

The 40th Colloquium on the Law of Outer Space

Turin, Italy

INTRODUCTION

The 40th Colloquium on the Law of Outer Space was opened by the President, *Dr. N. Jasentuliyana*, on 7 October 1997. The colloquium was attended by over 75 participants, and many excellent papers were presented. Discussion took place after each session and provided an occasion for lively debate on the most topical current space law issues.

A *Dinner Celebrating the 30th Anniversary of the 1967 Outer Space Treaty*, graciously offered by *SAGAT Turin Airport*, was held on 7 October at the beautiful *Villa Sassi* restaurant outside Turin. Over 90 persons attended, including officials of the IAF and IAA and many prominent space lawyers some of whom had actually taken part in the drafting of the Treaty thirty years earlier. *Prof. Bin Cheng*, who was awarded an IISL Award for his writings on air and space law, gave an entertaining dinner speech, elaborating on his challenging interpretations of such concepts as "peaceful uses of outer space", "outer void space" and more. Another IISL award was granted to *Amb. E. Finch Jr.*, who could not be present to accept his Certificate.

The finals of *the 6th Manfred Lachs Space Law Moot Court Competition* were held on 9 October. The competition was realized with the help of the University of Turin, the Local Organizing Committee of the IAF, KLM Royal Dutch Airlines, the European Centre for Space Law (ECSL), and the Association of US Members of the IISL (AUSMIISL). Preliminary competitions were held in Europe and the USA, and the winners of those preliminaries met in the final round in Turin. The University of Paris XI (France) and the University of North Carolina (USA) competed in the case "Openskey vs. Antipapadia", dealing with Very High Resolution (VHR) remote sensing systems. The honourable court was composed of *Judge Koroma* (President) *Judge Rezek* and *Judge Vereshchetin* of the International Court of Justice. The team of the University of Paris won the competition. Its members were *Jean-François Renaud* and *Ranjani Srinivasan*. The members of the University of North Carolina team were *Christina Benson* and *Scott Syfert*. The case was written by *Harry Tuinder*, *Marco Ferrazzani* and *Frans von der Dunk*. The case and the written briefs will be published in the IISL Proceedings. The finals of the 7th Competition will be held in Melbourne, October 1998, after regional preliminaries to be held in the Spring of 1998 in Europe, the USA and possibly Asia. The case, "Freedom v. Bravatia", dealing with the Commercial Exploitation of the Moon (The Rover Games Project), was written by *Declan O'Donnell* and *John Gantt*, and has been distributed to the universities.

SESSION 1

BACKGROUND AND HISTORY OF THE OUTER SPACE TREATY

Rapporteur: *Mr J.F. Renaud* (France)

The first session, which hosted only invited papers, was chaired by *Amb. A.A. Cocca* (Argentina). In his opening remarks, he spoke in praise of great legal experts

such as Manfred Lachs or Eugène Pépin, whose contribution to the elaboration of the existing international space regime had been invaluable.

(1) The fact that there was no activity in space prior to the launching of Sputnik 1 does not mean that there was no need for space law or that no attention was given to space issues before 1957; to the contrary, as pointed out by *Dr. S. Doyle* (USA) in his paper "Concepts of Space Law Before Sputnik". A careful reading of the works published before October 1957 "not only gives clear evidence of considerable thought devoted to space law problems, but also shows that many concepts embodied in the early international instruments purporting to create space law reflected the thoughts of numerous precursor commentators". The paper surveys the whole range of space law concepts developed by precursor commentators like Emil Laud, Vladimir Mandl, John C. Cooper or Musto, including the definition, delimitation, military uses and the legal status of outer space and celestial bodies.

(2) Focusing on a more specific topic, *Dr. Eilene Galloway* (USA), in her paper "The United States and the 1967 Treaty on Outer Space" highlighted the United States' contribution to the elaboration of the 1967 Outer Space Treaty, and more generally, the leading role this particular state played in the development of space law/activities. In 1958, the United States passed the National Aeronautics and Space Act. Following the adoption of the NASA Act, President Eisenhower requested the UN General Assembly to consider a US draft resolution proposing the creation of a UN ad hoc Committee on the peaceful uses of outer space. Lyndon B. Johnson addressed the UN and urged for the adoption of the resolution initiated by the US. This resolution, many basic concepts of which became principles in the 1967 Outer Space Treaty, was adopted on December 13, 1958. A year later, COPUOS was established. President Johnson proposed on May 7, 1966 that international negotiations begin on the preparation of a treaty providing rules and procedures for the peaceful exploration of outer space and celestial bodies. A consensus on a text was reached in early December 1966 and the Treaty was opened for signature on January 27, 1967. The US Senate gave his consent on October 10, 1967.

(3) *Prof. P. Dembling* (USA) , in a paper entitled "Negotiating issues in forming the 1967 Treaty on Outer Space" paid particular attention to the expressions of views, international treaties and other relevant events which were pertinent to the establishment of principles governing the exploration and use of outer space and celestial bodies which led, subsequently, to the 1967 Outer Space Treaty. Achieving agreement within COPUOS wasn't an easy task given the east-west tensions. Nevertheless, consensus building and compromise prevailed among the 28 members of the Committee.

