

44TH INTERNATIONAL COLLOQUIUM ON THE LAW OF OUTER SPACE TOULOUSE, FRANCE, 1-5 OCTOBER 2001

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INTRODUCTION

The 44th Colloquium was held successfully in Toulouse, despite the tragic September 11th terror attacks in the USA and the explosion of a chemical plant in Toulouse several weeks before the IAF Congress, which certainly did not make things easier for the organizers. Several people had decided to cancel their trip amidst the uncertainties, but the great majority of speakers and participants did not change their plans and enjoyed a good colloquium, excellent food and a great jubilee moot court and IISL Dinner. Almost 100 persons attended the sessions and most papers were presented.

In his opening words, Mr. Jasentuliyana remembered Prof. Stephen Gorove, one of the Institute's Honorary Directors and a Former Vice-President, who passed away in August. The Institute will dearly miss his excellent contributions to space law since the very beginning, as well as his warm and kind personality. The Secretary had prepared a book of remembrances containing the many messages of long-standing and more recent members of the Institute. The book will be offered to Prof. Gorove's children, Katherine, Michael, Stephen and Colleen, who have also been active supporters of the IISL and its activities for many years and will hopefully continue to be closely involved!

The IISL held its second successful **PLENARY EVENT**, entitled "A Fresh Look on Spectrum Management". It had been organized by Prof. Lucien Rapp of the University of Toulouse. The purpose of the session, which was attended by about 100 persons, was to review existing procedures in order to identify problems and propose solutions. Speakers were Robert Jones (Director, RadioCommunications Bureau, ITU), Lawrence Spiwak (President, The Phoenix Center, Washington DC), Prof. Jacques Cremer (IDEI, University Toulouse 1), Noah Samara (WorldSpace; Washington DC), and Prof. Lucien Rapp (SaTeLex, IEID, University Toulouse 1). N. Jasentuliyana chaired the session.

Mr Jones explained the role of his Bureau and the procedures for registering frequencies with the ITU. Mr. Spiwak talked about problems relating to spectrum policies, especially in the USA, where priority is often given to national interests. This makes market entrance for foreign competitors very difficult. Mr. Crémer explained why he preferred public spectrum auctions over other procedures of frequency allocation, and gave an objective overview of the pros and cons of each procedure. Mr. Samara presented the view of industry, focusing on the considerable needs of developing countries. Prof. Rapp provided "a fresh look" at possible reforms to improve frequency allocation procedures at both the international and national level. During the debate, the suggestion was made to place the fees charged for frequency allocation in a Fund to assist the developing countries in improving their mobile and satellite communications networks.

The 44th Colloquium hosted the tenth Manfred Lachs Space Law Moot Court Competition, and for this occasion a prestigious new "Manfred Lachs Trophy" was introduced. It was sponsored by two generous members and arranged by Leslie Tennen. The trophy carries the names of the nine previous winning universities. The three winners of the regional rounds held in the Asia-Pacific region, USA and Europe competed again in the international rounds. They were the National University of Singapore (Celina Chua and Gerardine Goh), the University of North Carolina (Charles C. Kyles and J. Patrick Haywood), and the University of Dijon, France (Nicolas Bauch Labesse and Jamel Rbah, with Séverine Ros as Alternate). The teams from France and the USA met in a semi-final round, judged by Prof. Hobe, Prof. Gabrynowicz and Prof Andem. The American team won that round and moved on to face Singapore in the final round before three judges of the International Court of Justice; President Guillaume and Judges Koroma and Vereshchetin. The National University of Singapore was victorious and took the trophy home, and the US team won the awards for best brief and best oralist (Chip Kyles). The case, dealing with remote

sensing, had been written by Dr. Frans von der Dunk. The briefs of the three teams had been judged by Prof. Bin Cheng, Dr. Peter van Fenema, Dr. William Wirin, Ms Patricia Sterns, Prof. VS Mani and Prof. Chia-juì Cheng. Many thanks are due to all of them for their help! Thanks are also expressed to Dr. Jean-Jacques Runavot of the Local Organizing Committee, who arranged for two outstanding locations for the Final and the Dinner, namely the historic Hôtel-Dieu St. Jacques (a former monastery) and the elegant "Salle des Illustres" of the Capitole. That dinner will be hard to match, both in terms of food and prestige – a nice challenge for Houston!

The "Mairie de Toulouse", the "Société Française de Droit Aérien et Spatial" (SFDAS), the "Association pour le Développement du Droit de l'Espace en France" (ADDEF), the University of Toulouse 1, the Local Organizing Committee for the IAF Congress, the Association of US Members of the IISL (AUSMIISL), the European Centre for Space Law (ECSL) and NASDA (Japan) sponsored the 2001 Moot Court Competition in various ways and their help and support has been greatly appreciated.

