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**Committee on the Peaceful  
Uses of Outer Space  
Legal Subcommittee  
Forty-eighth session  
Vienna, 23 March-3 April 2009  
Item 5 of the provisional agenda\*  
Information on the activities of international  
intergovernmental and non-governmental organizations  
relating to space law**

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intergovernmental and non-governmental organizations  
relating to space law**

**Note by the Secretariat**

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\* A/AC.105/C.2/L.274.



## **I. Introduction**

The General Assembly, in its resolution 63/90, endorsed the recommendation of the Committee on the Peaceful Uses of Outer Space that the Legal Subcommittee should consider, as a regular item of its agenda, an item entitled “Information on the activities of international intergovernmental and non-governmental organizations relating to space law”. The present document was prepared by the Secretariat on the basis of information received by 30 January 2009 from the following international intergovernmental and non-governmental organizations: European Centre for Space Law and International Law Association.

## **II. Replies received from international intergovernmental and non-governmental organizations**

### **European Centre for Space Law**

#### **A. Background information**

##### **1. Introduction**

1. The European Centre for Space Law (ECSL) was established in 1989, at the initiative and under the auspices of the European Space Agency (ESA), with the support of a number of pioneers in the field. It functions under a charter defining its missions, structure and objectives (the last version was adopted in June 2007).

##### **2. Objectives and organization**

2. The main objective of ECSL is to build up and spread in Europe and elsewhere an understanding of the legal framework relevant to space activities. Information exchange among interested stakeholders along with improvement and promotion of the teaching of space law are the two major tools to reach that goal. Another ECSL ambition is to provide updated information on the European contribution to space activities beyond Europe and thus to enhance the European position in the field of space law practice, teaching and publications.

##### **3. A flexible and open structure**

3. The Centre brings together mainly professionals, lawyers, academics and students and encourages interdisciplinary exchanges. It is organized in a flexible manner and has no legal personality. The ECSL structure provides a forum for discussion for all those wishing to take part in a constructive debate on space law. The ECSL General Assembly, open to all members, meets every two years and elects the ECSL Board, ensuring that different professional stakeholders and geographical zones are equitably represented. The Executive Secretariat is responsible for the management and growth of the Centre’s activities.

##### **4. The Board of the European Centre for Space Law**

4. Members of the ECSL Board are elected by the ECSL General Assembly for a period of two years and are nationals of ESA member or associate States or of other

European countries that have concluded a cooperation agreement with ESA. Board members have outstanding backgrounds and experience in space law and commit themselves to actively promoting the purposes of ECSL at the national and international levels.

#### **5. Membership and network**

5. Natural or legal persons from ESA member or associate States or of other European States that have concluded a cooperation agreement with ESA can become members of ECSL upon payment of an annual fee. Membership confers the right to participate in ECSL activities, to vote (active and passive vote) at the General Assembly and to receive ECSL publications, in particular the ECSL newsletter. Membership must be renewed at the beginning of every year (in January or February).

#### **6. National points of contact**

6. To facilitate its contacts with members, the spread of information and organization of activities, ECSL has encouraged the establishment of national points of contact that act as an interface between ECSL and its members. Thus, points of contact have been set up in Austria, Belgium, the Czech Republic, Finland, France, Germany, Italy, the Netherlands, Spain, and the United Kingdom of Great Britain and Northern Ireland. Their status differs depending on whether an institute or centre for space law exists in the country concerned and on the legal form that their members have chosen. The national points of contact, with organizational support from ECSL, play an important role in promoting activities such as conferences, symposiums and research on space issues. ECSL is working to increase the presence of new national points of contact in ESA member States (there are currently 17 member States) and even non-member States.

#### **7. Financing**

7. Currently, most ECSL funding is provided by ESA from its general budget, while other institutions provide support for specific events such as the summer course. Since January 1994, a small annual membership fee has been required from ECSL members.

### **B. Activities**

#### **1. Summer Course on Space Law and Policy**

8. The Seventeenth ECSL Summer Course on Space Law and Policy was organized by ECSL and the University of Genoa in Italy, which is especially well known for its study programme on maritime transport and aerospace law studies. The Course was held at the University of Genoa, from 1 to 12 September 2008.