(4) The former longtime Chairman of COPUOS (from 1972 to 1991) *Amb. P. Jankowitsch* (Austria) spoke on "The Role of the United Nations in Outer Space Law Development; from Cold War to Détente in Outer Space". He discussed the major influence played by geopolitical developments such as the East-West and North-South debates on space law making, and commented on the roles played by the Superpowers, their commitment towards peaceful use of outer space despite the arms-race environment, and their intentions behind that commitment (political or economic), which are even today difficult to assess. The author further described the role of the UN in trying to accommodate the national security concerns of the Superpowers on the one hand, and the "sharing in benefits" concerns of the Third World, and mentioned the Unispace conferences in this context, the third of which is to be held, like the first two,

in Vienna in 1999. Amb. Jankowitsch tried to answer the question why space law making has not gained new momentum now that the North-South and East-West debates have been settled or transformed, and concluded that this is due to the new worldwide trend of liberalization and deregulation, which led to the emergence of new actors (private entities), who are reluctant to strict regulation of their activities. Nevertheless, the author believes that the need for universal rules will renew the role of the UN and COPUOS in the formulation of space law in the interest of all nations.

(5) The paper by *Dr. He Qizhi* (China), entitled "The Outer Space Treaty in Perspective" complemented Mr. Dembling's by summing up the principles and rules enshrined in the 1967 Treaty while offering a historical background and future prospects (in particular concerning environmental issues and further moves deeper into outer space, to Mars for instance). To the question whether the existing legal space regime based on the 1967 Outer Space Treaty can accommodate the anticipated developments in this field, Dr. He's answer is yes, provided that the necessary adjustments/changes are implemented should the occasion arise. New pages of mankind's space history must now be written by means of growing international co-operation and lessons learned from the past.

(6) The role played by the two superpowers, and to a lesser extent the other industrialised states, in the development of space law and activities is often emphasized. Nevertheless, as *Mr. N. Jasentuliyana's* (UN/Sri Lanka) paper "The development of the outer space treaties and legal principles from a Third World perspective" proves, the third world's contribution to this process has been, from the very outset, far from insignificant. From the threshold of the "space age", developing countries have feared that space natural resources (including those of the Moon and other celestial bodies) could be exploited at their expense and that they could be denied access to space technology. In this new field, third world countries managed to promote international co-operation and stood up for their views of what the international regime for space activities should be. They did more than backing up the ban on weapons of mass destruction, including nuclear weapons, by requesting a full demilitarisation of outer space. Third world countries also participated in the elaboration of and supported the three additional treaties to the 1967 Outer Space Treaty, and lobbied - unsuccessfully- for the drawing up of a Dispute Settlement Agreement. Above all, the 1979 Moon Agreement appears to be the main contribution of third world countries to the development of space law on account of the introduction of the « common heritage of mankind » concept.

(7) Many of the principles enshrined in the 1967 Treaty were "inspired" by concepts developed in the UN Charter, as demonstrated by *Dr. A.A. Cocca* in his paper entitled "Solidarity and Humanism in the Outer Space Treaty". He argued that the UN Charter gives specific and unprecedented value to expressions like: peoples, generation, mankind, fundamental human rights, dignity and worth of the human person, social progress and better standards of life in larger freedom. All these concepts influenced, directly or not, the elaboration of the 1967 Outer Space Treaty.

In the course of the *discussions* which followed the presentation of the papers, the following issues were addressed, most of which were related to the future of the Moon Agreement.

- To the question why developing countries have not taken more interest in the implementation of the Moon Agreement, *Mr Jasentuliyana* replied that not much more could be done as long as the Agreement wasn't ratified and implemented by the most interested states, which is unlikely unless some of the treaty's most «sensitive» and ambiguous provisions were modified. Mr. Jasentuliyana also drew a parallel between the Moon Agreement and the Convention on the Law of the Sea which was belatedly ratified by industrialised states - after the text of the Convention was amended.

- As to what amendments would be necessary for the Moon Agreement to be revived, *Mr von der Dunk* argued that if the provision regarding the common heritage of mankind were purely and simply deleted, perhaps the industrialised states would accept to ratify the Moon Agreement .

- *Mr. J. Monserrat* (Brazil) wondered whether it is judicious or even possible to modify the Agreement, or whether one should just let space activities take their course without the benefit of a Moon treaty, and *Amb. Jankowitsch* (OECD/Austria) argued that rules are necessary to ensure the orderly development of space activities. Of course, we should proceed by steering a middle course between elaborating and implementing legal rules and letting the intervening parties compete with each other in conformity with the rules, as competition is necessary to encourage the further development of space activities.

SESSION 2

CONCEPTS OF SPACE LAW AND THE OUTER SPACE TREATY

Rapporteur: *Ms M. Longo* (Italy)

Chairmen Dr. E. Galloway (USA) and *Prof. Catalano Sgrosso* (Italy) introduced the theme of the session and welcomed the participants.

(1) *Prof. C.Christol* (USA) presented the first paper "Important concepts for the international law of Outer Space". He observed that the space age, at its outset, was not a peaceful one because of military confrontation between the Soviet Union and the United States and the birth of many new States. Nevertheless, all understood the importance of preserving outer space as the "province of all mankind". This principle is, however, abstract and does not oblige nations to share the product of their experiments. Besides there is no international intergovernmental entity with the power to enforce such distribution. Thus, States maintain the right to determine how to share the benefits and results of their space activities. The Moon Agreement, on the other hand, is more precise with its "Common Heritage of Mankind" principle because it makes provisions (Art.11 p.7 d) for equitable sharing. Despite all the difficulties in realizing the "province of all mankind" principle, the author believes that it has effectively avoided the erection of artificial barriers to the world-wide dissemination of benefits of the space age.