Another first this year was the grant of the "Diederiks-Verschoor Award" for best paper by a young scholar. The Award, donated by Prof. Fernandez-Brital (Argentina), was given to Mr Alvaro Fabricio dos Santos of INPE, Brazil, for his paper "Brazil and the Registration Convention". The jury was composed of Prof. Peter Haanappel, Prof. Maureen Williams and Prof. Ram Jakhu.

Lastly, IISL Secretary Tanja Masson-Zwaan was awarded the IISL Distinguished Service Award during the Closing Banquet of the IAF Congress; I am honoured by and very pleased with this recognition! In my absence, several people worked very hard to take over all the tasks, and many sincere thanks are expressed to Marcia Smith, Olivier Ribbelink, Frans von der Dunk, Ulrike Bohlmann, Susanne Reif, and any others I may forget, for making the colloquium and moot court and festivities run so smoothly!!

SESSION 1- EMERGING ISSUES OF INTERPRETATION AND APPLICATION OF SPACE TREATIES

Chairmen: **Dr. Gabriel Lafferranderie** (France/ESA) and **Dr. Ernst Fasan** (Austria).

Rapporteur: **Dr. Philippe Achilleas** (France/ISU)

21 presentations were scheduled, but the number of papers presented was reduced to 16, plus one initially not scheduled presentation. Due to the large number of papers, there was no time for general discussion. Most papers were of a high quality and the issues raised corresponded with the current debate on basic principles of space law. For a better understanding of this report, the papers have been grouped by space law issues.

Privatization / National Space Legislation.

Four papers dealt with the results of "Project 2001" initiated by Prof. Dr. Bockstiegel: "Project 2001: Conclusions and Recommendations of the Working Group on Privatisation with Regard to Issues of International Space Law" by **Susanne Reif** (Germany), "Project 2001: Recommendations and Results concerning the Process of Privatisation and Issues of Economic Law" by **Bernhardt Schmidt-Tedd** (Germany), "Project 2001: Final Results of the Working Group Launch and Associated Services" by **Philip Makiol and Chr. Kohlhasse** (Germany), and "Project 2001: Recommendations of the Working Group on National Space Legislation" by **Kai-Uwe Schrogl and M. Gerhardt** (Germany). Questions were raised on the relations between the initiative and competition law, the speaker underlining that it will provide the basis for fair competition. From these presentations, at least two conclusions can be drawn. First, the adoption of national legislation is a way to stimulate competitiveness of national private operators. Second, there is nowadays a need for European harmonization of national space legislation and the German experience could be a basis for this new step towards regulation of private space activities.

Another paper on national legislation was presented by **Philippe Clerc** (France): "French Current Plans for a National Legal Framework". He announced that a report on French space legislation will be submitted to the Minister, and would be presented during a symposium with European participation in the first half of 2002.

Frans von der Dunk and Atle Nikolaisen (The Netherlands) co-authored the paper "Vikings First in National Space Law: Other Europeans to Follow - The Continuing Story of National Implementation of International Responsibility and Liability". They described the recent "discovery" of the first national space act in the world, that is, the Norwegian Space Act of 1969. This act entered into force even two weeks before Norway ratified the

OST. It is further noteworthy that at that time neither the Liability Convention nor the Registration Convention had yet been concluded. The Act consists of only three articles. Art.1 states that authorisation is needed to launch objects into outer space from Norwegian territory, and Art.2 provides that the Ministry is competent to issue regulations on control of the activities concerned. The third article merely states that the Act enters into force immediately.

The last paper on this issue was “The Regulation of Commercial Space Launches: The Differences between the National Systems” by **Michael Davis** (Australia) and **Tare Brisibe** (Inmarsat). The authors concluded that the license regime is balanced between public safety and protection of States from international claims. He also underlined that national licensing regimes must ensure competition for national industry.

Responsibility / Liability / Registration

Luis Castillo (Argentina) arranged for his paper “Some Thoughts on State Responsibility and Commercial Space Activities” to be presented by Prof. Monserrat Filho.

Motoko Uchitomi (Japan) presented a paper on “State Responsibility/ Liability for ‘National Space Activities’”, and **José Monserrat Filho** (Brazil) presented the paper: “Some Thoughts on State Responsibility and Commercial Space Activities”. **Maria de las Mercedes E. de Cocca** (Argentina) presented a paper on “Legal Concept of Space Object and State Responsibility”. She explained that in order to establish liability, all space objects should be identifiable but that technically this would be difficult for micro-particles. She also noted the need to define the term “component part”.

Edward Frankle (NASA) who presented the paper “Once A Launching State, Always *The* Launching State?” made very interesting observations on the notion of ‘Launching State’. According to him, the attempt to convert the term “Launching State” into a uniform term will be an injustice for space industry since this term is used in conventions intended for very different purposes: the Liability Convention and the Registration Convention.

