Committee on the Peaceful Uses of Outer Space
Legal Subcommittee
Forty-eighth session
23 March - 3 April 2009
Item 5 of the agenda*

Information on the activities of international intergovernmental and non-governmental organizations relating to space law

Note by the Secretariat

1. Attached to this Conference Room Paper is an advance English copy of document A/AC.105/L.275 containing information on the activities of international intergovernmental and non-governmental organizations relating to space law which will be produced in all United Nations official languages during the first week of the Legal Subcommittee.

* A/AC.105/C.2/L.274.
I. Introduction

The General Assembly, in its resolution 63/90 of 5 December 2008, 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 organisations: European Centre for Space Law (ECSL) and International Law Association (ILA).

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

European Centre for Space Law

A. Background information

1. Introduction

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). The current Chairman of ECSL is Professor Sergio Marchisio from the University Sapienza of Rome.

2. Objectives and organization

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

The Centre – the name designates the whole structure – brings together mainly professionals, lawyers, academics and students and encourages interdisciplinary exchanges. It is organized in a very 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. Great potential exists in Europe in the field of space law, but it is often isolated or scattered; ECSL aims to bridge that gap. 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 biannual 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 countries 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 the different 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 (January/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, 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. A new point of contact was set up in the Czech Republic and ECSL is working to increase the presence of new national points of contact in ESA member States (currently 17) or 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 edition of the ECSL Summer Course on Space Law and Policy was organized by the European Centre for Space Law (ECSL) and the University of Genoa, especially well-known for maritime transport and aerospace law studies under the responsibility of Mr. Francesco Munari and his colleagues. This event took place at the University of Genoa, Italy, from 1 to 12 September, 2008.

9. There were 35 students coming from 13 countries (Austria, Italy, United Kingdom, Spain, Belgium, Nigeria, Poland, Finland, France, Mexico, Brazil, Greece, Germany) and who had 15 different nationalities (Austrian, German, Italian, Korean, British, Nigerian, Spanish, Belgian, Polish, Japanese, French, Mexican, Brazilian, Greek, Cypriot). The students followed 41 hours of lectures on space law and policy issues given by 36 speakers who were either academicians or practitioners specialized in the space field. Moreover, the students, divided into 8 teams, successfully solved a practical case: “Space for security: simulation of an International Call for tenders”, with Prof. P. Achilleas, Director of the Institute of Space and Telecommunications Law (IDEST), Paris XI University, as coordinator. This exercise, split into two parts (a written report and an oral presentation in front of a panel of space experts, namely Mr. C. Golda, Mr. S. Mosteshar and Mr. P. Achilleas), gave the students the opportunity to improve their English and to put into practice the knowledge acquired at University and during the lessons. The preparation of the teams’ projects was supervised by 4 tutors (Beatrice Weihert, German; Julie Abouyehia, French; Roberta Battista, Italian; Damian Bielicki, Polish). The tutors helped the students in their research and in their presentation. Their sense of organization, so useful for the students, has resulted in making the work of the students and the work in their favor intelligible, logical and clear. They proved to be outstanding tutors. As for the awards, the best written report went to Prometheus (Kokoro Ohki, Marita Ioannou, Stefano Spano, Charles-Edward Dumont), the best oral presentation went to Space Net (Susanne Knasmueller, Francesca Ines Moretto, Kyriaki Monezi, Hyoun-Seoung Yang, Thomas Zéphirin) and the best rhetoric performance was assigned to Leonidas (Ioannis-Alexandros Ioannidis, Vincent Juillet, Daniel Konrad Link, Mari Angeles Lopez, Nina Wanke). The winning team was Space Net. At the end of the Course, the students took an exam which consisted in answering legal questions related to the lessons they attended during the two intense weeks.

10. The Eighteenth ECSL Summer Course on Space Law and Policy will be held in September 2009, date and place to be decided.

2. Manfred Lachs Space Law Moot Court Competition

11. The European Rounds of the Manfred Lachs Space Law Moot Court Competition took place at the Riga Graduate School of Law, Riga, Latvia, from April 16 until April 19, 2008.

