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A Word from the Chairman

Space Law Games

Some of you may well have seen the American film in which a supercomputer takes control and directs the fighting between the two superpowers, resulting in the annihilation of the armed forces of the two opposing camps. It turns out that it's only a game with the battle, entirely virtual, won by the computer, which has been brilliantly programmed by a young boy. Proof, if any is needed, that games can be your downfall. But that is not the main point I wish to make here.

Games have an important educational role to play in the development and communication of ideas, whatever the age of the players. I might be mistaken, but it seems to me there are no board games involving knowledge of space activities. My suggestion is that such a board game be created. Of the games that could provide a template, my personal favourite is "Trivial Pursuit", in which two or more teams pit their knowledge against each another. What would remain would be to draw up a list of topics and possible answers, and also to establish various difficulty levels.

Dear readers, if you are interested in this idea, please send me lists of possible questions grouped by topic. A "panel of experts" will sort through them and then, who knows, maybe they could be published and perhaps used at the next summer course to test the participants' knowledge.

Thanking you in advance.

Gabriel Lafferranderie
ECSL Chairman

European Space Agency
Agence spatiale européenne

Some ECSL Highlights

The European Centre for Space Law (ECSL) has been active in the space law field for the last 17 years and thanks to the personal efforts and commitments of the ECSL Board Members, the ECSL has created events related to space law that are now well known in the space law community and not only.

To begin with, the ECSL has been organising the ECSL Summer Course on Space Law and Policy for the last 14 years (2004: Terni, Italy). The number of students has been steadily growing: the ECSL receives more that 50 application forms per year, and participants come from European and non-European States. We are already working on the 15th edition of the ECSL Summer course which will take place in the Erasmus Centre at ESA/ESTEC, Noodwijk, the Netherlands (4-17 September 2006, the application form is available on the ECSL website, www.esa.int/SPECIALS/ECSL). We are striving to improve the content of the course and to make it a unique experience for the participants.

The Practitioners Forum on "Space Tourism: Legal and Policy Aspects" (17 March 2006, coordinator Prof. Von der Dunk) attracted around 100 participants and the programme featured presentations by experts from EADS, Euroconsult, various universities and also a challenging and exciting keynote speech by Mr Will Whitehorn, President of Virgin Galactic.

The ECSL follows closely the discussions of the UNCOPUOS and every year during the work of its Legal Subcommittee, the ECSL organises a symposium on space law together with the International Institute for Space Law (IISL). This year the event focused on "Legal Aspects of Disaster Management and the Contribution of the Law of Outer Space" (03 April 2006).

On 24-25 April, the European Rounds of the Manfred Lachs Space Law Moot Court Competition took place at the Catholic University of Leuven, Belgium. The winning team will fight for the world title during the finals held in conjunction with the IAF Congress, (Valencia, October 2006).

On the 26 April, the Belgian ECSL National Point of Contact (NPOC), EISC, the Belgian Federal Science Policy Office and the University of Leuven (KUL) held a workshop entitled "Towards a Legal Framework for Space Activities and Applications: Belgian, Comparative and European Perspectives" at the Belgian Parliament, Brussels, Belgium.

In cooperation with the Moroccan Royal Centre for Remote Sensing (Centre Royal de Télédétection Spatiale, CRTS), the ECSL is organising a Space Law Workshop in Rabat (22-23 June 2006) on space legal issues with participants coming from national and regional bodies involved with space applications.

On 21-22 September 2006, the University of Graz (Austria NPOC) will organise the NPOCs General Meeting, which will allow NPOCs to present their activities at national level and to further develop the ECSL Network. The event will be followed by a conference on "National Space Law – Developments in Europe/Challenges for Small Countries".

On 26-27 October, the ECSL/ESA/UNESCO/COMEST/IDEST Conference on "Legal and Ethical Aspects of Space Exploration" will take place at the UNESCO premises in Paris.

The ECSL is always represented at major international events, such as the United Nations/Nigeria Workshop on Space Law (21-23 November 2005); Prof. Marchisio, ECSL Vice Chairman; Prof. Von der Dunk); the workshop on "Droit spatial international et législation nationale", organised by the Algerian Space Agency (ASAL, 21-22 March 2006, Prof. Marchisio; Prof. Kerrest) and the 57th International Astronautical Federation (IAF) Congress/49th IISL Colloquium (Valencia, Spain 2-6 October 2006).

The ECSL Legal Database keeps growing and new information and new sections are regularly added. In particular, very soon, a new virtual network dedicated to Space Law and Latin American Countries will be launched, so keep an eye on the ECSL website. The ECSL is also working on a new publication entitled "Agreement on the Rescue of Astronauts, the Return of Astronauts and the return of Objects Launched into Outer Space: 1968-2008 Lessons learned? Which directions now?"; other projects may include a publication for the 50th anniversary of the launch of Sputnik I (USSR, 4 October 1957) and a special issue of the ECSL Newsletter (provisional title: "What has changed?") to update the content of the ECSL book "Outlook on Space Law over the next 30 years (Kluwer Law International, 1997)".

Last but not least at all, the ECSL always encourages and supports the creation of new space law courses in Europe (graduate and post-graduate level; Masters).

Alberto Marchini
ECSL

Current Status of Mitigation Measures on Space Debris

Space debris came to the attention of the international community in January 1978 when Cosmos 954 disintegrated and its debris impacted the ground in northwestern Canada. Before that time scientific research concentrated rather on meteoroids but some studies investigated also fragments of manmade satellites and other inactive objects. On the whole, however, the opinion prevailed that outer space is immense and that the probability of debris colliding with an active satellite or hitting the ground was negligible. Consequently, the term "space debris" does not appear in the five treaties of space law which were elaborated in the 1960's and 1970's.

In the 1980's the scientific community got widely interested in space debris and the number of papers on that subject increased considerably. Toward the end of

the decade, prominent space agencies manifested a very serious interest in space debris by publishing official studies on the subject. The importance of preventive measure and of international cooperation was stressed.

In 1989 the UN Scientific and Technical Subcommittee devoted its attention to collisions involving satellites with nuclear power sources. Some delegations expressed the view that time has come for the COPUOS to start considering the question of space debris and pollution in outer space.

In 1993, on the occasion of the first European conference on space debris, leading space agencies created an Inter-agency Space Debris Coordination Committee, IADC. That committee reflected the common view of leading space agencies. Its foundation may have been one of the reasons why the UN Scientific and Technical Subcommittee started considering space debris as a point on its agenda in 1994.

The result of the deliberations of the subcommittee was the so called Rex Report, named after Professor D. Rex, a prominent expert on space debris and chairman of the Subcommittee. No consensus, however was reached in the UN on starting legal aspects of space debris.

In 2005 the UN Committee on the Peaceful Uses of Outer Space became quite explicit in its preference of voluntary guidelines to an obligatory treaty. It noted with satisfaction that the Working Group on Space Debris had agreed to develop a document on space debris mitigation, using as a basis the technical content of the IADC space debris mitigation guidelines. The document would not be legally binding under international law. The document would, however, take into consideration the UN treaties and principles on outer space.

The IADC Space Debris Mitigation Guidelines were discussed at the Inter-sessional Meeting of the Working Group on Space Debris of the Scientific and Technical Subcommittee, held in Vienna early in 2005. It considered proposals made by France, Germany, India, Japan, the United Kingdom, the United States, and the European space Agency, and presented its report to the COPUOS. The Report is based on the following axioms:

(a) The implementation of space debris mitigation remains voluntary and should be carried out through national mechanisms,
(b) The Guidelines would not be legally binding under international law because it is recognized that exceptions may be justified,
(c) The Guidelines could be updated on a regular basis in accordance with evolving national and international practices on space debris mitigation and related research and technology developments,
(d) The Guidelines would be applicable for mission planning and operation of newly designed spacecraft and orbital stages and, if possible, for existing ones,
(e) The UN Treaties and Principles on Outer Space would be taken into consideration.