9. The Course was attended by 35 students of 15 different nationalities from the following 13 countries: Austria, Belgium, Brazil, Finland, France, Germany, Greece, Italy, Mexico, Nigeria, Poland, Spain and United Kingdom. The students participated in 41 hours of lectures on space law and policy issues by 36 academics or practitioners specialized in the area of space. Divided into eight teams, the

students successfully solved a problem entitled “Space for security: simulation of an international call for tenders” (coordinator: P. Achilleas of the Institut du droit de l’espace et des télécommunications, Université Paris-Sud XI). That exercise, which was split into two parts (a written report and an oral presentation in front of a panel of space experts), gave the students the opportunity to improve their English and to put into practice the knowledge acquired at university and during lessons. The preparatory work carried out by the teams was supervised by four tutors: Beatrice Weihert (Germany), Julie Abouyehia (France), Roberta Battista (Italy) and Damian Bielicki (Poland). The tutors helped students to make their research and presentations intelligible, logical and clear. The award for best written report went to the team called Prometheus (composed of Charles-Edward Dumont, Marita Ioannou, Kokoro Ohki and Stefano Spano); the award for best oral presentation went to the team called Space Net (composed of Susanne Knasmueller, Kyriaki Monezi, Francesca Ines Moretto, Hyoun-Seoung Yang and Thomas Zéphirin); and the award for best rhetoric performance went to the team called Leonidas (composed of Ioannis-Alexandros Ioannidis, Vincent Juillet, Daniel Konrad Link, Mari Angeles Lopez and Nina Wanke). The winning team was Space Net. At the end of the Course, the students took an exam that required them to answer questions of a legal nature related to the lessons they had attended during the intense two-week Course.

10. The Eighteenth ECSL Summer Course on Space Law and Policy will be held in September 2009. The exact date and venue are yet to be decided.

## **2. Manfred Lachs Space Law Moot Court Competition**

11. The European rounds of the Seventeenth Manfred Lachs Space Law Moot Court Competition were held at the Riga Graduate School of Law in Riga from 16 to 19 April 2008.

12. Eight teams (27 participants) were registered to compete from the following universities: University of Leiden (the Netherlands); University of Inner Temple (United Kingdom); Riga Graduate School of Law (Latvia); Catholic University of Lublin (Poland); University of Strathclyde (United Kingdom); University of Augsburg (Germany); Catholic University of Leuven (Belgium); and Université Paris-Sud XI (France). All of them carried out excellent research. The students solved a hypothetical dispute entitled “Case concerning the continued provision of lifeline satellite services to countries in the face of satellite operator insolvency, *Concordia and Landia v. Usurpia*”, through which they explored the extent to which international law, including the various outer space treaties, could and should afford protection to developing countries that are dependent on satellites for meeting their telecommunications requirements. That exercise, split into two parts, gave students the opportunity to improve their English and put into practice their knowledge of space law. The written briefs were evaluated by I. Zilioli, L. Ravillon and G. Goh; the oral pleadings were evaluated by S. Marchisio, O. Ribbelink, E. Back Impallomeni, C. de Cooker, K. Metcalf-Nyman, A. Kerrest and M. Lejniaks. The team from the University of Augsburg (composed of Christian Odehnal, Melanie Ortlieb, Maximilian Widmann and Sarah Schumann as coach) won the 2008 European rounds of the Manfred Lachs Space Law Moot Court Competition. The runner-up was the team from the University of Leuven (composed of Mathieu Soete, Kai Xiang Teo and Batist Paklons as coach). The best oralists were

Kai Xiang Teo of the University of Leuven and Dymtro Chybisov of the Riga Graduate School of Law. Awards for best written brief went to the University of Augsburg and the Université Paris-Sud XI. The event was hosted and sponsored by the Riga Graduate School of Law, the University of Latvia, Scott Group Limited, the Investment and Development Agency of Latvia and the Latvia State Radio and Television Centre.

13. The team from the University of Augsburg represented Europe at the world finals of the competition, which took place during the 59th International Astronautical Congress, held in Glasgow, United Kingdom, on 2 October 2008. The team from the University of Augsburg received the highest score for the briefs and went directly to the final round. The teams from Georgetown University, Washington D.C., (United States of America) and the University of New South Wales (Australia) met in the semi-final on 30 September 2008. Having won the semi-final, the team from the University of New South Wales competed against the university of Augsburg in the final and won the competition. The finals were judged by Judge Abdul Koroma and Judge Peter Tomka of the International Court of Justice and Francis Lyall of the University of Aberdeen (United Kingdom). The award for best written brief went to a participant from Germany and the award for best oralist went to Madeleine Ellicott from Australia.

14. The European rounds of the Eighteenth Manfred Lachs Space Law Moot Court Competition will be held in May 2009. The semi-finals and finals of that competition will take place during the 52nd Colloquium on the Law of Outer Space of the International Institute of Space Law (IISL), to be held in Daejeon, Republic of Korea, in 2009. The “Case concerning the deployment and use of force in low-Earth orbit (*Fornjot v. Telesto*)” is available at <http://www.spacemoot.org>.