12. There were eight teams (27 participants) registered from the following universities: University of Leiden, Faculty of Law, International Institute of Air and Space Law, The Netherlands; University of Inner Temple, London, UK; Riga Graduate School of Law, Latvia; John Paul II Catholic University of Lublin, Poland; University of Strathclyde, Glasgow, Scotland; University of Augsburg, Germany; Catholic University of Leuven, Belgium; University of Paris XI, Sceaux, France.
They all proved to have carried out excellent researches. 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" which sought to explore the extent to which international law considerations, including the various Outer Space Treaties, can and should afford protection to developing world countries that are uniquely dependent on satellite capacity to meet their telecommunications requirements under such circumstances, independent of any protective mechanisms that may possibly be available from continued oversight by any currently-existing residual inter-governmental satellite organizations. This exercise, split into two parts (submission of memorials for both the Applicant and the Respondent and oral arguments in front of a panel of space experts), gave the students the opportunity to improve their English and to put into practice their knowledge in space law. The judges who evaluated the written briefs were Ms. I. Zilioli, Ms. L. Ravillon and Ms. G. Goh whereas the judges for the oral pleadings were Mr. S. Marchisio, Mr. O. Ribbelink, Ms. E. Back Impallomeni, Mr. C. de Cooker, Ms. K. Metcalf-Nyman, Mr. A. Kerrest and Mr. M. Lejnieks. The winner of the European Rounds of the Competition was the University of Augsburg, Germany (Mr. Christian Odehnal, Ms. Melanie Ortlieb, Mr. Maximilian Widmann and Ms. Sarah Schumann, coach). The runner-up was the University of Leuven, Belgium (Mr. Mathieu Soete, Mr. Kai Xiang Teo and Mr. Batist Paklons, coach). The best oralists were Mr. Kai Xiang Teo, University of Leuven, Belgium and Mr. Dymtro Chybisov, Riga Graduate School of Law, Latvia. The best written briefs were assigned to the University of Augsburg, Germany and to the University of Paris XI, Sceaux, France. The Riga Graduate School of Law, Latvia (Ms. Lesley Jane Smith, Ms. Anna Jermakovica and Inese Druviete), Ilgonis Vilkas, the University of Latvia, the Scott Group Limited, the Investment and Development Agency of Latvia (LIAA) and the Latvia State Radio and Television Centre (LVRTC) have hosted and sponsored the event.

13. The University of Augsburg, Germany, represented the European Region at the World Final of the Competition which took place during the 59th International Astronautical Congress in Glasgow, Scotland, on Thursday, October 2nd, 2008 at the City Chambers. The University of Augsburg had the highest score for the briefs and went directly to the Final Round. Georgetown University, Washington DC (USA) and the University of New South Wales (Australia) met in the Semi-Final on Tuesday, September, 30. The latter won the Semi-Final. The Universities of Augsburg and of New South Wales competed during the Final. The latter won the Competition. The Final Round was judged by two members of the International Court of Justice (Judge Abdul Koroma and Judge Peter Tomka) and by Francis Lyall, emeritus Professor of Public Law at the University of Aberdeen, Scotland. The best written brief went to Germany and the best oralist was Ms. Madeleine Ellicott from Australia.

14. The European Regional Rounds of the Eighteenth Manfred Lachs Space Law Moot Court Competition 2009 will be held in May 2009. The semi finals and finals of the Eighteenth Manfred Lachs Space Law Moot Court Competition will take place during the 2009 IISL Colloquium in Daejeon, Republic of Korea. The "Case concerning the Deployment and Use of Force in Low Earth Orbit, Fornjot v Telesto" can be found on the website www.spacemoot.org.
3. Practitioners’ Forum

15. The 2008 ECSL Practitioners’ Forum was held on 15 December at ESA Headquarters, Paris, France, and organised by the ECSL Executive Secretary, Ms. Melanie Vincent, in cooperation with the Coordinator of the Practitioners’ Forum, Dr. F.G. von der Dunk from the University of Nebraska, College of Law, USA. Some 60 participants from various institutional, commercial and academic professions attended this Forum which dealt with “National space legislation in Europe – Issues of authorisation in the light of developments in European space cooperation”. A report on this Practitioners’ Forum, written by F. von der Dunk, is available on the ECSL website:
http://www.esa.int/SPECIALS/ECSL/SEM0MNGHZTD_0.html