The guidelines should be considered for mission planning, design and operational phases of spacecraft and launch vehicles orbital stages. The preliminary draft has been reviewed at the 2006 session of the Scientific and Technical Subcommittee, held in Vienna from 20 February to 3 March 2006. The Subcommittee agreed that the draft would be circulated at the national level to secure consent for approval of the guidelines by the Subcommittee at its forty-fourth session in 2007.

The Subcommittee endorsed the Report of the Working Group on Space Debris. Because of their importance the guidelines are given here in extensor, including their brief and clear justifications, typed in italics:

Guideline 1: Limit debris released during normal operations
Space systems should be designed not to release debris during normal operations. If this is not feasible, the effect of any release of debris on the outer space environment should be minimized.
During the early decades of the space age, launch vehicles and spacecraft designers permitted the intentional release of numerous mission-related objects into Earth orbit, including, among other things, sensor covers, separating mechanisms and deployment articles. Dedicated design efforts, prompted by the recognition of the threat posed by such objects, have proved effective in reducing this source of space debris.

Guideline 2: Minimize the potential for break-ups during operational phases
Spacecraft and launch vehicle operational stages should be designed to avoid failure modes which may lead to accidental break-ups. In cases where a condition leading to such a failure is detected, disposal and passivation measures should be planned and executed to avoid break-ups.
Historically, some break-ups have been caused by space system malfunctions, such as catastrophic failures of propulsion and pressure systems. By incorporating potential break-up scenarios in failure mode analysis, the probability of these catastrophic events can be reduced.

Guideline 3: Limit the probability of accidental collision in orbit
In developing the design and mission profile of spacecraft and launch vehicle stages, the probability of accidental collision with known objects during the system's launch phase and orbital lifetime should be estimated and limited. If available orbital data indicate a potential collision, adjustment of the launch time or an on-orbit avoidance manoeuvre should be considered.
Some accidental collisions have been already identified. Numerous studies indicate that, as the number and mass of space debris increase, the primary source of new space debris is likely t come from collisions. Collision avoidance procedures have already been adopted by some Member States and international organizations.

Guideline 4: Avoid intentional destruction and other harmful activities
Recognizing that an increased risk of collision could pose a threat to space operations, the intentional destruction of any on-orbit spacecraft and launch vehicle orbital stages or other harmful activities that generate long-lived debris should be avoided.
When intentional break-ups are necessary, they should be conducted at sufficiently low altitudes to limit the orbital lifetime of resulting fragments.

Guideline 5: Minimise potential for post-mission break-ups resulting from stored energy
In order to limit the risk to other spacecraft and launch vehicle orbital stages from accidental break-ups, all on-board sources of stored energy should be depleted or made safe when they are no longer required for mission operations or post-

mission disposal.
By far the largest percentage of the catalogued space debris populations originated from the fragmentation of spacecraft and launch vehicle orbital stages. The majority of those break-ups were unintentional, many arising from the abandonment of spacecraft and launch vehicle orbital stages with significant amounts of stored energy. The most effective mitigation measures have been the passivation of spacecraft and launch vehicle orbital stages at the end of their mission. Passivation requires the removal of all froms of stored energy, including residual propellants and compressed fluids and the discharge of electrical storage devices.

Guideline 6: Limit the long-term presence of spacecraft and launch vehicle orbital stages in the Low Earth Orbit (LEO) region after the end of their mission
Spacecraft and launch vehicle orbital stages that have terminated their operational phases in orbits that pass through the LEO region should be removed from orbit in a controlled fashion. If this is not possible, they should be disposed of in orbits that avoid their long-term presence in the LEO region.
When making determinations regarding potential solutions for removing objects from LEO, due consideration should be given to ensure that debris that survives to reach the surface of the Earth does not pose an undue risk to people or property, including through environmental pollution caused by hazardous substance.

Guideline 7: Limit the long-term interference of spacecraft and launch vehicle orbital stages in the geosynchronous Earth orbit (GEO) region after the end of their mission
Spacecraft and launch vehicle orbital stages that have terminated their operational phases in orbits that pass through the GEO region should be left in orbits that avoid their long-term interference with the GEO region.
For space objects in or near the GEO region, the potential for future collisions can be reduced by leaving objects at the end of their mission in an orbit above the GEO region such that they will not interfere with, or return to, the GEO region.

The expectation was expressed in the Report of the Working Group that the document would be reviewed and might be revised, as warranted, in the light of new findings. For more details the reader was referred to the IADC website www.iadc-online.org.

The adoption of the guidelines by the Subcommittee in 2007, and their subsequent implementation by all launching countries and agencies, will be an important step in the mitigation of risks posed by space debris. It would show that a voluntary application of guidelines has been recognized to be in the interest of all users of outer space. The above general guidelines could be followed – let us hope – by adopting quantified limits of important factors.

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Considerations Over the Loss of CryoSat ESA Satellite

On 8th October 2005, following a successful preparation of the satellite by the joint ESA and industrial teams, the launch of CryoSat satellite on board a Rockot launch vehicle ended in failure. Due to an anomaly towards the end of the planned 2nd stage operations and approximately five minutes after lift-off, at a height of 230 km, the launch vehicle automatically interrupted its mission and began to fall. The combination of the re-entry heat and the explosion of the fuel tanks completely destroyed CryoSat. Debris of the launch vehicle (2nd, 3rd stage) and of the satellite impacted into the Arctic Ocean.

Formed in 1995, the launch services provider Eurockot Launch Services GmbH, is a joint venture between EADS Space Transportation (DE) and Krunichev (Russia) that provides commercial launch services with the Rockot launch system to operators of Low Earth Orbit (LEO) satellites and operates from launch facilities in Plesetsk Cosmodrome, northern Russia.

From an altitude of just over 700 km and reaching latitudes of 88°, CryoSat aimed at monitoring precise changes in the thickness of the polar ice sheets and floating sea ice. The observations made over the three-year lifetime of the mission would have provided information on the rates at which ice cover may be diminishing.

The root cause of the CryoSat failure has been unambiguously identified and corrective measures for Rockot`s return-to-flight are now under way. A Russian State Commission was convened immediately after the accident. The conclusions of its investigation work have been issued in a report including subsequent recommendations, and its main conclusion is that human error and not an inherent design flaw of the launch vehicle caused the failure. More specifically, the Commission's report indicates that the launch failure was ultimately caused by the 2nd stage main engine not being shut down at the correct time, leading to an engine burn until the propellants were depleted. Due to this incorrect shut down, an engine failure occurred, resulting in a lateral force on the launch vehicle. This resulted in unstable flight causing the vehicle flight angles to exceed allowable limits. In accordance with the pre-defined flight programme, the on-board computer automatically terminated the mission.

Risks linked to launch activities are dealt within the risk management plan of any space venture in function of the particular mission at stake. The establishment of such plans is initiated many years in advance and there are various elements that can impact the results of a mission. A risk management plan would then take into consideration factors linked to the political and economical context – especially for commercial launches- and other factors relating to technical failures and human errors that may cause property damage to the satellite and equipment or, in the worse case scenario, property loss or death of personnel and third parties. In the case of a satellite launch, the latter is to be taken into account and managed contractually – by clearly defining the obligations and the level of liabilities between the parties - and through insurance coverage. Insurance may however considerably impact the cost of a launch mission, as premiums are in

range of 17-25% of the sum insured, depending on whether the sum insured covers the entire cost of the satellite and/or other elements. Some insurance costs can be reduced though sharp restriction of these legal claims that the contracting parties may bring against each other. Such restriction of claims is very often included in Launch Service Agreements (LSAs) by means of clauses, going up to cross-waivers of liability, pursuant to which each party agrees to bear its own losses and waives the right to claim against the other, with some exceptions in case of demonstrated gross negligence or wilful act. This practice reduces the likelihood of large claims but must be based on a precise definition of such contractual exemptions.