### **3. Practitioners’ Forum**

15. The 2008 ECSL Practitioners’ Forum was held on 15 December at ESA headquarters, in Paris, and organized by the Executive Secretary of ECSL, Melanie Vincent, in cooperation with the Coordinator of the Forum, F. G. von der Dunk from the University of Nebraska (United States). Some 60 participants from various institutional, commercial and academic professions attended the Forum, which dealt with “National space legislation in Europe: issues of authorization in the light of developments in European space cooperation”. A report of that Forum, written by F. G. von der Dunk, is available at the ECSL website ([http://www.esa.int/SPECIALS/ECSL/SEM0MNGHZTD\\_0.html](http://www.esa.int/SPECIALS/ECSL/SEM0MNGHZTD_0.html)).

16. The 2009 ECSL Practitioners’ Forum will be held in December. The exact date, the place and the theme are yet to be decided.

### **4. Colloquiums, conferences and international cooperation**

17. IISL and ECSL organized a two-day symposium at the forty-seventh session of the Legal Subcommittee. That event, coordinated by Tanja Masson-Zwaan from IISL in cooperation with Sergio Marchisio, ECSL Chairman, took place on 31 March and 1 April 2008. The symposium, which was divided into two sessions, included reports by national and international space law institutions on the theme “Legal implications of space applications for global climate change”. The first session addressed the principles and rules involved in using space applications for

combating climate change, while the second session dealt with institutions involved in the issue and relevant instruments. The presentations can be found at the website of the Office for Outer Space Affairs of the Secretariat (<http://www.unoosa.org/oosa/COPUOS/Legal/2008/symposium.html>).

18. ECSL and IISL will hold a one-day symposium entitled “Thirtieth anniversary of the ‘Moon Agreement’: retrospective and prospects” on 23 March 2009, during the forty-eighth session of the Legal Subcommittee.

19. A workshop on the technical, organizational and legal aspects of using space technology for disaster management and emergency response was organized jointly by the African Regional Centre for Space Science and Technology—in French Language, the Islamic Educational, Scientific and Cultural Organization, the Royal Centre for Remote Sensing, the Ecole Mohammadia d’Ingénieurs and the Office for Outer Space Affairs, with the support of ESA and ECSL. The workshop was held in Rabat from 10 to 12 October 2008.

20. F. G. von der Dunk, a member of the ECSL Board, represented ECSL at the Third Eilene Galloway Symposium on Critical Issues in Space Law, whose main theme was “article VI of the Outer Space Treaty: issues and implementation”, held in Washington, D.C., on 11 December 2008. The Symposium had been organized by the National Center for Remote Sensing, Air and Space Law of the University of Mississippi, the Journal of Space Law, IISL and Arianespace.

## **5. Policy and administration: Board meetings**

21. In 2008, the ECSL Board held its fifty-second meeting on 29 January, its fifty-third meeting on 6 June and its fifty-fourth meeting on 10 October. All the meetings were held at ESA headquarters in Paris.

## **6. Publications**

### *1. Legal database*

22. Since October 2004, the ECSL legal database (<http://www.esa.int/SPECIALS/ECSL>) has been active and open to the public. It represents a unique tool for the promotion of knowledge of space law at the European and international levels. The purpose of the database is to familiarize users with space law and to highlight results and outputs of space law conferences and forums (such as proceedings, research and articles). The site is also intended to promote the work carried out by the ECSL national points of contact, space law institutes, universities, research centres, the Committee on the Peaceful Uses of Outer Space, the United Nations Educational, Scientific and Cultural Organization and other organizations, as well as national space agencies, in order to create a network among all institutions, educational centres and research facilities working in the area of space law. The ECSL legal database is updated and new links are added on a regular basis.

### *2. Fourth edition of “Space law teaching in Europe”*

23. The booklet “Space law teaching in Europe” is an ECSL initiative first issued in 1991 and revised in 1993. The booklet includes a list of space law teaching institutions, universities and educational centres at the European level. It also

provides detailed information on teaching staff, credits, tuition fees and the duration of the different courses, together with illustrations of the institutions listed.

24. The third edition of “Space law teaching in Europe” was published in May 2005 and has been distributed free of charge to institutions and academics interested in the teaching of space law, as well as to students. The fourth, extended version of the booklet is in preparation and will be finalized in the coming months.

### 3. *Newsletter*

25. The ECSL newsletter features articles on legal issues and other topics of interest to the space community. It is a precious tool for providing information on new developments in space law and on events around the world, like conferences or workshops, relevant to the space sector and space applications. Each new issue of the ECSL newsletter is sent free of charge to all ECSL members and is then published on the relevant section of the ECSL website.