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

4. Colloquiums, conferences and international cooperation

17. IISL and ECSL organised a two-day Symposium during the forty-seventh session of the COPUOS Legal Subcommittee (LSC). This event was coordinated by Ms. Tanja Masson-Zwaan from IISL in cooperation with Mr. Sergio Marchisio, the ECSL Chairman, and took place on 31 March and 1 April 2008. The Symposium, divided into two sessions, included reports of 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 whereas the second session dealt with institutions and instruments involved in the issue. The presentations can be found on the OOSA Website at:
http://www.unoosa.org/oosa/COPUOS/Legal/2008/symposium.html

18. ECSL, together with IISL, will hold a one-day Symposium, on 23 March 2009, on the theme “30th Anniversary of the “Moon Agreement”: Retrospect and Prospects” at the forty-eighth session of the COPUOS Legal Subcommittee that will be held at the Vienna International Centre, Austria.

19. An International Workshop on “L’Outil spatial pour la Gestion des Catastrophes et des Situations d’Urgence en Afrique – Aspects Techniques, Organisationnels et Juridiques” has been co-organized by the CRAST-LF, the ISESCO, the CRTS, l’EMI and the UN/OOSA with the support of the ESA/ECSL in Rabat, Morocco, 10-12 October 2008.

20. Prof. Frans von der Dunk, member of the ECSL Board, represented the ECSL during the third Symposium on Critical Issues in Space Law which was held in honour of Dr. Eilene M. Galloway, on “Article VI of the Outer Space Treaty: Issues and Implementation” on 11 December 2008 at the Cosmos Club in Washington and which had been organised by the National Center for Remote Sensing, Air and Space Law at the University of Mississippi School of Law, the Journal of Space Law, the International Institute of Space Law (IISL) and Arianespace, Inc.
5. Policy and administration: Board Meetings

21. In 2008, the fifty-second (29 January 2008), fifty-third (6 June 2008) and fifty-fourth (10 October 2008) ECSL Board Meetings were held at ESA Headquarters, Paris.

6. Documentation and publications

(a) 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 (UNESCO) 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.

(b) 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.

(c) Newsletter

25. The ECSL Newsletter features articles on legal issues and others topics of interest to the space community. The ECSL Newsletter is a precious tool to provide information on new space law developments as well as on other 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 issue N° 36, published in January 2009, contains the following items:
A Word from the Chairman (Sergio Marchisio, ECSL Chairman); Report on the 2008 IISL/ECSL Symposium on Legal Implications of Space Applications for Global Climate Change, 31 March-1 April 2008 (Frans von der Dunk, Member of the ECSL Board); Report on the European Rounds of the Manfred Lachs Space Law Moot Court Competition, Riga Graduate School of Law, April 16-19, 2008 (Melanie Vincent, Executive Secretary of ECSL); Report on the 17th Manfred Lachs Space Law Moot Court Competition World Finals 2008 (Melanie Vincent, Executive Secretary of ECSL); Report on the 17th ECSL Summer Course on Space Law and Policy, September 1-12, 2008, University of Genoa, Italy (Melanie Vincent, Executive Secretary of ECSL); “ECSL Summer Course 2008, Genoa: The Astronauts take the floor.” (Roberta Battista, PhD Candidate in Democracy and Human Rights, University of Genoa, Italy); Report on the ECSL Practitioners’ Forum 2008 - “National space legislation in Europe – Issues of authorisation in the light of developments in European space cooperation” – ESA Headquarters, December 15th, 2008 (Frans von der Dunk, Member of the ECSL Board); The UNIDROIT Space Assets Protocol: Promising News (Sergio Marchisio, Chairman of the UNIDROIT Committee of Governmental Experts); The EU’s draft for a Code of Conduct for Outer Space Activities (Sergio Marchisio, Institute for International Legal Studies, CNR, Rome); Rapport sur le Workshop International “L’Outil spatial pour la Gestion des Catastrophes et des Situations d’Urgence en Afrique - Aspects Techniques, Organisationnels et Juridiques”, Rabat, Maroc, 10-12 octobre 2008 (Philippe Achilleas, IDEST, Université de Paris XI, Sceaux); Report on the 3rd Eilene M. Galloway Symposium on Critical Issues in Space Law (Frans von der Dunk, Member of the ECSL Board); “Nationales Weltraumrecht/National Space Law : Development in Europe – Challenges for Small Countries” (Christian Brünner, Edith Walter); The E-Book on Outer Space and Sea Law (Maria del Carmen Munoz Rodriguez, University of Jaen); 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

27. The next IISL/ECSL Symposium is scheduled to be held on 23 March 2009, during the forthcoming forty-eighth session of the Legal Subcommittee, and will focus on “30th Anniversary of the “Moon Agreement”: Retrospect and Prospects”.