The failure of the Eurockot launcher and the consequent loss of CryoSat raised questions[1] particularly on the risk allocation between the launch providers and the customers that are discussed therein with Mr. S. Fiorilli[2], Head of the Space Infrastructure Procurement Division in the Procurement Department at ESA.

1. The undertaking of Eurockot Launch Services GmbH in the Service Level Agreement[3] signed with the European Space Agency was to launch ESA's Earth Observation satellite CryoSat on a polar orbit via a ROCKOT launcher in "single launch" configuration. Can we consider that, due to the mission failure, the obligation arising from the Service Level Agreement was not fulfilled?
   - Launch Service Agreements must clearly state the nature and extent of the respective obligations deriving there from. Is the obligation of the Launch Service provider limited to indeed perform the services and proceed to the launch, or does it extend to the successful injection of the payload into the required and defined orbit? One sees that the choice between the one or the other of these alternatives is of a nature to substantially impact the allocation of risks between the two contracting parties: in the second of the two possibilities mentioned above, the launch service provider would bear a higher risk, which would be translated into higher costs for the customer.
   In the case of the Launch Service Agreement between ESA and Eurockot Launch Services GmbH for CryoSat, the purpose of placing the satellite into polar orbit was mentioned in the provisions relating to the subject of the Launch Service Agreement, but the Launch Service Provider was deemed to have fulfilled its contractual obligations once the launch itself would have occurred, which was defined as the ignition of the propellant engines of the launcher's first stage.

2. Was there any insurance taken by ESA to cover from a loss of the satellite?
   - It has to be considered that purchasing full insurance coverage of a satellite would represent the third largest expenses after the cost of the satellite and the launch: its impact is in range of 17-25% on the budget envelope of a space venture. For this reason and also in view of the high level of reliability given by Eurockot (all launches provided by Eurockot before CryoSat were successful), no insurance for loss of satellite was taken by ESA and the Contractor.

3. With respect to third party liability the launch providers usually procure insurance covering this risk.
   - The insurance taken by the Contractor under this contract was related to Third Party Liability for bodily harm or damage to property sustained by third parties, where for third parties it is intended any natural or legal person other than Associates of the Contractor or ESA having an interest in the Launch or Satellite. The satellite was to be considered ESA's property according to the contract and there has been no recorded damage to property suffered by third parties in this case.

4. How is dealt the allocation of liabilities among parties?
   - The Launch Service Agreement between ESA and Eurockot Launch Services GmbH includes, like most such agreements, an inter-parties cross-waiver of liability that shall apply in case of harm or damage caused to properties. As a result, each party agrees to bear the financial consequences of a launch failure and of any related loss. It is however foreseen that such cross-waiver of liability shall not apply in case of harm or damage caused by gross negligence or wilful act.

5. Is gross negligence to be considered as a cause of the failure in view of the results from the investigation of the Russian State Commission[4]?
   - Under German Law, which is applicable to the Launch Service Agreement, the gross negligence has to be demonstrated by evidence of the fact that the Contractor has implemented the requirements for the launcher preparation in deviation from normal procedures and standards prevailing for such engineering activity. At this stage, it does not appear to be the case. Should the gross negligence be demonstrated by the inquiry board, ESA could pursue indemnification for any loss, harm, damage, liability or expenses incurred as a result of launch failure and satellite mission failure.

6. Launch Service Agreements may set the conditions for a re-launch obligation, at a reduced cost, in case of launch failure. Is there any agreement with Eurockot in this respect?
   - Also with a view to the intergovernmental nature of the contemplated mission, and the fact that, at the time of concluding the Launch Service Agreement, the satellite CryoSat was pertaining to a programme based on a one-off satellite, the Launch Service Agreement did not provide for such a re-launch obligation, which -it is important to bear in mind- would also have participated to a consequent risk margin being taken by the Launch Service Provider, with corresponding translation into the ultimate costs for the customer.

Conclusions

In many agreements, the Launch Service Provider is considered to have fulfilled his contractual obligations once the launch itself has occurred (at the ignition of the propellant engines of the launcher's first stage). The successful injection of the payload into the required and defined orbit is a hardly negotiable obligation, unless at a considerable higher price. It is, therefore, the customer who is often bearing the higher risk in that respect. Back-up or alleviating approaches could consist in: including in the Launch Service Agreement a clause providing for the re-launch obligation at reduced cost in case of failure; distributing the insurance costs among the contractual parties; considering (part of)

[1] Questions of public international law and, more specifically, of space law, like those relating to the jurisdiction and liability of the Launching States in the frame of the Outer Space Treaty, of the Liability Convention and of the Registration Convention, will not be treated in this article, which scope is to deal with the contractual obligations arising between the two parties of the Service Level Agreement.

[2] Mr. S. Fiorilli is the Head of the Space Infrastructure Procurement Division. He has been working at ESA in the Procurement Department since 1989. He is a Faculty Member of the International Space University, Strasbourg, France, in the Space Business and Management Department.

[3] The Service Level Agreement signed by ESA and Eurockot Launch Services GmbH is a contractual agreement between a private and a public entity and it's ruled by German law. Any dispute over the interpretation or performance of it is deemed to be referred to arbitration, in accordance with the Rules on Conciliation and Arbitration of the International Chamber of Commerce.

[4] See II above.

the final payment to be subject to successful launch; or in case of an agreement covering series of launches, including a termination clause in the event of a failure.
The cross waiver of liability almost systematically applies, unless for gross negligence or wilful act. Launching activities are by definition very risky and, therefore, the level of care required should be in line with the level of the risk involved: the Launch Service Agreement may want to define more precisely the launch service provider level of care/diligence to be used in that respect, instead of generically referring to the gross negligence.

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The Natural Disasters and the role of Satellite Remote Sensing : Economic and Legal Considerations «The Tunis Declaration II »

Tunis, 26 – 28 April 2006
Rachid ABIDI, Director General of CRTEAN

The International Conference on "The Natural Disasters and The Role of Satellite Remote Sensing : Economic and Legal Considerations" was organized in Tunis on 26, 27 and 28 April 2006 jointly by the «Centre Régional de Télédétection des Etats de l'Afrique du Nord - CRTEAN (North African centre for remote sensing) and the European Centre for Space Law (ECSL), with the participation of the United Nations Office for Outer Space Affairs (UNOOSA).

The goal of this meeting was to promote the global cooperation actions to use remote sensing data to prevent and manage the natural disasters; it was also meant to analyze the implementation of agreements for the CRTEAN Member States, and to promote the knowledge of the space law.

This conference has brought together decisions-makers and experts from CRTEAN Member States and Associated Members: Algeria, Libya, Morocco, Mauritania, Syria and Tunisia (Except Egypt and Sudan), European partners and international organizations.

This meeting followed a first conference (held on 27 September 2002) and the resulting declaration on «the promotion of Earth Observation to meet the needs of the North African countries» which was sent to the United Nations Committee for the Peaceful Uses of Outer Space (UNCOPUOS) and published.