Alvaro Fabricio dos Santos (Brazil) presented his paper “Brazil and the Registration Convention”, which won the new “*Diederiks-Verschoor Award*”. He explained that Brazil did not accept the Registration Convention because the conditions of registry do not preclude the launch of objects that could endanger mankind. Recently the Brazilian

Government decided to adhere to this Convention without reviewing its critics. Therefore, when Brazil will become a Party, it will be in a stronger position to promote amendment of the Convention.

Dr. Lafferranderie remarked that there could be future problems regarding the use of the Alcantara launching site in case of absence of a rapid accession to the Registration convention by Brazil.

Gennady Zhukov (Russia) presented the paper: “Can the State from whose Territory a Space Object was Launched Declare itself as non Launching One?”. He raised the issue concerning the Russia-Kazakhstan Treaty that provides that in case of damage connected to the Baikonur cosmodrome, only Russia bears liability. He concluded that the Republic of Kazakhstan, while declining in some cases its status of launching State, will in the case of damage to a third State by a space object launched from the Baikonur Complex be considered as a Launching State, jointly and severally liable with the Russian Federation.

Militarization of outer space

K. Nakatani (Japan) in his paper “The Taepodong Missile Incident and Emerging Issues of Interpretation and Application of Space Treaties”, concluded that the launching of a missile above and over another State is illegal and that the territorial State may take countermeasures. He also underlined that that the Liability Convention covers missiles.

International Space Station

Maria Helena Fonseca de Souza Rolim (Brazil) presented the paper “The USA-Brazil Implementing Arrangement on the International Space Station: Interpretation and Application”. She recalled that Brazil was not a partner but a participant. The discussion following the presentation focused on the nature of the ISS Agreement according to the Brazilian constitutional law. The speaker confirmed that although it was an “executive agreement”, the text was considered as a (binding) treaty.

Definition of celestial body

Virgiliu Pop (UK) in his presentation “A Celestial Body is a Celestial Body is a Celestial Body” concluded that there is no absolute answer to that question. **Armel Kerrest** (France) remarked that there is no need to ask questions when the answers can be found by simply using the rules on treaty interpretation codified by the Vienna Convention on the Law of Treaties.

Dispute Settlement

Two papers showed very concrete aspects of dispute settlement in space law: "Conflicts Resolution in the Conditions of the Reform and Commercialization of the Space Industry in the Commonwealth of Independent States (the CIS) Countries" presented by **Natalya Malysheva** (Ukraine) and "Lessons Learned from Japanese Space Activities and Experiences with Dispute Settlement Measures in Regulating Space Activities" by **Masahiko Sato** (Japan).

SESSION 2: EMERGING LEGAL ISSUES IN SATELLITE TELECOMMUNICATIONS

Chairmen: **Prof. Lucien Rapp** (France) and **Amb. Peter Jankowitsch** (Austria)

Rapporteur: **Ulrike Bohlmann** (Germany)

Ulrike Bohlmann (Germany) presented a report, written with **Kai-Uwe Schrogl**, on the "Conclusions and recommendations of the Working Group on Telecommunication" of Project 2001, which was part of the extensive study on the legal framework for the commercial use of Outer Space, initiated by the Institute of Air and Space Law of the University of Cologne and the German Aerospace Center. The Working Group tackled issues of privatization, liberalization and commercialization of the telecommunication sector and paid special attention to the needs and interests of newly emerging actors but also emphasized the protection of the public interest.

Patrick Salin (Canada) recalled features of the "New Global Governance Dialogue on International Communications and Outer Space". He raised some critical questions as to the appearance of non-state institutions that freely organize their own relationship with their members on a worldwide basis and the new international legal environment. In this context, the legitimacy of new actors behaving like public authorities was challenged and a necessity to sustain the traditional public authorities was underlined. Furthermore, he stated his conviction that the global governance dialogue between peoples, nations and cultures should be persevered.

Jürgen Heilbock (Germany) concentrated his presentation "European Regulator for Telecommunications: the Need for a Change" on the European process of liberalization in the

satellite communications sector and the problems European actors still have to face in the absence of a European-wide licence and the multitude of agencies involved. This situation was described as extremely difficult especially for the SME in Europe, resulting in the fact that always a certain period of time has to elapse until the European consumer can benefit from innovations already introduced in other markets around the globe.