2. Manfred Lachs Space Law Moot Court Competition

28. The European Regional 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 Manfred Lachs Space Law Moot Court Competition will be held in Daejeon, Republic of Korea, in October 2009, during the 60th International Astronautical Federation’s 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, dates and place to be decided.
4. Annual Practitioners’ Forum

31. The next Practitioners’ Forum will be held in December, theme and place to be decided.

5. Board Meetings

32. The next ECSL Board Meetings will take place in February and June 2009, date and place to be decided.

International Law Association

A. Background information

33. 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 was established during the 48th ILA International Conference held in New York, in 1958, and its work continues, to date, without interruption. The 73rd Conference was held in August 2008 in Rio de Janeiro, Brazil.

34. The current ILA World President (for the period 2008-2010) is Dr Eduardo Grebler (Brazil) and Lord Slynn of Hadley is chairman of the Executive Council in London. Since 1996 the ILA Space Law Committee is permanent observer to COPUOS and both its Subcommittees. Its present officers are Professor Maureen Williams (Headquarters) as chair and Professor Stephan Hobe (Germany) as general rapporteur. ILA practice includes cooperation with other international organisations, public and private, such as the International Law Commission of the UN (ILC), the United Nations Institute for Disarmament Research (UNIDIR), the International Institute of Space Law (IISL - IAF) and the European Centre for Space Law (ECSL), among others.

B. Activities of the ILA Space Law Committee during 2008

1. The 47th Session of the LSC (31 March-11 April 2008)\(^1\)

35. The ILA Committee was represented at this session by its Chair, General Rapporteur and Session Reporter. A written report was submitted thereto,

\(^1\) Doc.A/AC.105/C.2/L.270, pp.7-10.
circulated to delegates during the session and followed by an oral presentation by its Chair.


36. The ILA Committee was invited to participate in this Conference and submit its views on the subject. The Chair made a presentation entitled “Safeguarding outer space: on the road to debris mitigation”. The papers and ensuing debates were published recently (UNIDIR/2008/14).

3. 73rd Conference of the International Law Association, Rio de Janeiro, Brazil, 17-21 August 2008

37. This Conference was announced in 2008 within the ILA’s presentation to the LSC. It encompassed the work of the ILA Space Law Committee from the 2006 Toronto Conference to date.

38. On this occasion, running parallel to the traditional working sessions of the various Committees, other topical issues in the field of international law and international relations were addressed under the heading of 'Concurrent Sessions' and in which some of the ILA Space Law Committee officers and members were acting as panellists. Further reference may be found in the Rio Conference proceedings to be out shortly. Attention will be focused, rather, on the working session of ILA Committee and presentation of the Report to the Rio Conference.

(a) Outer Space as Theatre of War. Possible global effects (concurrent session)

39. A number of outstanding risks were streamlined and discussed on this occasion: such as weaponisation, threats arising from the presence of space debris and natural near-earth objects (NEOs).

(b) Space Traffic Management - STM (concurrent session)

40. Following a preliminary conclusion welcoming the inclusion of space debris in the agenda of the LSC as a single item for discussion, a general idea seemed to be growing pointing at the need for space traffic management to be included as well on that agenda in the short or medium term. The view was expressed that when drafting rules for STM the areas of space security and space safety were currently overlapping. An important step forward would be for countries to enact national space legislation in the field.

41. However, first and foremost, outer space should be defined. This step would certainly ease the way of the institutions called upon to deal with space traffic management from a legal viewpoint.


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42. Concerning the ILA Rio Conference and Report to be submitted thereto by its Space Law Committee, the LSC had noted, in the Report on its 47th Session (31 March-11 April 2008), that

The Subcommittee took note of the information received from ILA on its most recent contributions relating to space law, contained in a Note by Secretariat (A/AC.105/C.2/L.270). It was noted that, at the 73rd ILA Conference, to be held in Rio de Janeiro, Brazil, in August 2008, the ILA 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 its value as evidence in court proceedings. The ILA Study Group on the Responsibility of International Organizations, which was working closely with the International Law Commission, would also be meeting in the framework of the 73rd ILA Conference. The Legal Subcommittee would be kept informed of the progress of the work of the Study Group.