The delegations of the CRTEAN Member States and Associated Members participating in the Conference discussed the present declaration on 27 and 28 April 2005 with a view to implement the objectives set in the 2002 Declaration and recommended the following text which was adopted by the CRTEAN board on 4 - 6 January 2006 and sent to the last meeting of the UNCOPUOS.

This recommendation takes on charge the international strategy for the prevention of major disasters and the Unispace III + 5 and refers to the role of satellite observation combined with ground-based observation, stressed on the global summits on environmental protection and on sustainable development; it emphasises the main following points:

•Encourages programmes evaluating the risk of major disasters (earthquakes, flooding, forest fires, countering desertification, drought and locust swarms);

• Encourages the reflection on data pricing policies and a shift towards no charge, in the case of major disasters;

• Notes with interest the data access and utilisation policy for Earth observation satellites such as ERS, Envisat, Spot and others;

• Encourages the CRTEAN Member States to study the advisability of access to the international Charter on "Space and Major Disasters" and provide access to non-classified information from their databases for the purpose of preventing and managing the natural disasters and information networking;

• Invites the CRTEAN to study as soon as possible the contribution to and deployment of a regional database in this connection, taking into account the multidisciplinary dimension of such data, and to determine standard exchange arrangements with a view to useful

From left to right: Mr Gabriel Lafferranderie, ECSL Chairman; Mr Rachid Abidi, General Director of Centre Régional de Télédétection des Etats de l'Afrique du Nord (CRTEAN); Mr Abdeltif Chebbi, Director of Tunisian Defence Minister's Cabinet and representative of the Tunisian Government; Mr Neji Fekih, General Director of the Tunisian National Centre for Remote Sensing; Ms Natercia Rodrigues, representative of the United Nations Office for Outer Space Affairs (UNOOSA)

exploitation of the data:
(1) Satellite remote Sensing in aid of Development : Legal Considerations; Tunis, 26 – 27 September 2002
(2) Space Policy Journal 19 (2003), 143-145, May 2003;

• Notes the ongoing need for national expertise for the purposes of education, training and development;

• Recommends the introduction of space systems training programmes and calls for these to be expanded;

• Recommends concerted legislative and regulatory action, having regard to the cross-frontier impact of such disasters;

• Encourages the CRTEAN Member States and Associate members to persevere with their space programmes, to become parties as soon as possible to the United Nations Outer Space treaties;

• Recommends that the CRTEAN Member States intensify their cooperation and their dialogue .

The results of this conference has been just published as proceedings (report + CD).

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UN/Nigeria Workshop on Space Law
Meeting International Responsibilities and Addressing Domestic Needs

The United Nations/Nigeria Space Law Workshop on the theme "Meeting International Responsibilities and Addressing Domestic Needs", was held in Abuja, Nigeria, from 21-24 November 2005, for the benefit of countries in the African region. The Workshop, organized jointly by the United Nations Office for Outer Space Affairs (OOSA) and the Federal Republic of Nigeria, was the fourth UN Workshop on Space Law, aimed at promoting understanding, acceptance and implementation of the United Nations treaties and principles on outer space, especially in the African region. Participants hold positions in governmental departments, space agencies, international organizations, universities, research institutions and private practice. They included experts as well as professionals relatively new to the field, selected on the basis of their potential to influence the development of space law, policy and education in their countries.

The Government of Nigeria provided essential assistance in making the workshop a success by supporting the participation of a number of experts and participants from developing countries from the African region and for providing the excellent meeting facilities for the duration of the workshop.

The workshop provided an overview of the UN treaties and principles on outer space; examined various aspects of existing national space laws; and considered ways of enhancing the availability education in space law in the Africa region. It certainly promoted understanding, acceptance and implementation of the United Nations treaties and principles on outer space, particularly in the Africa region, taking into consideration that a successful implementation and application of the international legal framework governing space activities depends on the understanding and acceptance of those legal treaties and principles, by policy-and-decision makers. Today it has become increasingly important to ensure that space law and policy, including the ratification of the United Nations Treaties on Outer Space, is considered a matter of priority by all countries involved in space activities. Over the years, the UN General Assembly has urged states that have not yet become party to those treaties to consider ratifying or acceding to them, as well as incorporating them in their national legislation. The workshop was certainly useful and relevant to the work of the participants after their return to their respective countries.

From left to right: Prof. Ram Jakhu, Prof. Sergio Marchisio & Prof. Valdimir Kopal

After the opening and welcoming statements, the workshop was divided in six sessions, dealing respectively with international space law, national space law and policy, coordinating national space-related activities, other space-related legal issues, promoting education in space law, and, finally, recommendations, observations and conclusions of the workshop.

The first session, chaired by Sergio Marchisio, was introduced by two presentations on international legal regime on outer space, with special reference to the Outer Space Treaty, Rescue Agreement and the Moon Agreement (Vladimir Kopal), and on the International legal regime on outer space with reference to the Liability Convention and Registration Conventions (Sergio Marchisio). Then, Ram Jakhu addressed the United Nations Principles on Outer Space, followed by Natercia Rodrigues, who gave a brief overview of the work of the LSC and the United Nations Register of Objects Launched into Outer Space. The session was completed by a panel discussion on the benefits of becoming party to the Treaties and conducting activities in accordance with the Principles (Maurice Andem, José Monserrat Filho, and Sergio Marchisio).

The second session, chaired by Frans von der Dunk, began with a panel conducting an overview of national space laws and policies (Joanne Gabrynowicz, Ganiy Agbaje and José Monserrat Filho) and continued with an overview of national space laws and policies (Mothibi Ramusi, Henry Hertzfeld and Frans von der Dunk). The third session, chaired by R. A. Boroffice, was devoted to ways and means of coordinating national space-related activities in the African experience (R. A. Boroffice, Peter Martinez, Nassim Haned and Hamid Tadlaoui). It was followed by short presentations from sponsored regional participants on national space-related activities, education and institutions in Africa. In its turn, the fourth session, chaired by Peter Martinez, addressed legal and regulatory developments in aeronautical communications and navigation (Tare Brisibe), remote sensing data dissemination policy and national implementing legislation (Joanne I. Gabrynowicz), ITU regulations and procedures (Shola Taylor) and intellectual property law and space activities (Bradford Lee Smith), space insurance (Segun Yerokun) and the draft UNIDROIT protocol on matters specific to space assets (Tinuade Oyekunle). The fifth session, chaired by Maurice Andem, dealt with education courses and opportunities in space law. Sergio Marchisio gave an insight of the current activities of the European Centre for Space Law (ECSL).

The last session finalized the recommendations, observations and from conclusions of the workshop, recognizing, inter alia, the crucial role of space technologies for sustainable development and noted the need for establishing and nurturing supportive national regulatory environments to optimise the utilisation of space technologies. The participants of the workshop agreed that it is essential for states to conduct a policy and legal assessment in order to establish the proper local context prior to developing their national space policies and laws and that states should ensure the participation of key stakeholders in the development of their national space policies. It also agreed that it is essential, on the one hand, for developing countries to harness existing skills and educational experiences to overcome the challenges of developing capacity in space law and, on the other hand, for educators, space law practitioners, legislators, policy and decision makers in the African region to remain engaged in space law networks, including taking advantage of e-mail to facilitate regular communication when a lack of resources limited other means of participation. Of course, increased opportunities for education in space law in the African region could be achieved by encouraging Governments, education institutions as well as the private sector to participate actively in these efforts and by finding innovative solutions for overcoming financial constraints.

In conclusion, a deep appreciation has to be expressed to the Government of Nigeria, the National Space Research and Development Agency (NASRDA) and the United Nations Office for Outer Space Affairs for the commendable organization of the Workshop.