(2) *Amb. A.A. Cocca* briefly summarised the paper by *Mrs. Esquivel de Cocca* (Argentina), entitled "Is it necessary to redefine principles and concepts of the Outer Space Treaty?". Today the *corpus iuris spatialis* that came into force 30 years ago, is no longer satisfactory. Even though the principles of international cooperation and common heritage of mankind strongly limit the fast development of commercial activities, the efforts in realizing these principles have been worthwhile. In the light of new projects, there are several matters that need to be analysed, such as absolute liability, the legal status of astronauts and crew, or the definition of space object. The author does not propose to amend the treaty but she believes it is necessary to understand thoroughly

the principles already in force and to enshrine the rules that appear necessary for new activities in a protocol.

(3) *Ms. T. Masson-Zwaan* presented the paper by *Dr. A.D. Therekhov* (Russia) on "UN General Assembly Resolutions and Outer Space Law". The purpose of the paper was to examine the role of the General Assembly in the development and codification of international space law. Resolutions have often been adopted in the form of declarations and, with their principles, they constitute a focal point in the birth of space law. Even though they are not legally binding, they do have considerable moral and political weight, as Resolution 1962 of 1963 clearly demonstrates. The declaration of principles of 1963 is very important because if a State which is not Party to the Outer Space Treaty would appropriate a part of a celestial body it could still be considered as a violator of international law. The binding force of some provisions in the resolutions, except for the 1963 one, derives from the fact that they codify pre-existing rules. Only treaties establish unequivocally binding obligations for parties, but one of the advantages of declarations is that they are addressed to all States. The author extensively discussed all UNGA resolutions dealing with outer space over the past thirty years and up until the 1996 "Benefits declaration", including such factors as voting or adoption by consensus, language ("shall" or "should"), subsequent State practice etc, thus providing a very useful overview and a clear demonstration of the important role the General Assembly plays in the development of space law.

(4) The next speaker was *Prof. V. Kopal* (Czech Republic), who presented his paper "Outer Space as a Global Common", discussing the status of international law in various new areas of human activities such as Antarctica, Outer Space, or the Ocean Floor. Every area needs a specific regime, and the outer space regime is an example of compromise between common and individual interest in a system of cooperation and reciprocity. No perfect definition of the legal status of the new area exists, but merely a general guideline for space activities to be legal and peaceful through a system of registration, liability and mutual assistance. The Outer Space Treaty is general and left the door open for further development in additional international agreements. Space law does not provide for an international organisation or a special court for dispute settlement, contrary to the law of the sea. The author hopes that in the future the obstacles for the ratification of the 1979 Moon Agreement will be removed as has been the case with the 1982 Law of the Sea Convention. The author stressed that the Outer Space Treaty establishes guidelines and that the space regime is not yet a complete system.

(5) *Mr. F. von der Dunk* (Netherlands), in his paper "The Dark Side of the Moon", analysed the legal status of the moon. According to art. 2 of the OST, outer space including the Moon and other celestial bodies is not subject to national appropriation by claim of sovereignty. The Moon Agreement adds further precision to the OST provision, but does not provide instruments or mechanism to realise them. However, while the Outer Space Treaty was ratified by over 90 States, the Moon Agreement has only been ratified by nine States. The definition of the Moon, with regard to exploitation and use of resources, as the "Common Heritage of Mankind" remains ambiguous. The author discussed three types of jurisdiction with regard to the Moon: territorial, national and quasi-territorial jurisdiction, none of which he considered satisfactory in the light of future commercial developments. Future private activities may present specific problems that are not regulated under the current space regime, and it is advisable to address these issues without further delay and thus advance general international agreement on

the legal status of the Moon. This will also positively influence further legislation at the national level.

(6) *Dr. G. Gal* (Hungary), in his paper entitled "30 Years of Functionalism", observed that the applicability of space law depends on the orbital character of the space activity; he is a so-called "functionalist". The OST provides no delimitation between outer space and air space, but many provisions refer to the term "orbit". Dr Gal believes that, at this point, the functionalist approach is the only realistic solution. He could accept the 1987 Soviet Union proposal for a boundary established by agreement at an altitude not exceeding 110 km above sea level, but argues that even such a solution would be based on a functional approach.

(7) The next paper was by *Prof. A. Kerrest* (France): "Remarks on the responsibility and liability of states for damages other than those directly caused by the fall of a space object". It discussed potential damage caused by general space activities other than traffic accidents. He started from the distinction between the terms "responsibility" and "liability that give uncertainty to this particular field. Both terms are not defined even if, in the history of space debate, it has often been attempted to find a distinction, connecting responsibility to fault or to a wrongful act of a state, and liability to an act without fault. Prof. Kerrest observed how the privatisation of space activities will to modify space law, and discussed the US Commercial Space Launch Act. It is becoming more and more important to clarify the sense of expressions such as "national activities" and "the appropriate state". Prof. Kerrest would prefer to maintain the current system while improving its provisions relating to commercial private activities.