43. In this light a Third Report of the ILA Committee, on The Legal Aspects of the Privatisation and Commercialisation of Space Activities (and other related matters), was submitted to the Rio Conference. The working session included a considerable number of ideas and views from the floor which are now part of the Conference Report.

44. Part I of this Report was introduced by the Chair and, following a review of the Committee’s work over the past two years, addressed remote sensing (with special emphasis on satellite data in international litigation), registration issues and new developments in the field of space debris. Part II, presented by the General Rapporteur, dealt with national space legislation and various aspects relating to the registration of space objects in this context.

(a) Remote sensing, satellite data and its value as evidence in court. State-of-the-art

45. The ILA Report followed up the discussion of the Toronto Conference on various controversial aspects of this topic, focusing on

- remote sensing and its links to registration issues, and the contribution of the ILA Committee to the Report of the UN Working Group on the subject (2007), now a UNGA Resolution,

- other controversial aspects surrounding the interpretation and application of the 1986 UN Principles on Remote Sensing of the Earth from Space, such as Principle XII on the right of access, and issues relating to the commercialisation of data collected by earth observation satellites, and

- the validity of the UN Principles today, e.g. whether they reflected state practice and were consistent with the present international scenario.

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46. The Committee was especially involved in the analysis of important applications of satellite data today, particularly its value as evidence in court, an issue which merits separate treatment.

(i) Satellite data in international and national litigation

47. The ILA Committee considers that solutions are needed as the current situation runs counter to the use of satellite imagery in court, particularly in boundary disputes where the precision of space technologies is essential.

(ii) General remarks

48. Raw data, in this initial stage, cannot be modified. The issue is really the manipulation of digital data as outcome of a long chain of interpretations once the raw data is collected by the satellite. This is particularly sensitive where boundary disputes are concerned, involving sovereignty questions over land and waters. A number of recent cases decided by the International Court of Justice (ICJ), and other international arbitrations, clearly illustrate the major issues involved.

49. Therefore, one of the outstanding questions is the handling of digital images - which normally amount to a collection of data - without the possibility of detecting changes at a later stage. The difference between satellite data and other conventional means of evidence is not merely the higher precision of the former, which leaves no space for human error, but a very wide margin for interpretation on the part of the expert. It is, rather, a substantial question. The main pitfall is that obscuring, moving or introducing elements to digital images may be largely invisible to the human eye. This means an inevitable dependence on the experts called upon to interpret the data which, in turn, makes judges, arbitrators and lawyers particularly uneasy.

50. The different stages leading to the elaboration of digital maps are the following:

- Earth observation satellites collect the raw data which is transmitted by them to ground. In this primary state the data has no real value and must be processed.

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- The first step -known as preprocessing- is to make atmospheric, radiometric and geometric corrections, among others.

- Next, the raw data becomes available in digital form and certain aspects of the picture may be enhanced, at the user's request, by computer programmes.

- The user may then ask for the classification of the information gathered bringing together, for instance, similarities and differences.

- Ancillary information, such as maps, GPS data, etc., may be added to prove the results of the satellite image\(^5\)

51. Concerning the pre-processing stage one of ILA Committee members has observed that the main reason for pre-processing the raw data is because of the continual non-ideal position of the orbit and spacecraft attitude (yaw, pitch & roll). Corrections are crucial to ensure that the picture is not distorted. The suggestion was that it should be mandatory for remote sensing satellite operators to keep such data in record so that it is possible to reassure that the "raw data" (which is actually pre-processed) has not been manipulated except for what is demanded by the natural life changes of the satellite orbit and altitude.

52. Consequently, there is an inevitable dependence on the experts called upon to interpret the data and a wide margin of interpretation open to them. Concern is now reaching other fields such as biology. A possible step forward could be running the data through Photoshop, a method applied by the “Journal of Cell Biology” in the USA which, in this case, revealed cases of manipulation and misrepresentation of data\(^6\).

53. In 2006 the Hwang case was in the limelight. It involved fraudulent papers published in Science on stem cell research which unchained a string of most controversial opinions surrounding 'fraud in science' and 'routes of scholarly lying', and its persuasion mechanisms. It revealed, at the same time, the ineffectiveness of peer reviews\(^7\).