In her paper "In the Giant's Footprint: Bringing MSS Service to Urban Areas", **Heather C. Walker** (USA) depicted the current discussions in the USA on mobile satellite services using terrestrial repeaters. This technical possibility offers the advantages of a global satellite service system also in urban areas that - due to the poor reception of satellite signals - used to be in the hands of terrestrial operators. The licensing of these - to a certain extent hybrid - systems poses new challenges as terrestrial wireless competitors raise objections to the inherent market advantages MSS systems enjoy if implementing terrestrial repeaters while using un-auctioned spectrum. In order to pave the way for operators developing a truly global communications system of this kind, Ms. Walker suggested an international agreement streamlining the approval process of terrestrial repeater equipment. This could be possible by building on the existing GMPCS agreement.

After advancing the meaning of the terms "interest", "legal interest", "public interest" and "world interest", **Francis Lyall** (UK), in his paper "The Role of the World Interest in Space Telecommunication Activities" reflected the principle that space should be used rationally, economically and efficiently. In this context, he then focused in particular on the necessity to maintain public services in the process of the transformation of major telecommunications entities from an intergovernmental status to private entities.

Bradford Smith (France), in his presentation entitled "Intellectual Property Issues for the Galileo Project", gave an overview of the questions concerning patent matters arising in the context of this joint European project. The main topics he addressed concerned existing third parties rights, the heterogeneous IPR regimes currently applied by the various potential actors in Galileo as there are the EC, ESA, the Member States, their national

space agencies etc., and potential conflicts arising from the basic differences between US and European intellectual property law. As a possibility to solve some of the problems implied in this cooperation, he suggested the establishment of a patent pool among the different actors involved.

The paper presented by **Caroline Videlier** (France) was entitled "Legal Qualifications of Signal in Space and Relevant Liability Regimes". In approaching the definition of signal in space she arrived at the conclusion that it can neither be qualified as a space object nor as a space activity but rather as a service.

Lee F. Berger (USA) in his presentation "Proposed Legal Structure for the SilkSat Satellite Consortium: A Regional Intergovernmental Organization to Improve Telecommunications Infrastructure in Central Asia and the Trans-Caucasus Region" first gave an extensive review of existing international satellite organizations and their different structures. In his analysis he then identified the model of an intergovernmental organization, despite the recent popularity of the private corporate model, as the appropriate structure for SilkSat because of the chances of such an IGO to concentrate its efforts on providing basic telecommunications development at a low cost instead of maximizing profits. To him, this structure of SilkSat as an IGO will ensure that Central Asia and the trans-Caucasus region can reap the benefits of the information age.

The paper "UNIDROIT Space Protocol: Comments on the Relationship between the Protocol and Existing International Space Law" by **Paul Larsen** (USA) was summarized by Olivier Ribbelink. The author came to the conclusion that in the preliminary draft Space Protocol there is nothing that is inconsistent with existing space law. Furthermore he underlined that UNCOPUOS would be the appropriate Supervisory Authority for the Protocol's registry, subject however, to the full reimbursement of all incurred expenses.

The session was concluded by Prof. Zhukov's summary of the paper by **Victor Veschnov** (Russia), entitled "The Procedure of Filing And International Legal Protection of the Intersputnik's Planned Satellite Networks". The corresponding procedures elaborated and used by Intersputnik

were described in detail and as a final conclusion it was stated that they are very efficient.

SESSION 3: LEGAL ISSUES ARISING FROM THE COMMERCIAL AVAILABILITY OF HIGH QUALITY REMOTE SENSING IMAGERY

Chairman: **Prof Armel Kerrest de Rozavel** (France)

Rapporteur: **Dr. Olivier Ribbelink** (The Netherlands)

The first paper was presented by **Philippe Achilleas** (France), on "High-Resolution Remote Sensing Imagery and Human Rights". He discussed the impact that human rights law can have on the development of high quality commercial remote sensing systems, notably in the areas of law relating to freedom of information, and the right to privacy. With regard to freedom of information he noted that while the media are using more and more remote sensing data, the only criterion requested by law is that the information must be intended for the public in general. Remote sensing data fall within the scope of this freedom regardless of their resolution and whether it concerns primary data, processed data or analyzed data, and whether or not the data are for commercial use. On the other hand, the emergence of commercial high-resolution remote sensing can generate new threats to privacy. However, even with the current high resolution systems, individuals cannot be physically identified. The author suggested to make a clear distinction between the phase of acquisition of the data and the phase of exploitation. Also, there is a clear responsibility for remote sensing operators in terms of the diffusion of data or analysed information.

Mukund Rao (India) presented his paper on "Highres Imagery - Are We Entering The No-More Secrets Era?" With the availability of (commercial) High Resolution Imagery, the divide between "free access" civilian images and "restricted" military images will disappear. This will enforce the pressure for control mechanisms re the control over imaging and sensing (e.g. "shutter control"). Presently, governments throughout the world are unprepared for the coming era of global transparency. There is a need for broader international understanding, preferably within the framework of a multilateral forum, to deal with the new challenges, taking into account the basic civil

right to information, the concerns of governments of "sensed states", as well as the legitimate right to privacy.