(8) *Dr.P.Sterns* (USA) presented the paper written with *Dr. L. Tennen* on "Exobiology and the Outer Space Treaty: from planetary protection to the search for extraterrestrial life". States are obliged to avoid back and forward contamination of the earth, the moon and other celestial bodies, and it is therefore important to provide for planetary protection policies. In the middle of 1950s, the Committee on Space Research (Cospar) began to develop policies to avoid back contamination, for example the planetary quarantine system, but the use of decontamination and cleanliness controls, adding to the cost and complexity of mission, are now becoming more and more infrequent. In the light of the discovery of possible evidence of Martian life in meteorite ALH84001 and owing to the new activities on Mars and the Moon, the problem of contamination could become pressing. Problems connected with the duty of return of personnel or space objects could increase in case of their contamination. The authors believe that these problems need to be solved urgently to protect the integrity of scientific investigation, including the search for extraterrestrial intelligence.

(9) The last speaker was *Prof. N. Poulantzas* (Greece) with the paper "The judicial settlement of disputes: returning to an old proposal". He underlined that current space law does not provide for dispute settlement, in spite of art. 7 of the Outer Space Treaty and art. 14 of the Liability Convention, and held that this gap will prevent satisfactory solution of controversies. In spite of the tendency, in international law, to create specialised international courts, the author does not favor the creation of a Court for Outer Space Matters, similar to the International Tribunal for the Law of the Sea. The author proposed to return to a proposal advanced in 1965 by Dr. D. Poulantzas, to adopt the Chambers of the International Court of Justice to settle disputes arising out of space activities.

During the *discussions*, *Prof. Christol* (USA) commented on the paper by *Dr Terekhov* (Russia), and recalled the numerous discussions about the consensus decision making process in the UN, and one of the first papers on that topic, written by Dr. E. Galloway. He held that the discussions about the choice to use "shall" or "should" are interesting, but agreed with the author's conclusion that they are not useful to define the legal status of a document.

Mr. White (USA) enquired about the necessity for more precise international regulation for the exploitation of space resources. *Mr. von der Dunk* (Netherlands) argued that, in the light of growing private activity in this field, and considering the delays in international law-making, it might be better if States would formulate rules at national level to control these activities.

With regard to *Prof. Kerrest's* paper and the terminological problems of defining "responsibility" and "liability", *Mr Wirin* (USA) claimed a sense of "majesty" for the concept of responsibility in the Outer Space Treaty. He underlined a possible distinction between responsibility connected to the future and liability connected, instead, to the past, but, in his opinion, the most important concept is the "sense of responsibility" of each State for activities, official or private, in outer space.

Ms K. Gorove (USA) commented on *Mr Poulantzas's* proposal to entrust a Chamber of the ICJ with the settlement of space law disputes, and recalled that in 1993 a Environmental Law Chamber had been created, and that this had possibly precluded the establishment of a special Environmental Court.

Finally, *Judge A. Koroma* of the International Court of Justice underlined the interest of the themes dealt with by the various papers. Regarding the creation of an "Outer Space Chamber", he argued that the ICJ would certainly examine the matter if the need for such a chamber arose. He reminded that the Court would consider the entire spectrum of international law, and not limit its considerations to space law.

SESSION 3

APPLICATIONS & IMPLEMENTATION OF THE OUTER SPACE TREATY

Rapporteur: *Mr F. von der Dunk* (Netherlands)

Dr. S.E. Doyle (USA), Co-Chairman of the Session with *Dr. G. Lafferranderie* (ESA, France), introduced the session by pointing to the necessity to look, 40 years after Sputnik I and 30 years after the entry into force of the Outer Space Treaty, at its application and implementation (and that of the other space treaties which have sprung from it) in practical terms.

(1) The first speaker was *Dr. K.U. Schrogl* (Germany), who discussed the forthcoming UNISPACE III conference and the activities which should follow that conference in his paper "Space Law at UNISPACE III (1999) and Beyond", co-authored by *Dr. M. Benkö*. In UNISPACE III the focus should be on space applications like earth observation and telecommunications, from the point of view of international cooperation and international law. Speaker considered the political setting very favourable for reaching some substantial results, and characterized UNISPACE III as a "clearing house" which should "filter out" topics interesting for discussion and at the same time with the potential for success within UNCOPUOS. He considered in particular as potential topics: 1) those following from cases like Sea Launch, 2) nuclear power sources; and 3) space debris.

(2) *Dr. A.A. Cocca* shortly presented the paper of the absent *Dr. M. Williams* (Argentina) on "The Development of Article IX of the Outer Space Treaty".

Environmental issues continued to demand attention, and therefore also more precision than Article IX of the Outer Space Treaty afforded with respect to relevant obligations of states. The paper discussed some of the main notions requiring further definition from this perspective, as well as some other relevant documents on the issue of environmental harm and outer space activities.

(3) The third speaker was *Dr. G. Lafferranderie*, who presented his paper on "The Outer Space Treaty and the International Organisations conducting Space Activities". Dr. Lafferranderie pointed out that implementation of any legal text constitutes the real "proof of the pudding", and discussed especially Articles VI and XIII of the Outer Space Treaty from this perspective. How to implement these central Articles was not foreseen by the texts themselves. Thus, for example Article XXII of the Liability Convention and Article VII of the Registration Convention do not provide any specifics as to what substance the respective declarations thereunder, applying the particular legal regime to an international organization, would require. Speaker discussed the two ESA declarations as the first examples of implementation in this respect. Also, related issues with regard to Spacelab and the international space station passed scrutiny.