26. The most recent issue of the newsletter, which was published in January 2009, contains the following: a message from the ECSL Chairman; a report on the IISL/ECSL Symposium entitled “Legal implications of space applications for global climate change”, held on 31 March and 1 April 2008 (by F. G. von der Dunk, ECSL Board Member); a report on the European round of the Manfred Lachs Space Law Moot Court Competition, held at the Riga Graduate School of Law in Riga from 16 to 19 April 2008 (by Melanie Vincent, ECSL Executive Secretary); a report on the world finals of the Seventeenth Manfred Lachs Space Law Moot Court Competition (by Melanie Vincent); a report on the Seventeenth ECSL Summer Course on Space Law and Policy, held at the University of Genoa in Italy from 1 to 12 September 2008 (by Melanie Vincent); an article entitled “ECSL Summer Course 2008, Genoa: the astronauts take the floor” (by Roberta Battista of the University of Genoa); a report on the 2008 meeting of the ECSL Practitioners’ Forum entitled “National space legislation in Europe: issues of authorization in the light of developments in European space cooperation”, held on 15 December 2008 at ESA headquarters in Paris (by F. G. von der Dunk); an article on the space assets protocol of the International Institute for the Unification of Private Law (Unidroit) (by Sergio Marchisio, in his role as Chairman of the Unidroit committee of governmental experts); an article on the European Union’s draft code of conduct for outer space activities (by Sergio Marchisio, in his role as representative of the Institute for International Legal Studies in Rome); a report on the workshop on the technical, organizational and legal aspects of using space technology for disaster management and emergency response, held in Rabat from 10 to 12 November 2008 (by P. Achilleas, of the Université Paris-Sud XI); a report on the Third Eilene Galloway Symposium on Critical Issues in Space Law (by F. G. von der Dunk); an article entitled “Nationales Weltraumrecht/National space law: development in Europe and challenges for small countries” (by Christian Brünner and Edith Walter); an article on the e-book on outer space and sea law (by Maria del Carmen Munoz Rodriguez of the University of Jaen in Spain); a calendar of major upcoming events and information about ECSL.

## **C. Upcoming events and projects planned for 2009**

### **1. International Institute of Space Law/European Centre for Space Law Symposium 2009**

27. The next IISL/ECSL symposium is to be held on 23 March 2009, during the forty-eighth session of the Legal Subcommittee. It will be entitled “The thirtieth anniversary of the ‘Moon Agreement’: retrospective and prospects”.

### **2. Manfred Lachs Space Law Moot Court Competition**

28. The European rounds of the Manfred Lachs Space Law Moot Court Competition will be held in May 2009.

29. The world semi-finals and finals of the Competition will be held in Daejeon, Republic of Korea, in October 2009, during the 60th International Astronautical Congress.

### **3. Summer Course on Space Law and Policy**

30. The Eighteenth ECSL Summer Course on Space Law and Policy will be held in September 2009. The exact date and the venue are yet to be decided.

### **4. Annual Practitioners’ Forum**

31. The 2009 Practitioners’ Forum will be held in December. The venue and the theme are yet to be decided.

### **5. Board Meetings**

32. The next meetings of the ECSL Board will take place in February and June 2009. The exact date and the venue are yet to be decided.

## **International Law Association**

### **A. Background information**

1. The International Law Association (ILA) was founded in Brussels in October 1873. Its headquarters are in London. From its beginnings, ILA policy has been one of openness and outreach, its objectives being the study, clarification and development of international law, both public and private, and the furtherance of understanding and respect for international law. Those objectives have been pursued mainly through the work of the international committees of the ILA. The focus of ILA activities is its series of biennial conferences, which provides a forum for discussing and endorsing the work of the committees. The Space Law Committee of ILA has worked uninterruptedly since it was established during the 48th ILA International Conference held in New York, in 1958. The 73rd conference was held in August 2008 in Rio de Janeiro, Brazil.

2. The current ILA World President (for the period 2008-2010) is Eduardo Grebler (Brazil); Lord Slynn of Hadley is Chairperson of the Executive Council in London. Since 1996, the Space Law Committee of ILA has been a permanent observer of the Committee on the Peaceful Uses of Outer Space and both its

subcommittees. Currently, Maureen Williams serves as Chairperson of the Space Law Committee and Stephan Hobe (Germany) as its General Rapporteur. ILA cooperates with other international organizations, both public and private, such as the International Law Commission, the United Nations Institute for Disarmament Research, the International Institute of Space Law and ECSL, among others.

## **B. Activities of the Space Law Committee in 2008**

### **1. Forty-seventh session of the Legal Subcommittee**

3. The Chairperson, the General Rapporteur and the Session Reporter of the Space Law Committee attended the forty-seventh session of the Legal Subcommittee, in 2008. A report was submitted and circulated to participants and a presentation was given by the Chairperson (see A/AC.105/C.2/L.270).

### **2. Conference entitled “Security in Space: the Next Generation”**

4. The Space Law Committee was invited to participate in and contribute to a Conference entitled “Security in Space: the Next Generation”, organized by the United Nations Institute for Disarmament Research in Geneva on 31 March and 1 April.<sup>1</sup> The Chairperson of the Space Law Committee gave a presentation entitled “Safeguarding outer space: on the road to debris mitigation”.