The paper by **Lucy Stojak** (Canada) on "Security Implications of Higher Quality Remote Sensing Imagery" was presented by Louis Haeck. The author suggested that the initiative to resolve questions regarding space and security, control over data, and the relations between commercial use and military/security interests could come from within the G-8 (Group of Eight), which could then invite other countries with a particular interest in the topic, e.g. China, India and Brazil. A second option would be to include the latter three immediately in a new G-11.

Steven Freeland presented the paper by **Ricky Lee** (Australia) on the "Military Use of Commercial Remote Sensing Data". There is often a mixture between military and civilian use of outer space. In the post Cold War era, military systems have become partially available for civilian use, while military establishments have begun to purchase data from commercial operators, instead of operating systems of their own. The paper stated that although the Remote Sensing principles as such are non-binding, Principle IV and Principle XII are binding international customary law. The author made a plea for a binding instrument on Remote Sensing if only because there are no adequate remedies for States for non-economic injuries following from contravention of principle IV.

Michel Bourbonnière, Louis Haeck and Pierre Nadeau (Canada) were the co-authors of a paper on "Radarsat-2 Regulatory Issues and International Law Perspectives on Commercial Remote Sensing and Military Activities". The authors used the example of Radarsat-2 (launch in 2003), which will help to provide Canada with autonomy in space based remote sensing technology, to discuss access control policies which serve a national security goal and must assure government priority access in times of crisis. Considering that the technology to neutralize foreign satellites does exist, the questions are whether a remote sensing satellite can be a legitimate military target, and whether launching sites can become legitimate targets, in conformity with the definition of military object. It was emphasized that even when they would be determined as such, under the existing laws of war, certain principles will apply with respect to their

neutralisation, that is, the principles of proportionality; military necessity; distinction (no indiscriminate attacks); and humanity. The authors concluded that while presently commercial remote sensing is an international activity governed by national laws, it is perhaps time to address commercial structures for space based earth imaging collectively in an international instrument.

Luc Dufresne (France) spoke about the "Protection of Space Data Products under the European Directive on the Legal Protection of Data Bases". EC Directive No. 96-9 of 11 March 1996 defines a database as "a collection of independent ... data ... arranged in a systematic or methodical way and individually accessible by electronic or other means". This means a.o. that a file of space data, e.g. mere photographs, are excluded from this definition. According to recital 17 of the directive, a scanned photograph could not be a database, but a digital model of land and a Spot scene do meet the requirements since their respective measurements are arranged in a methodical manner, wherein each element has a specific place within the whole. The Directive creates a sui-generis right over databases, that is, protection of the result of an investment, on the condition that there has indeed been a substantial investment (both qualitative and quantitative), relative to the content of the database. This right differs from protection by copyright which requires that the database must be an intellectual creation. The author regrets the absence of agreement on the sui generis right over databases between the EC and other States, in particular the major space powers on other continents.

Maurice Andem (Finland) discussed the "Protection of the Sovereign Rights of the Sensed States in the Commercialisation and Privatisation of Remote Sensing Activities". In the new millennium, space science and technology will be the main tools for the management of resources and the environment. This requires more transparency between the States and private enterprises that carry out remote sensing activities, and the sensed States that have to be protected. The author stressed the need for conclusion of a treaty on remote sensing, because of the growing number of private actors and because thus far the participation of the private sector is regulated by each individual sovereign State. The latter would also require a process of unification or harmonisation of national laws.

SESSION 4- OTHER LEGAL MATTERS

Chairmen: **Prof. Elisabeth Back Impallomeni** (Italy) and **Prof. Toshio Kosuge** (Japan)

Rapporteur: **Virgiliu Pop** (UK)

The papers gravitated around several main threads, notwithstanding the broad diversity of topics allowed by the title of the session - *other legal matters*. However, the prevalent subject was clearly that of *space debris*.

The first overview of the subject, concerning “The definition of space debris”, was presented by **Lubos Perek** (Czech Republic). He remarked that the five space treaties do not mention space debris, yet 95 % of trackable objects in outer space have terminated their function, do not serve any useful purpose, and pose a risk to active satellites. He called for space law to recognize the distinction between active spacecraft and space debris as two different kinds of space objects, and for a definition reflecting that space debris are non-functional. The author also suggested that only the launching State, being the owner, could make an authoritative announcement as to the status of the object. Other proposals ranged from a mechanism for such announcements, to general provisions for some classes of space debris, such as debris smaller than a certain size, or fragments generated by break-ups or explosions, reserving individual announcements for a relatively small number of large objects. The instrument proposed by the author should contain selected safety and mitigation standards, such as the re-orbiting of geostationary satellites into disposal orbits, and should explicitly state that the liability for damage caused by space objects is not affected if an object becomes space debris. Another proposal of the author called for a provision for the transfer of specified obligations of the launching State to an eventual new owner or operator.