(4) Then, *Mr. B.L. Smith* (France) presented his paper entitled "Problems and Realities in Applying the Provisions of the Outer Space Treaty to Intellectual Property Issues", a paper co-authored by *Ms. E. Mazzoli*. Mr. Smith extensively discussed and criticized the implementation which the US Space Bill on intellectual property rights issues presented with regard to pertinent provisions of the Outer Space Treaty. It led, most specifically, to "flags of convenience" in outer space, and "forum shopping" for private space entrepreneurs. In this respect he pointed at the analogy presented by the case of Sea Launch. Also, the patent claim of TRW, effectively extending to a whole range of orbits, as protected by the US legal system, was analyzed. Speaker concluded that, in order to prevent the United States from de facto unilaterally defining the status of complete areas of outer space, Europe should also extend intellectual property rights legislation into space, so as ultimately to force a measure of harmonization on the global level.

A short *discussion* ensued. *Prof. C.Q. Christol* (USA) found some useful suggestions in Mr. Smith's presentation, and wondered whether they might be worthy of consideration by UNISPACE III. He then asked whether Mr. Smith considered that Article VI of the Outer Space Treaty, providing for authorization and control, and violation of the substantive provisions of the Outer Space Treaty by TRW's patent had ever impeded science, to which the answer was "no". *Prof. K.H. Böckstiegel* (Germany) wondered whether the Outer Space Treaty, by presuming and even establishing the free use of outer space, had not already been violated as such by the United States' legislative actions, to which Mr. Smith answered with an emphatic "yes". *Dr. Doyle* finally pointed at the analogy - to some extent - of the patent to ITU's allocation of certain slots and orbits to states, which was however an allocation occurring at the international level by an intergovernmental body with almost global membership.

(5) The next speaker, *Mr. D. O'Donnell* (USA), claimed with regard to the Outer Space Treaty, that "This Treaty Needs a Lawsuit", as the title of his paper went. He considered that the recent United Nations Resolutions on international benefit sharing contained only some philosophical principles, and must therefore have seemed a rather meagre implementation, if not indeed some sort of a betrayal, read violation, of the lofty ideas behind Article I of the Outer Space Treaty. In regard of the different theories he saw arising on benefit sharing, between 'the North' and 'the South', he suggested a

'Rule 23-class action' under United States law as a possible legal tool for 'the South' to enforce a more just interpretation of that clause of Article I.

(6) *Dr. Doyle* presented the paper of the absent *Mr. H.H. Almond* (USA), on "Interaction of the Law of Outer Space with Terrestrial Law". The paper discussed, from the aforementioned perspective, the application problems as evident in the fields of space debris and space militarization. The author of the paper for instance wondered whether space law would still be adequate in the light of the fact that states themselves would have to take any steps to disarmament. He proposed to seriously regard a mix of private and public law regimes as a possible means to ameliorate the disadvantages of the sovereignty which still remained in this respect.

(7) The seventh speaker was *Prof. I.H.P. Diederiks-Verschoor* (The Netherlands), whose paper discussed "The Development of Financing of Spacecraft". In second instance, *Prof. Diederiks-Verschoor* considered that "The Development of Spacecraft Financing and Cooperation" would have been a better title, as the major aspect of the developments discerned was the growing measure of international cooperation. Whereas the first financial arrangements regarding space activities had been matters of purely national concern (NASA and the Soviet government), from 1973 onwards (NASA-ESRO cooperation, with "no exchange of funds") the financing of space operations became a matter for international agreements also. Speaker specifically discussed from this point of view the ESA Convention with its system of mandatory and optional programmes, the international space station project, and international satellite organizations such as INTELSAT, INMARSAT, ARABSAT and EUTELSAT. Finally, she dealt with the financing scheme of ITU as a topic presently under discussion.

(8) After the break, a special paper was presented by *Mr. A. Debus* (France), co-authored by five other authors, on the "Mars 96 Planetary Protection Program and Implementations for Mars Environment Preservation". In this technical paper, coupled with a number of very illustrative slides, firstly an overview was given of the history of Mars' planetary protection as an issue. A new recommendation by COSPAR on the matter was discussed. The Mars 96 Mission Planetary Protection Program was then discussed extensively, for example regarding the allowable standards of decontamination and decontamination methods for the various instruments involved. Finally, the cooperation aspects as between Russia and France, the two states participating in this programme, were highlighted as a practical example of cooperation in outer space matters.

Dr. L.I. Tennen (USA) asked the author whether the mission involved life protection experiments on board, to which *Mr. Debus* answered "no", inter alia because the decontamination required resulted (hopefully!) in an environment impossible for sustaining any life.

(9) *Mr. Y. Hashimoto* (Japan) then presented his paper on "The Legality of Military Observation from Outer Space". He discussed the question of reconnaissance satellites, and their legality, from the 1950's onwards, and pointed out that Article IV of the Outer Space Treaty really represented the only military provision regarding the use of outer space. He made the comparison in this regard between the freedom of the high seas and the freedom of outer space, and came to the unequivocal conclusion that reconnaissance operations undertaken in outer space were perfectly legal. Speaker then dealt with the ISMA project, as constituting an effort to combine the principles of peaceful use, to the extent relevant for outer space, and international cooperation. He concluded by pointing at the need to activate the UN system for ensuring peace within

the framework of the UN Resolution on remote sensing, in order to draw maximum benefits from space reconnaissance.