### **3. 73rd Conference of the International Law Association**

5. At the 73rd ILA Conference, held in Rio de Janeiro, Brazil, from 17 to 21 August, the Space Law Committee presented the work it had carried out since the 72nd ILA Conference, held in Toronto, Canada, in 2006.

6. At the 73rd ILA Conference, in addition to the traditional working sessions of various committees, discussions took place on topical issues relating to international law and international relations in the framework of so-called “concurrent sessions”, in which some Space Law Committee officers and members participated as panellists. A report of the proceedings of the Conference is expected to become available shortly. In the present report, particular attention is paid to the working session of Space Law Committee and to the presentation of the report on the Conference.

#### **(a) Concurrent session: outer space as theatre of war and possible global effects**

7. One of the concurrent sessions held during the 73rd ILA Conference dealt with the issue of “Outer space as a theatre of war: possible global effects”. Participants in the session discussed a number of risks, including those arising from the weaponization of outer space and the presence of space debris and natural near-Earth objects (NEOs).

#### **(b) Concurrent session: space traffic management**

8. Another concurrent session dealt with the issue of space traffic management. Having welcomed the inclusion in the agenda of the forty-eighth session of the

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<sup>1</sup> United Nations Institute for Disarmament Research, *Security in Space: the Next Generation; Conference Report, 31 March-1 April 2008* (United Nations publication, Sales No. GV.E.08.03).

Legal Subcommittee of space debris as a single item for discussion, participants in the 73rd ILA Conference agreed that space traffic management should, sooner or later, also be considered by the Subcommittee. The view was expressed that drafting rules for space traffic management was complicated by the fact that the areas of space security and space safety were currently overlapping and that the enactment of national space legislation on the matter would be an important step forward.

9. It was noted, however, that outer space should be defined, as doing so would certainly facilitate the work of those institutions called upon to deal with the legal aspects of space traffic management.

#### **4. Working session: contents of the report of the 73rd ILA Conference**

10. With regard to the report submitted by the Space Law Committee at the 73rd ILA Conference, the Legal Subcommittee had, at its forty-seventh session, taken note of the information received from ILA on its most recent contributions relating to space law, contained in a note by the Secretariat (A/AC.105/C.2/L.270) and noted that, at the 73rd ILA Conference, the Space Law Committee would report on remote sensing, national space legislation, registration issues, the legal aspects of space debris and the settlement of disputes related to space activities. Special attention would be drawn to the use of satellite data in national and international litigation and to the value of such data as evidence in court proceedings. The ILA Study Group on the Responsibility of International Organizations, which was working closely with the International Law Commission, was also expected to meet in the framework of the 73rd ILA Conference. The Legal Subcommittee expected to be kept informed of the progress made by the Study Group.

11. In the light of the above, the Space Law Committee submitted a report on the legal aspects of the privatization and commercialization of space activities (and other related matters) at the 73rd ILA Conference. A number of ideas and views expressed during the working session of the Space Law Committee are now part of the conference report.

12. The first part of the conference report includes an introduction by the Chairperson of the Space Law Committee, a review of the Committee's work over the previous two years and information on remote sensing (with special emphasis on satellite data in international litigation), registration issues and new developments in the area of space debris. The second part of the report, introduced by the General Rapporteur, includes information regarding national space legislation and various aspects relating to the registration of space objects.

##### **(a) Remote sensing, satellite data and its value as evidence in court**

13. The ILA report included information on various controversial aspects of remote sensing and the value of satellite data that had been raised at the 72nd ILA Conference, focusing on the following:

(a) Remote sensing and registration issues, and the contribution of the Space Law Committee to the report of the Working Group on the Practice of States and International Organizations in Registering Space Objects;

(b) Interpretation and application of the Principles Relating to Remote Sensing of the Earth from Outer Space (General Assembly resolution 41/65, annex),

in particular principle XII on the right of access to data, and issues relating to the commercialization of data collected through satellites observing Earth;

(c) Validity of the Principles, i.e. whether the Principles reflected State practice and were consistent with the present international scenario.

14. The Space Law Committee was especially involved in analysing the important ways in which satellite data are used today, particularly the value of such data as evidence in court, an issue that deserves to be considered separately.

15. It was the view of the Space Law Committee that solutions were needed to address the current situation, which did not favour the use of satellite imagery in court, in particular in cases of boundary disputes, where the precision of space technologies was essential.

16. At the initial stage, raw data cannot be modified. The real problem lies in the fact that digital data can be manipulated, an issue that is particularly sensitive where boundary disputes are concerned, as they involve questions of sovereignty over land and water. A number of recent cases decided by the International Court of Justice and other international bodies clearly illustrate the major issues involved.<sup>2</sup>

17. Thus, one of the remaining questions is how to handle digital images, which normally amount to a collection of data. The difference between the data gathered by satellites and data gathered through other, more conventional means, is not only that the former are of a higher precision, thus leaving little space for human error, but that the latter leave a very wide margin for interpretation by experts. The main problem is that obscuring, moving or introducing elements to digital images can be done without leaving any visible marks, which means that experts must be depended upon to interpret the data, making judges, arbitrators and lawyers particularly uneasy.