Prof. Sergio Marchisio

IISL/ECSL Space Law Symposium 2006
Legal Aspects of Disaster Management and the Contribution of the Law of Outer Space

The annual IISL/ECSL Space Law Symposium was held on the occasion of the 45th Session of the Legal Subcommittee of the United Nations Committee on the Peaceful Uses of Outer Space on Monday, 3 April 2006 in Vienna, Austria. Ambassador Peter Jankowitsch, Chairman of the Advisory Board of the Austrian Aeronautics and Space Agency and Former Chair of COPUOS, chaired the Symposium. Sergei Negoda of the UN Office of Outer Space Affairs served as rapporteur, and IISL Secretary Tanja Masson-Zwaan had coordinated the programme.

The 2006 IISL/ECSL Symposium concerned Legal Aspects of Disaster Management, a

very topical and significant issue, in view of the many disasters happening around the globe each year and the increasing contribution by use of space technology in response to disasters.

The symposium commenced by words of welcome given by Ambassador Peter Jankowitsch followed by four speakers speaking about different topics relating to the legal aspects of disaster management.

Prof. Joanne Gabrynowicz of the National Remote Sensing and Space Law Center of the University of Mississippi, USA, spoke about "Disaster Charter: Introduction, Initial Issues and Experiences". She gave a comprehensive overview of the International Charter on Space and Major Disasters and on the extensive international cooperation to provide satellite data to countries affected by disasters. She first explained the background of the Charter, reviewed its mechanisms and gave definitions of some of the important terms under the Disaster Charter. She then addressed some of the preliminary issues such as cost, type of data provided, and scope of activation. As regards cost, she pointed out that they are considerable, and are higher for some participants than for others. Budget impacts at agency or departmental level, not at national level. It is important to balance agencies' resources and recipients' needs.

She noted that challenges faced by the Charter are on-going and future operational financing, capacity building and evolving relationships and agreements among and between space agencies and other actors. The Disaster Charter is non-binding, however, Prof. Gabrynowicz noted that it might be potentially binding over time if it is confirmed by opinio juris and state practice. She observed that new trends would see new forms of international relations, and new institutions could emerge as alternatives to classical legal agreements. As informality becomes more effective, such informal practice will become more and more recognized as authoritative party behaviour. The Disaster Charter serves as a network for the informal exchange of information between different entities dedicated to disaster management. Prof. Gabrynowicz concluded her presentation with the following practical observations:

- Definitional differences exist between the Charter and the UN Remote Sensing Principles but common features do as well and they reinforce one another,
- Reality is that decisions of individual lower level government employees and decision-makers impact departmental or agency, not large, national budgets,
- The Charter is working.

Prof. Ray Harris of the Department of Geography, University College London, UK, gave an insightful presentation on "Challenges of Access to Earth Observation for Disaster Management". He started by showing some satellite images capturing disasters and contended that technology is not the problem but the issue is how we use the information. He mentioned the UN principles on Remote Sensing briefly and then introduced the Data Policy Assessment for GMES (DPAG), an EU project that is a part of Global Monitoring for Environment and Security (GMES), and highlighted the five major concerns with respect to access to data:

- Control over data and information in terms of legal obligation and licenses,
- Accessibility of data such as map information and standards and metadata,
- European spatial data infrastructure as in INSPIRE progress,
- Costs and funding such as pricing of data and whether data is regarded as private or public good,
- Archiving issues such as securing long term stewardship beyond a research project life time, who takes responsibility of archiving, lack of legal basis of archiving in Europe.

Prof. Harris then showed how map scale of the data in different countries varies to a great extent. Then, he gave recommendations in three main components, namely,

1. Control of data and information,
2. quality approval and
3. data dissemination improvements.

- Encryption/ decryption could be used as a technical means of achieving control of data and information,
- Decryption keys could be used in terms of humanitarian crisis,
- GMES partnership should use appropriate mechanisms to protect the quality of data and products for instance as a brand rather than as a burden,
- Licenses and intellectual property rights are increasingly important.

Lastly, he mentioned some ethical dimensions: questions included who controls the EO data and access to the data, whether society is served by more or less transparency of information as well as privacy laws of individuals. He concluded his presentation by stating that EO data are collected extensively and the key issue is that of access. Access is not just technical but revolves around policies of access.

Prof. Sergio Marchisio, Director of the Institute for International Legal Studies of the National Research Council, Italy, spoke about "Legal Aspects of Disaster Management; European efforts including the GMES programme". He gave an overview of the GMES, a joint ESA/EU initiative by talking about the background and legal framework of GMES, with a data policy issue followed by remarks on disaster management from the viewpoint of space law. He noted that Europe has successfully developed and launched advanced observation systems however; the organisations that promote public welfare have been forced to rely on fragmented and poorly presented information. To improve the European capacity in this field, the proposal for GMES emerged in 1998.

A challenge for GMES is to gather relevant data and provide services, which will enable decision-makers to better anticipate or integrate crisis situations relating to the management of the environment, such as natural and human-made disasters.

GMES services can add value by combining different sources, packaging them in a useful way in a fully integrated manner. It is to support implementation of European policy and it is particularly useful for disaster management. He noted that the diversity of data that the GMES services require and produce will benefit from the development of a data policy. This may vary according to the domains of services provided, but will need to find a balance between "non-discriminatory access", economic viability and the necessary incentives for private service providers to invest in the development of such capacity. An open access to the environmental information for the benefit of citizens should be freely available through GMES.

Then Prof. Marchisio gave some general remarks concerning disaster management from the space law perspective. He mentioned the contribution from the Disaster Charter as a first international

instrument to respond to disasters and implementation of Principle XI of the 1986 UN Principles on Remote Sensing, as well as Principle 18 of the UN Declaration on environment and development adopted at Rio de Janeiro in 1992. Prof. Marchisio concluded that the Indian ocean tsunami has promoted reflection on remote sensing data pricing policy, shifting toward no charge in case of major disasters and that seems to be the most important element to be taken into account, from the legal point of view, in assessing more recent initiatives.

Finally, Ms. Masami Onoda, of Kyoto University, Japan, spoke about "Legal and Policy Aspects of Disaster Management Support from Space in Asia". She presented the latest Japanese contribution to the Disaster Charter, showing an image from the recently launched ALOS of JAXA following a landslide in Leyte Island, Philippines. Then, she showed activities for disaster management apart from the Disaster Charter by introducing the disaster management system in the Asia-Pacific Region, "Sentinel Asia". Then, she moved on to speak about the legal aspects of disaster management by pointing out the lack of a comprehensive treaty or legal framework on natural disasters. She expressed the view that international human rights law, humanitarian law and refugee law serve as a basis of the Disaster Charter or the UN Remote Sensing Principles.

Then, she highlighted significant data policy issues, such as to what extent should humanitarian assistance be provided through provision of EO data particularly with respect to balance with cost and technical capability, the balance between open access to data and data protection as well as responsibility arising from data flaws. She lastly raised the following questions:

- What is the status of international law in relation to natural disasters?
- Are there any general principles or trends?
- What is the relation between disaster monitoring and supervisory techniques at the level of international law?

She concluded her presentation by observing that a first step should be to identify the international obligations with respect to disaster management and to clarify the procedures, in coordination with humanitarian agencies, at the same time addressing the policy issues in order to facilitate the exchange of views between humanitarian agencies and policy makers in order to establish an adequate framework.