With regard to this paper, *Prof. G. Gal* (Hungary) generally agreed with the observation that military reconnaissance has been allowed, and pointed inter alia to the ABM Treaty in this respect. He then, however, asked to what extent such a bilateral treaty could legalize as such the military activities under consideration. Also, he wondered to what extent the provision by a third state of important data to one of the parties in an armed conflict could be considered legal or illegal. *Mr. Hashimoto* replied firstly that bilateral agreements, while as such of course not binding upon third states, could considerably contribute to the establishment of relevant customary law, particularly if it involved the two most important states from the perspective of global military power and any global treaty on the subject was absent. Secondly, he pointed out that the non-discrimination-requirement made one-sided provision of reconnaissance data in an armed conflict illegal.

(10) As the tenth speaker, *Mr. E. Brooks* (USA) dealt with the "Dangers from Asteroids and Comets: Relevance of International Law and the Space Treaties". *Mr. Brooks* extensively dealt with the various categories of asteroids and comets, and essentially concluded that they had two important legal aspects: that of detection of these heavenly bodies, and that of deflection. He then dealt with the various treaties and other documents regarding space, analyzing each of them as to their relevance on these two legal aspects. Thus, for example the Outer Space Treaty and the Moon Agreement, but also the Nuclear Test Ban Treaty and the Environmental Modification Treaty passed scrutiny.

(11) Next, *Prof. A. Kerrest* (France) dealt with "Launching Spacecraft from the Sea and the Outer Space Treaty: the Sea Launch Project". He explained the double advantage of Sea Launch: physically launching from (close to) the equator, and the use of cheap launch technology and hardware coming from the former Soviet Union. Then he focused on the legal aspects, especially those regarding liability. A very illustrative slide enumerated all the states one way or another involved in the project. Discussing the liability regime as provided by outer space law, he came to the conclusion that the notion of 'territory', as used for the launch, presented "the lock on the system"; once this lock is open, problems abound. Speaker also shortly discussed the various proposals to amend or change the present liability system, as inter alia following from such projects of Sea Launch and the possible inadequacy of the present space law liability regime to deal with them.

The paper raised an interesting and heated discussion. *Mr. W. Wirin* (USA) proposed to have the slide showing the list of states involved in Sea Launch again on the overhead projector, and then to ask the audience to 'vote' off-hand, at each particular state, whether the involvement of that state in Sea Launch would suffice for qualifying it as a launching state for cases of damage arising as a consequence of Sea Launch operations. This was done, and if the ensuing 'vote' did one thing, it was confirming that amongst space lawyers little agreement exists so far on the precise scope of the term 'launching state' for liability purposes. *Prof. Christol* asked what the legal relevance of Long Beach being the 'home-port' of the Sea Launch venture would be, to which *Prof. Kerrest* answered that it would be the flag of ship and launch platform which would count under international law. Yet, the 'vote' just taken confirmed that nevertheless even this form of involvement was interpreted by some to make (in this case) the United States a 'launching state'.

(12) The last speaker was *Prof. P.B. Larsen* (USA), who discussed "Legal Issues in Augmentation of Global Navigation Satellite Systems (GNSS)". While his remarks were largely relevant also to other GNSS systems (most prominently of course GLONASS), he dealt in first instance with GPS. He considered that neither the Standard Precisioning Service (SPS) nor the Precise Positioning Service (PPS) suffice in terms of accuracy for the intended purposes of e.g. precision aircraft landing. Thus, local or regional augmentation systems were required. From this perspective, he then discussed the American WAAS and marine systems, the EGNOS system in Europe, and the Japanese augmentation system. He finally put these systems in the perspective of the Outer Space Treaty, and in particular the liability regime as it had arisen in space law.

Commenting on this paper, *Dr. E. Galloway* (USA) wondered whether the ITU (or another global institution similar to it) would not present the best option for arriving at a coherent international legal regime for these operations. *Prof. Larsen* agreed that ITU had some role to play, but considered the analogy with remote sensing as dealt with at the international level more adequate. *Dr. Galloway* reiterated, that one overarching international authority with the necessary expertise would be required to realize an internationally workable environment for future GNSS. In addition, *Mr. Kinnell* of INMARSAT pointed out that legal issues regarding either the use of EGNOS, or WAAS, or both, were already being discussed within INMARSAT amongst other fora. Finally, *Mr. F.G. von der Dunk* answered the question of *Dr. Galloway* in some more detail, by pointing out that within the multiple discussions being presently undertaken on the operational GNSS systems and the augmentation systems, as well as on future systems and a coherent global regime therefore, a prominent topic was that of establishing a separate global GNSS Agency which should guarantee a just and workable balance between the various interests involved.

SESSION 4

THE FUTURE APPLICATIONS OF THE OUTER SPACE TREATY

Rapporteur: *Dr. O. Ribbelink* (Netherlands)

The last session was chaired by *Prof. K.-H. Bockstiegel*. Almost fifteen papers on a wide variety of topics were presented. As far as feasible, the papers were scheduled according to subject matter, so as to create some consistency throughout the session.

(1) *Dr. L. Perek* (Czech Republic), "Outer Space Treaty in Perspective". *Dr. Perek* gave an outline of a needed Agreement on Space Debris. At the time of the conclusion of the OST it was tacitly assumed that (then still few) space debris would disappear in outer space, and concern dealt more with possible contamination of the environment by extraterrestrial matter (cf. art.IX OST). The new agreement should take into account: 1st: the existence of space debris (95% of all objects in space); 2nd: criteria to determine whether an object is debris or not - there exists no problem with fragments or detached parts, but with inactive but still orbiting satellites; 3rd: the status of space debris and the liability of the original owner; 4th: the difference between space object and space debris; 5th: the legal status of those who dispose of orbiting non-maneuvrable debris, and the legalisation of such activities. The new Agreement, however, should not re-open the OST.