54. In the legal world the doctrine remains divided as to the value of satellite data in court proceedings. Lawyers and judges have conflicting views as well. In this context the ILA decided to continue research on the matter.

\(^5\) See inter alia, Harald Ginzky, *Satellite Images as Evidence in Legal Proceedings relating to the Environment - A US Perspective*, Air and Space Law, Vol. XXV, Kluwer 2000, at p. 115. The problem is addressed by the author from an almost exclusively US perspective and frequently linked to the Fourth Amendment and the right of privacy to establish compatibilities with the use of remote sensing technologies.

\(^6\) See Report of the Seventy-Second Conference, Toronto 2006, p. 715. In note 51 it is explained that when an object is enlarged beyond its proper resolution photoshop may generate extra pixels and, if the object is rotated, another set of pixels is generated in a characteristic pattern. See 'On Sunday with the New York Times: 20', The Buenos Aires Herald, Vol. 6, N° 258.

\(^7\) See Delgado-Lopez-Cozar, E. (Granada University), Torres-Salinas, D. (Navarra University) and Roldán-López, A. (Granada University), 'El fraude en la ciencia: reflexiones a partir del caso Hwang' ('Fraud in science: reflections on the Hwang affair'), in El profesional de la información, 2007, March-April, Vol. 26, N°2, pp. 143-150.
(iii) Summarized views of Committee members

55. A factual point is that there are still no developed international rules or standards in place as to the use of Earth observation satellites data in the courtroom. Common standards for digital data products are slowly being developed at national levels, but there is still widespread uncertainty in the legal world.

56. Perhaps the conventional means of obtaining evidence - such as ground inspections or aerial photography - are more cost-effective or preferable, depending on the objectives. University College London is currently testing the use of satellites in enforcing a number/type of laws with mixed results. In recent years there has been a notable increase in the use of satellite technology in court and it is now necessary to have more recording and publicity of its applications.

57. The main conclusion is that training the legal sector is crucial for the development of these technologies. There is still, however, a lack of awareness, knowledge and understanding in the legal field as to what the technology can offer and what are its limitations. It is thus essential to have more cross-disciplinary cooperation so that future technologies have a greater ability to meet the legal users’ needs.

(vi) State-of-the-art, conclusions and suggestions

58. The importance of this question is reaching developing countries as well. On 14 May 2008 a Conference on this specific question was organised at the Ministry of Foreign Affairs in Buenos Aires (Información Satelital y su valor como medio de prueba en tribunales nacionales e internacionales) under the auspices of the Argentine Space Agency (CONAE), the European Space Agency (ESA), the National Council for Scientific and Technical Research of Argentina (CONICET) and the National Institute of Air and Space Law (INDAE). Following a technical presentation, the legal sides - national, international and European - of the matter were addressed by Dr. Oosterlinck (ESA), Dr. Agostinelli (INDAE) and the present writer (CONICET). The meeting was chaired by the Executive Director of CONAE, Dr. Conrado Varotto, and a stimulating debate - of an undoubted interdisciplinary nature - followed the presentations.

59. The described activities and different views are a clear indication that further studies are needed to enable the drawing up of sound, realistic proposals. Hereunder some tentative conclusions and suggestions discussed at our working session in Rio.

- It is beyond question that raw data, as such, cannot be modified. The problems arise over the various stages involved in the production of the digital images.

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8 The present writer is grateful to Committee member Ray Purdy for providing his experience on a project in this field conducted from University College London.

9 The proceedings of this Conference are being published in the journal of the Buenos Aires Bar (Revista del Colegio de Abogados de la Ciudad de Buenos Aires) having in mind the interest this topic has arisen in the legal profession. This journal is published twice a year (July/December).
- As underlined in the ILA Reports, this question should be given a more positive spin so as to benefit from the use of satellite data in every possible field.

- Recent experience has shown that the question is particularly sensitive insofar as boundary disputes are concerned. The problems are now extending to other areas, such as biology, where 'Photoshop' methods appear useful to detect the manipulation of satellite data and other misrepresentations. Per contra, peer reviews do not appear effective, particularly in the field of medical and other sciences.

- Consequently, reliable mechanisms for the production of satellite imagery should be developed without delay.

- There is still a lack of awareness, knowledge and understanding in the legal sector as to what these technologies can offer and their limitations.