Following the presentation of the four speakers, many delegations expressed their views and took part in the discussion. One delegate mentioned the UN Watercourse Convention, and its relevant provision on disasters. The issue as to how to distinguish remote sensing data for normal purposes or for disaster management purposes was also mentioned. Another delegate mentioned the impact of environmental issues, such as climate change and biodiversity loss, on inducing disasters in the mid-long term. Universal mechanisms to protect the planet are needed and space activities can play an important role. As many nations have minimal capacity to respond to disasters, efforts have to be made to include all countries in disaster management. Some delegates expressed the view that the possible contribution of telecommunications to disaster management should not be forgotten, particularly the Tampere Convention on the Provision of Telecom resources for Disaster Management and Relief Operations and the ITU text setting a concrete example as to how to cope with disasters though international cooperation.

Prof. Vladimír Kopal, Vice-President of IISL, then gave some concluding remarks. He thanked the speakers and gave a summary of the ideas and opinions expressed by the four presenters. He noted that the questions raised by the delegates merit further consideration. Ambassador Jankowitsch then closed the symposium and invited all delegates to a reception hosted by IISL and ECSL.

Ms Atsuyo Ito

Spaceflight and Law
Reflections on an interdisciplinary symposium in Graz, Austria

Interdisciplinary research: a catchphrase. "The Big Picture": a symbol. In either case, one should add: unfortunately. To move "inter disciplines", between subjects, is often accompanied by a notion of staying on the surface, being shallow, leaving the holy ground of expert research, in short: an undesirable approach.

This "undesirable approach" brought together almost one hundred guests on an ordinary Thursday last November at the University of Graz, Austria. "Spaceflight and Law: Rules between Heaven and Earth" was a one-day interdisciplinary event organised by the ECSL National Point of Contact Austria (Prof. Ch. Brünner), to bring the exotic topic of space law to the general public. The fundamental question is: How do you present treaties and regulations as something fascinating? How do you lure someone to take a leave day and listen to space lawyers?

It's easy! The symposium consisted of six double-presentations held by Austrian space experts and reflecting both the technical, economic and the legal aspects of various chapters of space exploration and utilisation. Thus, the audience could trace the strong interrelation between "hardware" and "software", between the facts in the foreground and the rules in the background. After a welcome address by Elisabeth Ackerler from the Federal Ministry of Traffic, Innovation and Technology, the public body generously enabling the work of the Austrian NPOC, a true space feeling crawled into the event room, when a multimedia space presentation took the public audience into higher spheres.

But then it was time to learn: "Rocket launch", was the first block, presented by Werner Gryksa from Magna Steyr Space Technology and Werner Balogh from Eumetsat; "Outer Space exploration", the

second block, presented by Wolfgang Baumjohann from the Austrian Academy of Sciences and Christian Brünner (NPOC Austria); "Earth observation at the service of everyday life", the third block, presented by Gerald Fuxjäger from Arge Digitalplan and Josef Aschbacher from ESA; "Communication via outer space", the fourth block, presented by Otto Koudelka from the Technical University of Graz and Irmgard Marboe from Vienna University's international law department; "Space and Security", the fifth block, presented by Brigadier Gerald Karner from the Austrian Military and Norbert Frischauf (Austrian Space Forum / BAH); "Human Spaceflight – the ISS", the sixth block, presented by Helmut Hinghofer from the Medical University Graz, Gernot Grömer and Alexander Soucek (both Austrian Space Forum).

And suddenly the day was almost over, the oxygen in the room consumed by some one hundred working brains, and the last hour left was dedicated to something truly special: an astronaut's show, featuring Franz Viehböck, Austria's first and only cosmonaut (1991 mission to the then Soviet Space Station MIR). He took the audience, saturated by six hours of law and technology, on a fascinating trip aboard the world's longest lasting space station in orbit. It was a perfect conclusion to a successful day.

The NPOC symposium "spaceflight and law" did not re-invent the legal wheel. It achieved something very different, but equally important: It opened the door to the holy halls of space law: free entrance for everyone.

Univ.Prof.Dr. Christian Brünner
Mag. Alexander Soucek, MSS

IDEST Students at the World Summit on the Information Society

The Institute of Space Law and Telecommunications (IDEST, France) was accredited to the World Summit on the Information Society (WSIS) which took place from 16-18 November 2006 in Tunis, Tunisia. The participation to the summit was a good opportunity for the students of IDEST, attending the Postgraduate Master in Space Activities and Telecommunications Law located at the University Paris Sud - 11. The team was composed of 8 Master-level students.

The WSIS, co-organized by the International Telecommunication Union (ITU) and the United Nations (UN), represents the biggest UN Summit ever organized. It was held in two phases. The first phase took place in Geneva from 10-12 December 2003, its objective was to develop and encourage a clear statement of political will and take concrete steps to establish the foundations to build a people-centred, inclusive and development-oriented Information Society.

The objective of the Tunis phase was to put Geneva's Plan of Action into motion as well as to find solutions and reach agreements in the fields of Internet governance, financing mechanisms, reducing the digital divide between northern and southern countries and follow-up and implementation of the Geneva and Tunis documents. The conference adopted two documents on 18 November 2005: the Tunis Commitment and the Agenda for the Information Society.

Alongside the summit, the "ICT 4 All" also took place. The largest event ever held in the field of information and communications technologies for human development and sequel to Geneva's "ICT 4 Development". Prestigious multi-stakeholder participants joined forces to present the latest solutions from across the world, such as the $100 laptop, new crisis management aid telecommunications tools, and reduced price software for e-education in developing countries. Space technology was presented as tool to support the ogbectives of the Summit.

The IDEST team participated in many workshops and conferences, especially those concerning e-governance, digital divide, intellectual property, legal aspects of e-commerce, e-learning, business view on the information society. IDEST is actively working on legal issues facing the information society and will publish two booklets on the WSIS results.

In the meantime, the students were welcomed by Mr. Charles Geiger, WSIS Executive Director, in Geneva during a professional visit to the ITU premises. This was the opportunity to reaffirm their wish to support and promote the work of the WSIS until the 2015 final review conference.

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IDEST Master Students and Prof. Philippe Archilleas at the WSIS

NPOCs General Meeting and Conference: "National Space Law – Developments in Europe/Challenges for Small Countries"

21-22 September 2006
University of Graz, Austria

ECSL National Points of Contact (NPOCs) are the reference points of the ECSL at national level. As such, an NPOC serves as an interface with the secretariat of the ECSL and other NPOCs concerning the implementation of the objectives of the charter of the European Centre for Space Law. As a "reference point" and an "interface" an NPOC has several tasks. Among those is e.g. the promotion of space law and space law issues (in faculties of law, among professionals, towards the educational sector etc) or networking and communication amongst the existing NPOCs.

Nowadays networking and communication are based upon internet and Email. Nevertheless communication needs also personal contact. The personal contact between the existing NPOCs and its members is the first objective of the NPOCs general meeting in Graz, Austria. We will not only discuss our experiences as NPOCs but also provide the opportunity for informal talks on a sight seeing tour through the wine region of Styria, which is well known for its excellent wine.

The second objective is to invite representatives of the new EU Member States and candidates, especially from the European Cooperating States Hungary, the Czech Republic, Poland and Romania. Due to the fact that the NPOC Austria is entrusted by the ECSL Board to be reference point for Central and Eastern Europe, there are plans to invite representatives from the University of Zagreb, too. We would appreciate it very much if in one or the other of these states first steps could be taken to found an NPOC.

A third objective of the meeting is to discuss a current space law topic. One of these topics is the necessity for the development of national space law. Therefore we will organise a conference on "National Space Law – Developments in Europe/Challenges for Small Countries" in connection with the NPOCs general meeting. Several perspectives for the development of national space law will be examined, namely the perspective of international law and the perspective of a space agency. Furthermore, the state of the art of space development in the European Union and its implication for the development of national space law will be discussed. Against this general background recent trends will be analyzed. Exemplary, the situation in the United Kingdom, in Sweden, Belgium, France, Germany etc., will be presented. Supplementary, representatives especially from European Cooperating States will talk about their perspectives concerning national space law.