18. The following steps must be taken for the elaboration of digital maps:

(a) Earth observation satellites collect raw data, which are then transmitted to Earth; at that stage, the data have no real value;

(b) The data are then pre-processed; in other words, corrections are made, including atmospheric, radiometric and geometric corrections;

(c) The raw data is made available in digital form and certain aspects of the picture may be enhanced, at the user's request, by the use of computer programmes;

(d) The user may then ask for the information to be classified, for instance, according to similarities and differences;

(e) Additional information, such as maps and data gathered from global positioning systems, may be added to prove the results of the satellite image.<sup>3</sup>

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<sup>2</sup> See the report of the 72nd ILA Conference, in particular the chapters on space law and on the working session; see also a study carried out in 2001 by the British Institute of International and Comparative Law, in which a group of lawyers and experts in the interpretation of satellite data and digital mapping shared their experiences. The group produced a report that was submitted at the annual conference of the Institute on 22 June 2001, where it was discussed in depth.

<sup>3</sup> See Harald Ginzky, "Satellite images as evidence in legal proceedings relating to the environment: a US perspective", *Air and Space Law*, vol. XXV (2000), p. 115.

19. One Space Law Committee member has observed that the main reason why it is necessary to pre-process raw data is the continual non-ideal position of the orbit and spacecraft attitude (yaw, pitch and roll). Corrections are crucial to ensure that the picture is not distorted. It has been suggested that it should be mandatory for remote sensing satellite operators to record such data in order to ensure that the pre-processed data have not been manipulated more than necessary for adaption to the natural life changes of the satellite orbit and altitude.

20. Concern regarding the extent to which data are manipulated is now being expressed by experts working in other areas, such as biology. A possible step forward could be made by running the data through Photoshop, a method described in the *Journal of Cell Biology* that has revealed cases of manipulation and misrepresentation of data.<sup>4</sup>

21. In 2006, fraudulent papers on stem cell research were published in *Science*, unleashing a string of controversial opinions on fraud in science and “scholarly lying”. That case, known as the Hwang case, also revealed the ineffectiveness of peer reviews.<sup>5</sup>

22. Legal professionals, including lawyers and judges, remain divided on the value of satellite data in court proceedings. In that context, ILA decided to continue researching the matter.

23. No international rules or standards have been developed to regulate the use of data from Earth observation satellites in the courtroom. Although common standards for digital data products are slowly being developed at the national level, there is still widespread uncertainty in the legal world.

24. Conventional means of obtaining evidence, such as ground inspections or aerial photography, might, in certain cases, be more cost-effective or preferable. Staff at University College London are currently testing the use of satellites for enforcing certain laws; results have been mixed. In recent years, there has been a notable increase in the use of satellite technology in court, which is why it is now necessary to keep a better record of and publicize the applications of such technology.

25. Training those working in the legal sector is crucial for the development of such technology. There is still, however, a lack of awareness, knowledge and understanding in the legal field as to what such technology can offer and what its limitations are. It is thus essential to have more multidisciplinary cooperation so that, in the future, technology can better meet the needs of legal professionals.

26. The importance of the value of satellite data as evidence in court is being recognized in developing countries as well. A conference on satellite data and their admissibility as evidence in national and international courts was held in Buenos Aires at the Ministry of Foreign Affairs of Argentina, on 14 May 2008 under the auspices of the National Commission on Space Activities (CONAE), the

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<sup>4</sup> See report of the 72nd ILA Conference, in which it is explained that when an object is enlarged beyond its proper resolution, Photoshop may generate extra pixels and that, if the object is rotated, another set of pixels is generated in a characteristic pattern.

<sup>5</sup> Emilio Delgado López-Cózar, Daniel Torres Salinas and Álvaro Roldán López, “El fraude en la ciencia: reflexiones a partir del caso Hwang”, *El profesional de la información*, vol. 26, No. 2 (2007), pp. 143-150.

National Council for Scientific and Technological Research of Argentina (CONICET), the Instituto Nacional de Derecho Aeronautico y Espacial (INDAE) and ESA. Following a technical presentation, the legal aspects, from the national, regional and international perspectives, were addressed by representatives of ESA, INDAE and CONICET. The meeting, which was chaired by the Executive Director of CONAE was followed by an interdisciplinary debate and presentations.