- As technology is not currently developed having the legal sector in mind, efforts should be directed to creating greater awareness of their applications and implications in the legal field. Capacity building and training are of major importance to tailor capabilities to this specific mission.

- Some proposals indicate the need to have an international body for accreditation and certification of satellite data.

- Other views suggest, as a first step, the drafting of an agreement on international standards concerning authentication and certification.

- The various sources consulted agree on the need to draw up a list of experts of international renown to which the parties to a dispute, and the courts and tribunals, may resort for the interpretation of satellite data.

- The general opinion is that control of all the phases of data collection - from the very first stage of raw data collection to the moment the final product is made use of - is essential for the transparency of this technology.

(b) Registration

60. The discussion during the Rio working session focused on the recently adopted UNGA Resolution on Registration (2007) on which the ILA Committee was called upon to give its opinion. It was agreed that the most important objective in the field was that the 1975 Registration Convention should continue to gain support from the international community.

(c) Space Debris in New Light

61. This somewhat long-standing question has been kept under permanent review by this ILA Committee since the adoption of the ILA Instrument on the Protection of the Environment from Damage caused by Space Debris. It was adopted by consensus at the 66th Conference of the ILA held in 1994 in Buenos Aires.

62. Thereafter, at all ILA Conferences attention was drawn to the subject - recorded in the framework of the Space Law Committee Reports- to assess
whether the Buenos Aires Instrument remained consistent with the international scenario of the moment. The treatment of this matter in different circles - national, regional and international fronts- was followed closely by this Committee and no great changes were considered necessary since the introduction of the Buenos Aires ILA Instrument to the LSC and Full Committee in 1995.

63. In the meantime, this ILA document began to gain support from the doctrine and to be quoted. It was also recommended as a useful tool when the time came to address space debris from a legal perspective and at governmental level. Even though the Scientific and Technical Subcommittee (STSC) of COPUOS had dealt with the subject in different workplans, on the legal front it found resistance, over the years, to work its way onto the agenda of the LSC.

64. The general opinion today concurs that space debris, as a threat to space, should be on the top of the list, followed by weaponisation and NEOs (natural near-Earth objects such as asteroids, meteorites, etc.) which might imply a serious risk of collision with planet Earth.

(i) A recent milestone: the UN Guidelines on Space Debris Mitigation

65. The matter was brought up during the presentation of the ILA Reports made by the chair of this Committee to the LSC at its 46th session, 26 March-5 April 2007\(^\text{10}\) and at its 47th session, 31 March-11 April 2008\(^\text{11}\). Previously, our distinguished member Professor Karl-Heinz Böckstiegel - former chair of this Committee - had always included space debris and the ILA Instrument in his annual statements to the LSC and Full Committee. These presentations reflected the general opinion that space debris posed a serious and increasing risk and the objective of agreeing on the prompt implementation of mitigation measures to safeguard the environment for future generations.

66. During 2007, and with the Rio Conference in mind, the ILA Space Law Committee directed its attention to the work of the STSC and, particularly, to the Guidelines on Space Debris Mitigation adopted by that UN Subcommittee at the end of its 44th session in February 2007\(^\text{12}\). In so doing ILA had in mind the division in two categories of space debris mitigation measures, i.e. those that curtail the generation of potentially harmful space debris in the near term and those that limit their generation over the long term. Likewise, special attention was given to the seven guidelines adopted by the STSC.

67. The fact that those Guidelines reached the status of ‘UN Guidelines on Space Debris Mitigation’ following their adoption by UNGA Resolution 62/217 of 21 December 2007, plus the response given by a number of states concerning domestic measures taken in accordance with those Guidelines, was a powerful indication that the topic would be finally included on the agenda of the LSC.

68. This objective, towards which the ILA and its Space Law Committee have been concentrating since the early nineties, is reflecting to a large extent the

\(^{10}\) Doc. A/AC.105/2/L.265, pp. 10-19.
\(^{11}\) Doc. A/AC.105.105/2/L.270, pp.7-10.
general opinion of the doctrine today. And, as we all know, the latest development in the field is the inclusion by the LSC of the topic as a single item for discussion, to be considered at this 48th Session.