National space law is also a challenge for Austria. This aspect will be discussed in form of a panel with space law professionals, representatives of the Austrian Federal Ministry of Transport, Innovation and Technology and the Austrian Space Agency and last but not least by representatives of the Department for International Law within the Austrian Foreign Ministry.

The whole event will take place at the University of Graz from 21-22 September 2006. The official language of the event will be English. Although this is only an announcement of the event, representatives of the existing NPOCs (Austria, Belgium, Finland, France, Germany, Italy, Portugal, Spain, Switzerland, The Netherlands, United Kingdom) and other interested persons are already invited to announce their interest in participating.

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Alexander Soucek
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Italian Master University of Rome "La Sapienza" 2006 "Diritto e Innovazione delle Impresse Aero-Spaziali" (D.I.A.S.)

"LAW AND INNOVATION OF AIR-SPACE COMPANIES "

The air-space economic sector is currently showing an always increasing participation of privates, collaborating with the activities carried out by governments. The development in continuous growth of this sector lead to the spreading of Bodies and companies in the aerospace activities implementation, material and component production and infrastructure construction businesses.

The D.I.A.S. (Diritto e Innovazione delle Imprese Aero-Spaziali) Master (Law and Innovation of Air-Space Companies) aims at creating an all-round professional, due to a threefold interdisciplinary training in: law, business-economics and engineering.

Courses and training seminars began on 13 February 2006 and will end in December 2006. Lessons are held on Mondays from 9:00-13:00 and from 14:00 to 18:00 and on Tuesdays from 9:00 to

13:00. Lessons take place in the new building of the Economics Faculty of the university branch in Latina. Courses also include trips to companies working in the sector. This is a twelve-month Master's Degree; three months will be devoted to an internship at sponsoring agencies.

The university is offering the students its best professors and administrative staff, and a high level of student relations and course organization. Sponsors of this project (Italian Air Force, Telespazio, Alcatel Alenia Space, Alenia Aeronautica, ENAC, MARSH, Comune di Latina, Confindustria Latina) play an important role in this training; they are supplying infrastructure, rooms, long-distance connections to operation centers, as well as their own internal staff (experts, executives and managers) for vocational and specialized training.

Training plan
The D.I.A.S. Master aims at training in law, business-economics and engineering all students who are interested in working in the aeronautics and space sector, as well as all those who already work in this sector, the latter for working and knowledge improvement purposes.
Law studies will focus on knowledge of air and space navigation national and international law, of organizations and international agencies developments in the sector, of problems regarding air transport, airplane safety, and air traffic controller liability. Space law will focus on knowledge of conventions regulating governments' and privates' space activities, as well as on the growing development of satellites for telecommunication, remote sensing, navigation assistance purposes. Legal problems will be considered in light of the European planned policy and of the new synergy between military and civil activities .

This Master's also aims at developing managerial skills within the aerospace sector, with a specialized training in company management, in decision-making for what concerns technological, process and product innovation. Taking into account the interaction between companies, the local production sector and resources of territory, we will try to promote the allied industries both at a national and international level. We will consider financing opportunities, also from the European Union, to promote research and development, which is the driving force of all innovation processes.

The more technical training carried out by the Aerospace Engineering School of "La Sapienza" University of Rome, will focus on aeronautics and space engineering planning's new advanced methods (concurrent engineering), regarding materials and state-of-the-art technology, mission analysis, space flight mechanics and "space debris". All the main applications in telecommunication, Earth observation, scientific and military-use space missions will be dealt with.

Goals
The all-round professional, resulting from the threefold interdisciplinary training, will be the outcome of general and specialized law analysis, economics and management studies including also aeronautics and space engineering planning. The Master's main goal is to give students the necessary knowledge and practice for working in aeronautics and space companies' management and also for working in companies in civil and military aviation, and in the space activity sectors.

Costs and scholarships
The entrance fee for all those admitted to the Master's is Euro 3000. 2000 euros in scholarships are available, partially covering the entrance fee, supplied by the sponsors.
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Book Summaries

Global Monitoring: The Challenges of Access to Data
Authored by R. Harris & R Browning
2005, ISBN 18594 1950X, 229pp.
Cavendish Publishing, The Glass House, Wharton Street, London WC1X 9PX.

Access to environmental data of our planet has a high scientific, technological and political profile. While scientific data per se are vital for improving our understanding of planet Earth and for environmental monitoring, there is a major challenge in obtaining the data. The challenge is more concerned with policies than with the technologies to access data. This book examines the issues of access to environmental data such as intellectual property rights, privacy, licensing and archiving policies. The book grew out a European Commission project entitled Data Policy Assessment for GMES, carried out as part of the Global Monitoring for Environment and Security initiative. The chapters of the book are:


Prof. Harris

Foreword by Michel Cornaert and Alan Edwards, European Commission

Chapter 1	Introduction and objectives
Chapter 2	Documented data policies: Statistical institutes, Mapping agencies, Institutes for natural resources, Environmental monitoring organisations, Earth observation
Chapter 3	Socio-economic data
Chapter 4	Evidence of data access challenges
Chapter 5	Evidence from applications: Monitoring marine oil spills, Earthquake monitoring and mitigation, Climate change, Access to Natura 2000 data
Chapter 6	Evidence of good practice: Australia, New Zealand, Canada, United States
Chapter 7	Data access and the Internet
Chapter 8	Interoperability: Standards, Links between information sources, technologies and systems, Integration across policy areas, Data archives
Chapter 9	A European Shared Information Service
Chapter 10	Institutional factors: European Space Agency, EUMETSAT, European Environment Agency, Eurostat, European Union Satellite Centre, Joint Research Centre, European Centre for Medium Range Weather Forecasting, EuroGeographics, EuroGeoSurveys, European-Mediterranean Seismological Centre
Chapter 11	Socio-economic benefits: Natural disasters and risk reduction, Geohazards monitoring, Oil spill detection, Ocean monitoring, Air quality monitoring, Climate change research
Chapter 12	Conclusions and recommendations: Main data policy concerns, Sustainable funding, Recommendations

The Law of Air Warfare – Contemporary Issues
Edited by Natalino Ronzitti & Gabriella Venturini
2006, ISBN 90-77596-14-3
Eleven International Publishing,
Pieterstraat 11, 3512 JT Utrecht, The Netherlands

On offer at a discount price until 15 May
http://www.ejlr.org/Webforms/ContentPages/Publications.aspx

This book is the outcome of a research project directed by Natalino Ronzitti, to explore the current status and future prospects of international humanitarian law of air warfare. This is achieved through the analysis of international customary law, the conventional provisions in force and the most recent State practice. As the most recent conflicts suggest, air warfare has known an exponential growth. However, even a rapid analysis of the international humanitarian law applicable to air warfare shows a defective and fragmentary situation. This book will fill the current gap that exists in legal literature and will critically review and evaluate recent State practice.
This new book series aims to establish a collection of prominent studies in thei sparticular field of law especially for experienced practitioners (e.g. lawyers, policy makers in governments, national and international organisations and private entities), in addition to scholars involved in the research and study of air traffic and space law.