(2) *Mr. M. Williamson* (UK), "Protection of the Space Environment under the Outer Space Treaty". *Dr. Williamson* addressed the need for good arrangements for the protection of the planetary bodies (e.g. Moon and Mars) from debris which will inevitably result from future development and exploitation. This topic could very well become just

as important as orbital debris is today. Since the OST in its present form does not provide for adequate protection, and the development of the Moon and Mars is expected to begin in the 21st Century, we would be well advised not to wait too long with the discussion of an adequate instrument.

(3) *Prof. G. Catalano Sgrosso* (Italy), "Must the special typology of aerospace planes lead to the supplementation of the rules of the Outer Space Treaty?". After discussing different types of Aerospace planes and theories, Prof. Catalano Sgrosso concludes that the functionalist approach is the most suitable. Nevertheless, some measures are necessary in order to solve the conflicting situations in which the aerospace plane could find itself, e.g. with regard to the passage through the air space of third States, the identification of the launching State, the crew statute, and the regime of liability. However, the amount of time needed for the adaptation of existing legal instruments or the creation of a new instrument would be excessive. Also, since States do not wish to give up their exclusive competence and in order not to slow down their space activities, it is to be expected that States will prefer to regulate through means of specific *ad hoc* agreements.

(4) *Mr. C.H. Rebellon Betancourt* (Colombia), "The Treaty of '67 in Front of 21st Century". (no paper given to Rapporteur). The author held that the OST should be amended and supplemented, and that the concepts "Envoys of mankind" and "Common heritage of mankind" need to be developed further.

(5) *Dr. N. Goldman & Dr. D.J. O'Donnell* (USA), "Revisiting the Outer Space Treaty: A re-examination of the Sovereignty-Jurisdiction Compromise" (short summary presented by Jeri Mercer-Fike, United Societies in Space, USA). The OST, although dealing with many topics, neglects the concept of jurisdiction, while the day when we live and work in outer space is nearby. A choice should be made between the two related components in the sovereignty-jurisdiction compromise in the OST: either limited sovereignty (non-appropriation) or ultimate sovereignty of humankind (province of mankind / common heritage of mankind). For the first option the Native American analogy might offer some guidance, while for the second the concept of the Trust Territory might find applications.

(6) *Dr. D.J. O'Donnell & Dr. N. Goldman* (USA), "Astro Law as Lex Communis Specialis". The authors proposed to extend the existing *Corpus Iuris Spatialis* with a common law in space: *Lex Communis Spatialis*, or as he called it: Astro Law. This will be necessary to regulate the everyday behaviour of people in space, which today is not addressed by the existing treaties.

(7) *Prof. T. Kosuge* (Japan), "Commercialization of Space Activities and Applications of the Space Treaty ... Geostationary Orbit and Frequency Spectrum". Prof. Kosuge spoke about the need to optimize the use of the orbital space and frequency spectrum for the further development of commercial satellite communications and broadcasting services. Domestic management could implement more efficient, effective and economical use of the limited natural resources. The Australian experience (the auctioning of spectrum licenses) could serve as one example of a market-oriented approach in dealing with the challenges posed in the search for ways to optimize the use of these resources.

(8) *Prof. M. Andem* (Finland), "Implementation of Article IV of the Outer Space Treaty of 1967 During the 21st Century" (no paper distributed). Prof. Andem stressed the need for peaceful uses of Outer Space, especially with regard to future generations.

Now that the Cold War had ended, time had come for a new understanding, and possibly a new meaning, of the concept of peace.

(9) *Ms. K. Cramer* (USA), "The Lunar User's Union - An Organization to Grant Land Use Rights on the Moon in Accordance with the Outer Space Treaty". Ms Cramer spoke about the need to devise some form of regulation for the use of the surface of the Moon, since not all of the expected activities will be compatible. A "Lunar Users Union", modeled after the ITU, could deal with lunar territory and grant rights for specified activities in specified areas, to insure non-interference. Scarce resources would be allocated without granting ownership, thus staying within the bounds of the OST.

(10) *Dr. J. Monserrat Filho* (Brazil), "Total Militarization of Space and Space Law" (new title). Speaker warned about recent attempts to step up the militarization of Outer Space. Especially in the USA, based on the theory that "non-aggressive" equals "peaceful", there is much discussion about the need to control space. It is remarkable that now, in the new post-Cold War reality, global disarmament advances as never before, but there has been no legal advance with regard to closing Outer Space to the arms race. One of the first tasks, both urgent and logical, will be to update Art.IV OST, which now still permits placement of arms in outer space, (with exception of nuclear and mass destruction weapons). The historic mission is to close the sky for the arms race forever.

(11) *Mr. W. N. White Jr.* (USA), "Real Property Rights in Outer Space". Mr. White proposed a regime of real property rights which would provide an element of legal certainty and incentive for private ventures into outer space. Existing international space law permits limited, functional property rights, which will permit free access to all areas of outer space and the celestial bodies, because these rights do not necessitate territorial appropriation cq. national claims of sovereignty. The regime, which will be easy to implement, would be legal under both common law and civil law theories of property, and under Articles II and VIII OST.