69. In this context the Space Law Committee of the ILA is giving serious consideration to the matter in the framework of the Committee's Report to the 74th ILA Conference (The Hague, June 2010) with a view to assessing the development of state practice. This means analysing the various domestic mechanisms enacted by states under the UN Guidelines on Space Debris Mitigation and a review of the ILA Buenos Aires Instrument to establish its consistency with the present technological advances.

(ii) Natural Near-Earth-Objects (NEOs)

70. The ILA Space Law Committee's attention was also drawn during the Rio Conference to the question of natural Near-Earth Objects (NEOs) which are a real challenge from the legal standpoint. This issue, as we know, has been discussed for some time now by the STSC but not, so far, by the LSC. The information from the former will no doubt provide a sound basis in the quest for a more precise legal framework for space security. And even though the legal treatment of NEOs is in its very incipient phases, the topic seems to be gaining a place on the agenda of various academic institutions dealing with international space law.

71. The ILA Committee, on the basis of a presentation from its Chair to the 51st Colloquium on the Law of Outer Space (IISL, Glasgow 2008) entitled “International Responsibility vis-à-vis natural near-Earth objects (NEOs)” and their possible implications will shortly be circulating a questionnaire to members for preliminary views and ideas.

72. Similarly, and pursuant to a request from the United Nations Office for Outer Space Affairs (UNOOSA) for information on the topic, a paper on “The Legal Aspects of Natural Near-Earth objects (NEOs)” within the International Law Association (ILA) and its Space Law Committee was recently prepared for consideration of the STSC at its forty-sixth session, in accordance with the workplan established for 2008-2010 (A/AC.105/911, Annex III, para.11).

(d) Dispute Settlement

73. The Draft Convention on the Settlement of Disputes relating to space activities (1998 revised text) adopted by the ILA at its 68th Conference (1998) is kept under permanent review by the ILA Committee. It should be noted that Article 10 of this Convention envisages the participation of private entities in these activities and opens the door for these entities to avail themselves of the mechanisms laid down by the Draft.

13 Inter alia, the Institut de Droit de l'Espace of the Académie Internationale d'Astronautique dedicated one of the working sessions of its latest International Colloquium (Glasgow, September 2008) to the discussion of NEOs from a legal viewpoint.
(e) Links between the ILA and the International Law Commission on the Responsibility of International Organisations

74. Cooperation between these bodies continued uninterrupted. A working session of the ILA Study Group on this subject was held in Rio under the chairmanship of Dr. Eduardo Valencia Ospina (also ILC member) with active participation of the Chair and Rapporteur of the ILA Space Law Committee who, from different angles, had submitted their views on these questions.

75. In Rio attention was focused on the Sixth Report on the topic by Professor Giorgio Gaia - Special Rapporteur of the ILC - submitted to its Sixtieth Session (5 May-6 June and 7 July-8 August 2008), the two draft articles proposed at its previous session in 2007 having been adopted without changes. These Articles addressed international responsibility entailed by a serious breach by an international organisation of an obligation arising under a peremptory norm of general international law (Article 44) and the particular consequences of a serious breach of an obligation of the kind (Article 45). On this point reference is made to the ILA’s Space Law Committee presentation to the LSC in March 2008.

76. The Gaia Sixth Report addressed the next draft articles concerning invocation of the responsibility of an international organisation (draft article 46 et seq.) and countermeasures (draft article 52 et seq.).

(f) National space legislation and registration

77. Part II of the Space Law Committee Report is dedicated to the current legal issues concerning national space legislation and links with the registration of space objects. It was entrusted to the General Rapporteur, Professor Stephan Hobe.

78. It was noted that several issues underlying these topics were addressed by a number of national laws. Such the procedures for authorising 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, the safety requirements for the conduct of space activities and the regulatory frameworks for national space agencies or other national entities responsible for carrying out and supervising space activities.

79. Reference was made to the usefulness of the UN database on national space legislation and multilateral and bilateral agreements related to the peaceful exploration and use of outer space in its website (http://www.unoosa.org) and examples were given of recent domestic laws enacted on the subject. The conclusion was that both topics -national space legislation and registration- were of major concern to the international community.

80. Another general opinion was that, with regard to national space legislation, there seemed to be a growing willingness of states to enter into a more profound discussion. Therefore, the ILA Space Law Committee should seriously consider the elaboration of a model law based on the building blocks adopted by this Committee and mentioned in our previous presentations to the LSC. Such model
law would be a useful reference for states embarking in the process of drafting national space legislation.

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

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