The next speaker, **E. Jason Steptoe** (USA), proposed “A way forward in legal standards for orbital debris mitigation”. The author remarked that recent discussions of space law and orbital debris have tended to focus upon proposals for legal principles to be approved by the Legal Subcommittee of the UNCOPUOS; he further discussed current efforts to adopt, endorse and implement debris mitigation practices on an expedited basis, and explored complementary legal arrangements for achieving broad adherence to

agreed practices and, as appropriate, making them binding upon States.

The presentations on orbital debris continued with an analysis of “The Impact of Orbital Debris on Commercial Space Systems”, presented by **Tare C. Brisibe** (Inmarsat) also on behalf of the co-author, **Isabel Pessoa-Lopez**. The speaker outlined the importance of space debris as a factor affecting the exploration, exploitation and the environmental protection of outer space. He mentioned the deliberations currently being conducted at national and international levels in order to implement measures to minimize the potential risk and financial loss that space debris may cause to orbital assets - such as the initiatives focusing on establishing a technical basis for addressing the complex attributes of space debris. The speaker was of the opinion that the current *corpus juris spatialis* contained inadequacies that give rise to issues including registration, liability and insurance, especially in the light of increasing commercially oriented space systems.

The subject of “Limits to a State's liability for extra-territorial activities” was investigated by **Carl Q. Christol**, (USA) who drew attention to the real threat posed by large-scale debris to commercial space activities. The speaker noted that, although the UN has given attention to this problem - particularly to means to mitigate damage to persons and property-, some countries have been reluctant to engage in legal discussions that would clarify the measures available to prevent such harms from occurring. The 1972 Liability Convention places no limitation on the monetary compensation that can be awarded to an injured party and, the author remarked, if the large-scale debris of one country were to produce catastrophic consequences in another country, the former would bear the full burden of such harm. This might substantially impede on that country's engagement in the exploration, use and exploitation of outer space and its resources. The speaker called for consideration to be given to modifying the terms of the quoted convention so that limitations or caps would be placed on the amount of compensation that can be claimed by those experiencing catastrophic harm.

The views of **Maureen Williams** (Argentina/UK) on “Space debris in the academic world and the world of practical affairs” were summarized by **José Monserrat Filho**. The academic aspects of the

subject were first addressed, with a focus on the teaching experience of the author as well as the views of the doctrine, in light of the conclusions reached at UNISPACE III IISL Workshop, at other interdisciplinary meetings on the subject, and emerging from the different stages of elaboration of the 1994 ILA International Instrument on Space Debris. The presentation moved on to practical aspects, dealing, *inter alia*, with the unrelenting growth of commercial space activities and ensuing probabilities of damage caused by space debris, the sometimes divergent views of international experts on the need to have more specific rules on the matter, the question of insurance, and the political obstacles standing in the way of agreement on more precise international rules to tackle space debris. All these are seen as calling for the immediate inclusion of the space debris topic on the agenda of the UNCOPUOS Legal Subcommittee.

“Autonomous settlements and environmental protection in the law of outer space” was written by **A. A. Cocca, P. M. Sterns, L. I. Tennen** and **M. M. Esquivel de Cocca**, and was presented by the latter. The establishment of permanent habitats in space was seen as requiring consideration of the form and structure of local governmental systems - perhaps leading to autonomy as the preferred modality; the inter-relationship between independent settlements and the global community will present unique legal challenges, the applicability and suitability of terrestrial legal regimes needing to be determined. The authors examined these issues in the context of the *corpus juris spatialis*, focusing on the need of identification of the parameters of authority of self-governing entities especially with regard to matters of environmental protection and preservation.

Liara Covert (Canada) presented a paper co-authored with **John B. Gantt** (USA) scrutinizing “Autonomous multilateral teams and their Impact on Customary Practice: New Contributions to Public International Space Law”. Space policy-making arenas were seen as following the trend set by international environmental law that establishes patterns for decision-making powers and situation-specific compliance mechanisms; as practical examples were quoted the International Space Station Program and programs concerning global warming awareness and action, where States and their agencies cooperate. They contribute representatives to subsidiary, decisional-advisory

bodies, which engage in consensus building to develop customary practice with the goal of achieving adherence of underlying commitments by group members. The authors saw these bodies as autonomous, multilateral teams that communicate on a periodic basis and serve in advisory capacities without having the traditional status of diplomats. With smaller numbers of persons involved as compared to larger, multinational negotiations, the bureaucracy and the time required to reach and implement decisions is minimized. Increasing global interdependence compels the development of new approaches to international cooperation. Intercultural exchanges can benefit from “soft law” frameworks that are complemented by team participants with both interdisciplinary expertise and the desire to reconcile collective goals of the participating States and/or organizations.