27. Further studies are needed to enable the development of sound and realistic proposals. Below are some tentative conclusions and suggestions, which were discussed at the 73rd ILA Conference:

(a) There is no doubt that raw data cannot be modified; problems arise over the various stages involved in the production of digital images based on the data;

(b) As underlined in ILA reports, every effort should be made to obtain the greatest benefit possible from the use of satellite data, in every area;

(c) Recent experience has shown that the question is particularly sensitive where boundary disputes are concerned. Problems are currently extending to other areas, such as biology, where methods relying on software such as Photoshop appear to have been useful in detecting the manipulation or misrepresentation of satellite data. Per contra, peer reviews seem to be ineffective, particularly in the field of medicine and other sciences;

(d) For the above-mentioned reasons, reliable mechanisms for producing satellite imagery should be developed without delay;

(e) There is still a lack of awareness, knowledge and understanding in the legal sector about what those technologies can offer and what their limitations are;

(f) As technologies are not currently being developed with the legal sector in mind, efforts should be directed at creating greater awareness of the applications of such technologies and their implications for the legal sector. Capacity-building and training are very important in tailoring capabilities for achieving that specific goal;

(g) Some proposals indicate that there is a need to establish an international body for the accreditation and certification of satellite data;

(h) Other views suggest that, as a first step, an agreement on international standards on authentication and certification should be drafted;

(i) The various sources consulted agreed on the need to draw up a list of experts of international renown to whom parties in a dispute, as well as courts and tribunals, may resort for the interpretation of satellite data;

(j) The general opinion is that it is essential, for the purpose of transparency, to control all the phases of data collection, from the collection of raw data to the use of the final product.

**(b) Registration of space objects**

28. At the 73rd ILA Conference, participants discussed General Assembly resolution 62/101, entitled "Recommendations on enhancing the practice of States and international intergovernmental organizations in registering space objects", on which the Space Law Committee was called upon to give its opinion. It was agreed

that the most important objective was that the Convention on Registration of Objects Launched into Outer Space<sup>6</sup> should continue to gain support from the international community.

**(c) Space debris**

29. The Space Law Committee has continued to review the issue of space debris since the International Instrument on the Protection of the Environment from Damage Caused by Space Debris was adopted by ILA at its 66th Conference, held in Buenos Aires in 1994.

30. At all ILA conferences since then, attention has been drawn to the subject, with a view to assessing whether the International Instrument remained consistent with the current international scenario. The way in which the issue of space debris has been treated at the national, regional and international levels has been followed closely by the Space Law Committee, which has not considered it necessary to make any great changes to the International Instrument since it was submitted to the Legal Subcommittee and the Committee on the Peaceful Uses of Outer Space in 1995.

31. Over time, the International Instrument has begun to gain support and to be quoted. It has also been recommended as a useful tool for addressing space debris from a legal perspective and at the governmental level. Even though the Scientific and Technical Subcommittee of the Committee on the Peaceful Uses of Outer Space had included space debris in different workplans, there was some resistance to having the issue included in the agenda of the Legal Subcommittee.

32. The general opinion today is that space debris, as a threat to space, should be on the top of the list, followed by the weaponization of outer space and natural NEOs (such as asteroids and meteorites), which might pose a serious risk of collision with Earth.

*(i) A milestone: the Space Debris Mitigation Guidelines of the Committee on the Peaceful Uses of Outer Space*

33. The matter of the Space Debris Mitigation Guidelines of the Committee on the Peaceful Uses of Outer Space was brought up during the presentation of the ILA reports made by the chair of the Space Law Committee to the Legal Subcommittee at its forty-sixth session, in 2007 (A/AC.105/L.265), and at the forty-seventh session, in 2008 (A/AC.105/L.270). Previously the former chairman of the Space Law Committee had always included space debris and the International Instrument in annual statements to the Legal Subcommittee and the Committee on the Peaceful Uses of Outer Space. Those presentations reflected the general opinion that space debris posed a serious and increasing risk and that agreement should be sought on the prompt implementation of mitigation measures to safeguard the environment for future generations.

34. During 2007, and with the outcome of the 73rd ILA Conference in mind, the Space Law Committee considered the work of the Scientific and Technical Subcommittee and, in particular, the Space Debris Mitigation Guidelines adopted by that Subcommittee at its forty-fourth session, in 2007 (A/AC.105/890, annex IV).

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<sup>6</sup> United Nations, *Treaty Series*, vol. 1023, No. 15020.

ILA had in mind the division in two categories of space debris mitigation measures: those capable of curtailing the generation of potentially harmful space debris in the short term and those capable of doing so over the long term. Likewise, special attention was given to the seven guidelines adopted by the Scientific and Technical Subcommittee.

35. The fact that the Space Debris Mitigation Guidelines were endorsed by the General Assembly in its resolution 62/217 and that a number of States have adopted domestic measures in accordance with those Guidelines is a powerful indication that the topic of space debris should be included in the agenda of the Legal Subcommittee.