Foreword
Part I The Law of Air Warfare and the Protection of Civilians and Civilian Objects.
The Codification of Law of Air Warfare, Natalino Ronzitti; The Protection of Civilian Population, Sala El-Ein Amer; The Protection of Civilian Objects – Current state of the law and issues de lege ferende, Marco Sassoli & Lindsey Cameron; Air Power, Asymmetrical Warfare and the changing nature of War, Allessandro Colombo.
Part II Legal Aspects of Military Air Operations.
Target Area Bombin, Thilo Marauhn & Stefan Kirchner; Air Exclusion Zones, Gabriella Venturini; The Chicago Convention and the Civilian Aircraft in Time of War, Marco Gestri; War Crimes in Air Warfare, Harry Post.
Part III Neutrality.
Neutrality in Air Warfare, Andrea Gioia.
Part IV Case Studies.
Air Operations against Iraq (1991 and 2003), Giulu Bartolini; Air Operatons against the Federal Republic of Yugoslavia (1999), Marina Mancini; Air

ORBITES ET FREQUENCES - *Statut, répartition et régime juridique*
Journée d'études de la Commission spatiale de la Société Française de Droit Aérien et Spatial
Sous la dir. De Mireille Couston - ISBN 2-233-00485-x – Ed. A.Pedone – 2006 – 25 € - 143 pages

Ressources naturelles limitées, res communis, domaine public, ou encore biens « marchandisables », les orbites et les fréquences ont un statut pluriel qui ne laisse pas de s'interroger, surtout à une époque où les techniques spatiales investissent le quotidien et restructurent notre société en profondeur.

En effet que l'on parle de télécommunications, de télévision, de météorologie, d'imagerie, de téléphonie, d'internet, de navigation etc. on parle nécessairement d'orbites et de fréquences car tout objet spatial, quelle que soit son activité et sa mission, exige pour son fonctionnement d'une part une position réservée dans les espaces circumterrestres, d'autre part une place protégée dans le spectre radioélectrique.

Or aujourd'hui la gestion des orbites et des fréquences est rendue plus complexe du fait de certaines evolutions tant économiques, qu'institutionnelles et juridiques. On observe ainsi des phénomènes nouveaux tels la presence participative d'entités privées dans des organisations interétatiques (UIT), mais également la revendication de droits commerciaux exclusifs sur les orbites et les fréquences - revendications qui mettent à mal le principe de non appropriation de l'espace.

Le présent ouvrage s'inscrit donc dans un contexte où le besoin d'éclaircissement et de mise au point quant au statut, à la répartition et au régime juridique des orbites et des fréquences se fait grandissant. La competence remarquable des praticiens et spécialistes académiques qui concourent à l'ouvrage, permet d'apporter des réponses à la pointe de l'actualité juridique.

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Les orbites et les fréquences dans une UIT mutante par Laurence RAVILLON
Orbites et fréquences dans la réglementation française par Angélique ROCHER-BEDJOUDJOU et Gilles TAILLEFER
Orbites et fréquences à l'Agence spatiale européenne par Ulrike M. BOHLMANN
Brevetabilité des Orbites et Fréquences par Bradford Lee SMITH
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Les sûretés sur les positions orbitales et les fréquences radioélectriques par Martine LEIMBACH
Fréquences et positions orbitales, les interactions avec le contrat de lancement par Philippe CLERC
Orbites et fréquences – Conclusions par Alexandre KISS

Calendar of Major Events

2006

3-13 April 2006	UN COPUOUS Legal Subcommittee, Vienna, Austria
24-25 April 2006	Manfred Lachs Space Law Moot Court Competition/European Rounds, Leuven, Belgium
26 April 2006	Space Law Workshop "Towards a Legal Framework for Space Activities and Applications: Belgian, Comparative and European Perspectives" organised by the Belgian NPOC, EISC, the Belgian Federal Science Policy Office and the University of Leuven (KUL) at the Belgian Parliament Brussels, Belgium
7-16 June 2006	UN Committee on the Peaceful Uses of Outer Space (COPUOS), Vienna, Austria
22-23 June 2006	ECSL/Royal Centre for Remote sensing –Workshop on Space Law, Rabat, Morocco
28-29 June, 2006	Policy and Law Relating to Outer Space Resources: the Example of the Moon, Mars and Other Celestial Bodies, organized by Institute of Air and Space Law (IASL), McGill University, sponsored by International Institute of Space Law (IISL), at Institute of Air and Space Law, Faculty of Law, McGill University, Montreal, Quebec, Canada,
July, 2006	V Space Conference of the Americas, Quito, Ecuador dates to be announced
4-15 September 2006	15th ECSL Summer Course on Space Law and Policy, Erasmus Centre, ESTEC, Noordwijk, the Netherlands; deadline to submit the application forms: 31 May 2006; the application form can be downloaded at http://www.esa.int/SPECIALS/ECSL/SEMVB3W797E_0.html
21-22 September 2006	NPOCs General Meeting and Conference on "National Space Law – Development in Europe/Challenges for Small Countries", University of Graz, Austria
26-27 October 2006	UNESCO/COMEST/ESCL/ESA/Université Paris XI conference "Legal and Ethical Aspects of Space Exploration", House of UNESCO, Paris, France: to register and to receive information material, contact the organisers at: conference2006@idest-paris.org
2-6 October 2006	57th International Astronautical Congress – Valencia, Spain; 15th World Finals of the Manfred Lachs Space Law Moot Court Competition, 49th IISL Colloquium, Valencia, Spain, October 2006 http://www.iafastro-iisl.com/

Manfred Lachs Space Law Moot Court Competition
European Rounds Results

We are glad to announce the results of the 2006 European Rounds of the Manfred Lachs Space Law Moot Court Competition:

Winner:
KU University of Leuven, Belgium:
1. Emmanuel De Groof
2. Gareth Price
3. Batist Paklons

Runner-up:
University of Leiden, the Netherlands:
1. D. J. Den Herder
2. Kevin Comer
3. Suzanne Rosmalen

Best Oralist:
Mr Kevin Comer

Best Written Brief:
University of Leuven

We are sure that the team from the University of Leuven will do its best to represent Europe at the World Finals of the Competition, due to take place during the IAF Congress in Valencia (Spain), next October, and we wish them good luck.

The European Rounds took place at the Catholic University of Leuven (KU Leuven), Belgium (April 24-25). There were six teams registered from the following universities:
1. Warsaw UniversityDepartment, Institute of International Relations, Poland;
2. Katholieke Universiteit, Leuven, Belgium;
3. Leiden University, International Institute of Air and Space Law, Leiden, Netherlands;
4. Universidad de Jaén, Derecho y Administración y Dirección de Empresas, Jaén, Spain;
5. Université libre de Bruxelles, Belgium;
6. Universität Bremen, Bremen, Germany.

All teams proved to have carried out excellent researches to their own credits.

The event was followed by a workshop on "Towards a Legal Framework for Space Activities and Applications: Belgian, Comparative and European Perspectives", organised by the ECSL Belgian National Point of Contact at the Belgian Senate (26/04/06).

The ECSL would like to thank the judges who have evaluated the written briefs (Ms J. Wheeler, Ms I. Zilioli, Prof. L. Ravillon, Prof. C. Brunner, Dr. G. Lafferranderie) and the oral pleadings (Prof. A. Kerrest; Prof. F. Lyall; Prof. E. Back Impallomeni; Mr A. Farand; Prof. G. Catalano Sgrosso; Prof. P. Achilleas).

The ECSL takes advantage of this opportunity also to thank the University of Leuven (Prof. J. Wouters) and the ECSL Belgian National Point of Contacts (Mr Thiebaut and Mr Mayence) for having hosted and co-sponsored the event.

A simple e-mail to keep us informed!

Dear ECSL Members, we kindly ask you to promptly send us an e-mail (alberto.marchini@esa.int) whenever you change your address or contact details.

In this way, you will help us to keep the ECSL database always updated, avoiding envelops to be returned to us and therefore, reducing our expenditure costs.

Thank you!

ECSL news

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