(12) *Prof. F. Lyall* (UK), "Telecommunications and the Outer Space Treaty". Prof. Lyall stressed that although telecommunications have been recognized, from the very beginning, as a very important use of outer space, the subject has been remarkably absent in space law, except for some of the very early UN Resolutions and the ITU. There is e.g. no specific mention in the 1963 Principles nor in the 1967 OST. However, there are some worries with regard to the present first-come-first-served system, the abuse of (Tonga) and non-compliance with (Indonesia, China) Procedures, phantom satellites (notifications of systems in embryonic state), lack of supervision, the pressures towards privatization and competition (e.g. the deregulation-mania in the EC). The goal of global non-discriminatory telecommunications services may be lost, and "public utility" services may be in danger. This does not necessarily mean that an amendment of the OST is the answer, since all these problems concern implementation by states of international agreements.

(13) *Dr. L.F. Martinez* (USA), "Space Telecommunications and the Internet: implications for the Outer Space Treaty". Internet developments (esp. GMPCS systems) will, according to Dr. Martinez, challenge Art.VI OST and its focus on state authorization and supervision. The shift from analog to digital technology will mean a shift of control from the network operator to the user; together with the shift to commercialized information markets this will mean an end to government (PTT) monopolies; Also, traditional governmental jurisdictional boundaries will blur as a consequence of the evolution from circuit-based regulation to service-based regulation; this will have

consequences for traditional views on intervention, since it will become increasingly difficult to separate military and civilian networks. The technological, economic and security boundaries of state jurisdiction on which the OST is premised may no longer exist.

(14) *Dr. M. Hoskova* (Czech Republic), "Outer Space Treaty as a framework for the regulation of space debris". *Dr. Hoskova* stated that the OST and the Liability Convention do not provide sufficient basis to effectively cope with space debris, since space debris appear to be interpreted as a sub-category of space-objects or as their component parts, which has consequences for the ownership of space debris. This may not pose a problem for relatively large objects the state of registry of which can be easily identified, but it does for smaller particles. The latter should *de lege ferenda* be excluded from the protection of ownership so that they can be removed without consent of the owner. In order not to deprive a state from compensation for damage from the latter, the creation of a special fund seems appropriate, the precise legal formulation of which would represent a constructive approach and contribute to the regulation of the legal consequences of damages occurring in outer space.

In the discussions, *Prof. S. Gorove* (USA) asked whether the definition of (aero-) space-object (in particular with regard to the Aerospace plane) will remain an issue for discussion within the Legal Sub-Committee of UNCOPUOS. *Dr. Schrogl* answered that this topic, which had been put forward by the SU, mainly in view of specific questions regarding the Buran-project and the necessity to approach the landing site through the airspace of third states, has been discussed within the framework of the delimitation-item. Several delegations were of the opinion that no special passage right should be created for such aerospace-objects. Although the Buran project has been terminated, the topic is likely to remain under discussion, if only because in UNCOPUOS-practice the removal of topics is much more difficult than the addition of new topics. *Judge V. Vereshchetin* (ICJ/Russia) later stipulated that the original proposal did not only relate to the Buran-project, but to various other planned systems as well. Also, he added, the Buran project is not dead, it just does not exist anymore, and other projects are under way.

Prof. C. Christol asked *Dr. Perek's* opinion on the issue of space objects which had become debris and the procedure which had to be followed to determine as such, and, what to do with these objects that were no longer space objects. *Dr. L. Perek* answered that fragments should be separated from objects. This however, poses no major problem. Much can be done through the use of tracking systems, as there are technical ways to determine whether one deals with a fragment or an entire object. The bigger problem is to determine which satellites have ceased to be active. In fact, this is a question to which only the owner knows the answer. This will have to be solved through means of the Registration Convention. *Dr. Perek* had noted the difference between his approach and the approach suggested by *Dr. Hoskova*, which he attributed to different points of departure. He suggested they work together in order to try to reach a common position.

Mr White Jr. asked *Ms. Cramer* whether materials to be found on the surface of the Moon were evenly distributed or concentrated in certain specific areas only, since this could be of relevance to the issue of property rights. *Ms. Cramer* answered that the most relevant material, Helium 3, is evenly distributed over the surface of the Moon.

The last question was from *Mr F. Smith* (UK) who had noticed that the discussion on property rights mostly concerned the Moon, and he wondered what the situation was

with respect to asteroids. *Ms. Cramer* replied that there has been mention of plans to claim passing asteroids with the prospect of their exploitation.

Hereafter, the 40th Colloquium was closed and the President thanked all those who contributed to it and invited all to the 41st Colloquium in Melbourne.*

Session Rapporteurs:

Jean-François Renaud (University of Paris XI, for session 1)

Marialetizia Longo (University of Rome, for session 2)

Frans von der Dunk (International Institute of Air and Space Law, Leiden University, for session 3)

Olivier Ribbelink (T.M.C. Asser Institute, The Hague/University of Amsterdam, for session 4)

Editor:

Tanja Masson-Zwaan (IISL Secretary/ Colloquium Coordinator)

* 28 September - 2 October 1998. Information about the Colloquium, session topics and procedure for the submission of abstracts, as well as the Manfred Lachs Space Law Moot Court Competition may be obtained from the IISL Secretary via fax (++65-4661163) or e-mail (jtmasson@cyberway.com.sg), or from the IAF Website (<http://www.IAFASTRO.COM>)