36. That objective, towards which ILA and its Space Law Committee have been working since the early 1990s, reflects, to a large extent, the general opinion of experts on the matter today. As a result, “General exchange of information on national mechanisms relating to space debris mitigation measures” has been included as a single item for discussion by the Legal Subcommittee at its forty-eighth session.

37. In that context, the Space Law Committee is giving serious consideration to space debris in the framework of its report to the 74th ILA Conference, to be held in The Hague, the Netherlands, in June 2010, with a view to assessing the development of State practice. That means analysing the various domestic mechanisms enacted by States pursuant to the Guidelines on Space Debris Mitigation and reviewing the International Instrument to establish its consistency with the current state of technology.

(ii) *Natural near-Earth objects*

38. At the 73rd ILA Convention, the Space Law Committee also paid attention to the question of natural NEOs, which represents a real challenge from the legal standpoint. While the issue of NEOs has been discussed for some time by the Scientific and Technical Subcommittee, it has not yet been considered by the Legal Subcommittee. The information gathered by the Scientific and Technical Subcommittee will provide a sound base on which to build a more precise legal framework for space security. Although legal experts have only started concerning themselves with NEOs, the topic seems to be gaining a place on the agenda of various academic institutions dealing with international space law.<sup>7</sup>

39. The Space Law Committee, on the basis of a presentation given by its Chairperson at the 51st IISL Colloquium on the Law of Outer Space, held in Glasgow, United Kingdom, from 29 September to 3 October 2008, entitled “International responsibility vis-à-vis natural near-Earth objects” will shortly be circulating a questionnaire to its members for preliminary views and ideas.

40. Similarly, pursuant to a request from the Office for Outer Space Affairs for information on the topic, a paper on the theme of “The legal aspects of natural near-Earth objects” by ILA and its Space Law Committee was recently prepared for consideration by the Scientific and Technical Subcommittee at its forty-

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<sup>7</sup> Including the International Astronautical Federation, which dedicated one of the working sessions of its latest international colloquium, held in Glasgow in September 2008, to the discussion of NEOs from a legal viewpoint.

sixth session, in accordance with the multi-year workplan of the Working Group on Near-Earth Objects established for the period 2009-2011 (A/AC.105/911, annex III, para. 11).

**(d) Dispute settlement**

41. The draft convention on the settlement of disputes relating to space activities (1998 revised text) adopted at the 68th ILA Conference, held in 1998, is continuously reviewed by the Space Law Committee. Pursuant to article 10 of that draft convention, the participation of private entities is envisaged, as is the possibility that those entities avail themselves of the mechanisms included in the draft convention.

**(e) Links between the International Law Association and the International Law Commission on the responsibility of international organizations**

42. Cooperation between ILA and the International Law Commission has continued uninterrupted. A working session of the ILA Study Group on the Responsibility of International Organizations was held during the 73rd ILA Conference under the chairmanship of Eduardo Valencia Ospina, with the participation of the Chairperson and Rapporteur of the Space Law Committee.

43. On that occasion, attention was paid to the sixth report on the topic, written by the Special Rapporteur of the International Law Commission, and the two draft articles proposed in 2007, which were adopted without changes. Those two articles addressed international responsibility with regard to a serious breach, by an international organization, of an obligation arising from a peremptory norm of general international law (article 44) and the particular consequences of a serious breach of such an obligation (article 45). Those issues were also touched upon during the presentation of the Space Law Committee at the forty-seventh session of the Legal Subcommittee, in 2008.

44. The “Gaia sixth report” addressed the draft articles concerning invocation of the responsibility of an international organization and countermeasures.

**(f) National space legislation and the registration of space objects**

45. Part II of the report of the Space Law Committee is dedicated to current legal issues on national space legislation and links with the registration of space objects.

46. It was noted that several issues underlying the topics of national space legislation and the registration of space objects were addressed by a number of national laws, including those on procedures for authorizing and licensing national space activities, liability, compensation procedures, insurance, intellectual property rights, the distribution of remote sensing data, the registration of objects launched into outer space, the establishment of national registers, safety requirements for the conduct of space activities and regulatory frameworks for national space agencies or other national entities responsible for carrying out and supervising space activities.

47. Reference was made to the usefulness of the database on national space legislation and multilateral and bilateral agreements related to the peaceful exploration and use of outer space hosted on the website of the Office of Outer Space Affairs (<http://www.unoosa.org>) and examples were given of domestic laws

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that had been enacted recently on the subject. The conclusion was that both topics, national space legislation and the registration of space objects, were of major concern to the international community.

48. Another general opinion with regard to national space legislation was that there seemed to be a growing willingness on the part of States to enter into a more profound discussion. Therefore, the Space Law Committee should seriously consider elaborating a model law that could be used as a reference by States embarking on the process of drafting national space legislation.

49. The officers of the Space Law Committee may be contacted as follows:

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