The subject of the *teaching of space law* was referred in the papers of several authors.

Oscar Fernandez-Brital (Argentina) examined thus “The teaching of the minimum elements of space law”, asserting that, while space law is already consolidated, its teaching is not as widespread as it should be for its correct enforcement. The author quoted Argentina as an exception, because space law, thanks to the pioneering efforts of Amb. Cocca, is taught at different levels since the 1950's, both in law colleges and even in non-judicial ones. In the teaching of space law, the author identified four essential topics, namely the legal regime of outer space, of space vehicles, of the people involved, and liability. He urged the IISL to tend to a wider spreading in the teaching of its minimum elements by, *inter alia*, writing a guideline about these basic principles.

Louis Haeck and **Michel Bourbonnière** (Canada) presented their views on “The teaching of space law at the dawn of the new millennium”, in a paper co-authored with **Pierre Nadeau**. The speakers briefly outlined space law education within various countries, with a particular emphasis on Canada. They listed the civilian and military institutions that teach space law courses, further reviewing the ethical aspect of space law education. Finally, the speakers made some recommendations regarding the promotion and teaching of space law, for instance the drafting of a common space law doctrine manual involving scholars from both sides of the Atlantic.

Toshio Kosuge (Japan) presented an overview of the “Digital divide and space law”, starting from the Okinawa Charter adopted following the 2000 summit of the G8 countries, and the Tokyo Declaration adopted by the Asia Pacific Telecommunity. These documents were directed *inter alia* at alleviating the digital divide in the context of 95% of the world population not participating in Internet activities. The speaker remarked the need for international cooperation in such fields as standardization or management of radio frequencies and satellite orbital positions that are needed for cost effective and efficient development of information and communication infrastructure.

José Monserrat Filho (Brazil) contributed two papers; the first one examined “Acts of aggression in Outer Space” in the context of new tendencies in military uses of outer space, which could admit armed hostilities there, and the need for special regulations of such a serious situation to international peace and security, including the legal definition of acts of aggression in outer space. The decision by the US Administration to deploy an Antimissile National Defense System was seen as possibly leading to the weaponization of outer space and consequently to the transformation of outer space into a theater of war. In the same line, US military doctrines aiming at the establishment of control and superiority in outer space have as their central point the inevitability of warfare in outer space and the necessity to deny access to outer space to “the enemies”. International Space Law aims to protect peaceful uses of outer space and does not contemplate the possibility of space military aggressive actions. Chapter VII of UN Charter, applicable to outer space, is the most valuable source to legally analyse any case of aggression in outer space, but was seen as not sufficient. The UN Resolution of 1974 on the Definition of Aggression may be a useful reference, though it did not foresee any kind of outer space aggression. The paper pointed out that, in the present world condition, steps must be taken as a global priority, to ensure an objective legal definition of act of aggression in outer space, rather than leave it to the discretion of a single State alone.

The second paper, co-authored with **Valnora Leister** (Brazil), outlined the main legal and political arguments used during the “Discussion in

the Brazilian National Congress of the Brazil-USA Agreement on the Alcantara Spaceport Technology Safeguards”, signed in Brasilia in April 2000. The Brazilian Government considers that the Congressional approval of the Agreement is an indispensable step in its efforts to make possible the participation of the Alcantara Spaceport in the international commercial launch market, because the US private enterprises represent the great majority of the clients in this market. The opposition forces in the Brazilian National Congress, however, criticize the Agreement as damaging legitimate Brazilian sovereign rights and interests. Analysis of this kind of Agreement, as well as the juridical debates it raises, are very important to any project to create a legal framework for the world-wide launch industry, that effectively reflects the interests of all countries.

Maria de las Mercedes E. Cocca (Argentina) presented a paper co-authored with A.A. Cocca, P. Sterns and L. Tennen, on “Autonomous Settlements and Environmental Protection in the Law of Outer Space”. This paper dealt with the establishment of permanent habitats in space and on celestial bodies and whether terrestrial legal regimes are applicable and even suitable. The authors state that the right of mankind to establish space settlements is inherent to the human condition, and that the recognition of the autonomy of such a settlement is a *conditio sine qua non* for the unity of the *corpus iuris spatialis*. Certain principles of that *corpus iuris spatialis*, incl. environmental protection provisions, could apply to the activities of an autonomous space settlement, whether by voluntary agreement or by application of *ius cogens* or customary international law. The protection and preservation of the natural environments of space and celestial bodies is considered as an extension of the principle of the common heritage of mankind.

