoring and climate change is, and how complicated the developments in this field have become. The presentations given by **Prof. Monserrat Filho**, **Prof. Gabrynowicz** and **Prof. von der Dunk** were more oriented towards legal conclusions and towards pinpointing the real legal issue at hand that should be discussed at the Legal Subcommittee of the COPUOS. **Prof. Kopal** noted that the subject matter is very innovative, and it is a new field with new horizon highlighting problems in the development of the law in this respect. He then advised speakers for the next Symposium to formulate in specific suggestions to the Legal Subcommittee for consideration.

**Prof. Marchisio** welcomed the insight and advice of **Prof. Kopal**, and after thanking the speakers, delegates and observers, closed the Symposium.

The 2009 IISL-ECSL Symposium will be held on the first two afternoons of the 48<sup>th</sup> Session of the Legal Subcommittee of the United Nations Committee on the Peaceful Uses of Outer Space.

The papers and presentations contributed by the speakers may be obtained from the website of the United Nations Office for Outer Space Affairs (UN OOSA) at <http://www.unoosa.org/oosa/COPUOS/Legal/2008/symposium.html> (last accessed: 23 April 2008).