Finally, an analysis by **A. C. Charania** (USA) and **Yuri Takaya** (Japan) examined the “Legal constituencies and economic efficiencies of space solar power” from a joint Japanese and American perspective. The authors expressed their view that, due to the current climate of limited public funding for such large-scale space projects, governments would prefer more industry involvement in SSP. Conceptual case studies of innovative future government and private sector partnerships for SSP were presented. Public / private partnerships were described as likely to enable SSP to be both

amenable to receipt of modern public treasuries and commercially feasible versus other energy sources. This analysis served in fact as a bridge between session 4 of the 44th Colloquium on the Law of Outer Space and another IISL event, namely the 19th Scientific-Legal Roundtable, co-organized by the IAA and dedicated to the *scientific and legal implications of establishing solar power systems on the geostationary orbit*.

DISCUSSION SESSION:

Chairman: **Mr. N. Jasentuliyana**

Rapporteur: **Dr. Olivier Ribbelink**

Before the start of the discussion session, the chairs of sessions 3, 4, and 1 gave a short summary presentation of their sessions, as well as the Rapporteur of session 2. Their remarks were then summarized by the President of the IISL. The discussion focused on the following topics:

Remote sensing:

The first intervention was by **Joanne Gabrynowicz** (USA) who commented on the issue of dual use of remote sensing satellites. Since the UN Principles do not include military satellites, nor commercial satellites, COPUOS has no authority to discuss issues that involve national security. The question was brought up whether the UN indeed has no jurisdiction on military issues. **Luc Dufresne** stated that commercial and private systems – commercial activities directly or indirectly undertaken by states fall outside the scope of the UN 1986 Remote Sensing Principles. He is in favor of law-making for private enterprise to act like states in this respect. **Prof. Andem** stressed that the above-mentioned problem emphasizes the important role of private international law and that we have to make a distinction between public and private international law. Also, there is a need for the harmonisation and unification of national laws. **Dr. Ribbelink** pointed out that this debate involves the distinction between acts *iure imperii* and acts *iure gestionis*, and thus of sovereign immunity and various jurisdictional issues. This could be, and maybe should be, a topic for further and more detailed discussion in the future.

Dr. Bourbonniere referred to the fact that market structures will determine the future. We should consider in future discussions what is the supply side and what is the demand. **Dr. Rao** recalled the rapid technological changes and the much

overlooked question that the user must be known. We need a good definition of "user", because the question "who is the user?" refers to a very important aspect of the matter, whether the producer also uses the data or whether that is someone else. **Prof. Christol** stated that the gathering of intelligence information involves not only space law but also international law in general and international humanitarian law. The issue is the legality of the unilateral gathering of reconnaissance information in order to maintain self-defence. He warned that we should beware of the tyranny of labels; we must think in broader terms.

Dr. Perek commented on the paper by **V. Pop**. According to him there is no problem with the present definition of celestial bodies. That definition worked well for several decades. Dr Perek also commented on the paper by **J. Steptoe** on space debris. He agreed that there is a need for a treaty, and that we should begin discussions on that legal instrument now, because it takes so long to reach agreement (start now, if we want to adopt a document within forty years...)

Military uses of outer space:

Dr. Haeck asked Dr. Achilleas whether he thought that human rights law would apply in time of war.

Dr. Achilleas pointed out that on the one hand there are references to times of war in the human rights texts and that on the other hand there is a certain possibility that the full exercise of human rights in times of war will be restricted and/or limited.

Dr. Van Fenema commented on **Dr. Frankle's** paper. He agreed with Dr. Frankle, but added that nevertheless a certain link exists between the treaties as some states did not ratify the Rescue Agreement prior to the finalisation of the Liability Convention and the Registration Convention. He gave the example of The Netherlands as one of the countries which only ratified the Rescue Agreement after these two other Conventions had entered into force. However, one should keep in mind that the launching state under the Registration convention is not automatically also the launching state under the Liability Convention. **Dr. M.M. Esquivel de Cocca** reminded that the state of registry is one of the launching states under the Liability Convention. According to **Prof. Christol** the issue of proof should not be too difficult here. **Prof. Andem** recalled the law of nationality, and analogies with maritime law, because if there is any accident with an aircraft one looks at the nationality of the

aircraft. In terms of liability the nationality aspect should be taken into account.

HEREAFTER, the Colloquium was closed. With many thanks to the four rapporteurs for their accurate and timely submissions: Philippe Achilleas, Ulrike Bohlmann, Olivier Ribbelink and Virgiliu Pop.

The **45th Colloquium on the Law of Outer Space** will be held during the 2nd World Space Congress in **Houston**, Texas, USA, from 10-20 October 2002 (IISL Sessions between 14-18 October). For session topics and further information please visit www.iafastro.com or e-mail the IISL Secretary at tanja.masson@pacific.net.sg