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ON THE PRIVATISATION OF INTELSAT

Francis Lyall*

Introduction

The conversion of the International Telecommunications Satellite Organisation (INTELSAT) from an intergovernmental organisation into a private company is well advanced, and will most likely be completed in 2001. In light of the original hope for the development of a global space telecommunications system, this is an unwelcome development, seemingly driven by factors and considerations foreign to the intentions that lay behind early considerations of these matters, and, indeed arguably contrary to art. I of the Outer Space Treaty.¹ But this development seems unstoppable, if regrettable, and the purpose of this article is to review the developments and to ensure that some matters do not pass *sub silentio*.

1. History

Within the United Nations

When, following Sputnik 1 in 1957 and subsequent launches, space was first opening to exploration and use, the United Nations percipiently identified satellite telecommunications as a potential major benefit to be pursued in the world interest. By Part D of UNGA Res. 1721 of 1961 it was the UN view that 'communication by means of satellite should be available to the nations of the world as soon as practicable on a global and non-discriminatory basis'.² Part E of the space resolution of the next year, 1962, stated *inter alia* the belief of the UN that 'communication by satellites offers great benefits to mankind, as it will permit the expansion of radio, telephone and television transmissions, including the broadcast of United Nations activities, thus facilitating contact along the peoples of the world'.³ While one may smile at the 'broadcasting of UN activities' clause, clearly the UN saw that satellite telecommunications were to be highly important, and, in the light of the last forty years, only the ignorant would

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¹ Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space Including the Moon and Other Celestial Bodies, 1967 610 UNTS 205; 18 UST 2410, TIAS 6347; 1968 UKTS 10, Cmd. 3519; 1967 6 ILM 386; 1968 61 AJIL 644.

² *International Cooperation in the Peaceful Uses of Outer Space*, GA Res. 1721 (XVI) Part D (1961).

³ *International Cooperation in the Peaceful Uses of Outer Space*, GA Res. 1802 (XVII) Part E (1962).

attempt to disparage that prediction. No matter how much some may feel that the 'benefit of all' clause of the first paragraph of Art. I of the Outer Space Treaty, 1967, has not been fully adhered to,⁴ in the field of space telecommunications there has indeed been vast development to the benefit of all, and in particular to the benefit of states which were severely underdeveloped in their telecommunications infra-structure prior to the availability of satellite telecommunications. The developed have benefited - but arguably the underdeveloped have qualitatively benefited the more. Telecommunications for the developed countries have been massively improved and transformed, but the provision of telecommunications in many other countries has leapfrogged the stage of wire services, and gone straight to modern systems. There is much still to be done, and large sums of money are required, but the change within forty years has been massive. Although the purpose of this article is to discuss INTELSAT, recognition should also be given to the efforts towards development made through governments, as well as earlier informally through the ITU, and now through the Development Sector of that organisation.⁵

INTELSAT

The UN Resolutions noted above, however, could not and did not envisage the UN itself setting up the desired system for global space telecommunications. Only states had the technical and financial competence to engage in such activities. The US took the initiative, creating COMSAT, the Communications Satellite Corporation, in terms of the Communications Satellite Act of 1962, the COMSAT Act.⁶ The policy and purpose of the Act set out in its s.201(a) called for the establishment of 'a commercial communications satellite system, as part of an improved global communications network, ... responsive to public needs and national objectives, which will serve the communications needs of the United States and other countries, and which will contribute to world peace and understanding.' Further the service to be provided was to be extended to provide global coverage at the 'earliest practicable date', and 'care and attention [was to] be directed toward providing such services to economically less developed countries and areas as well as those more highly developed' (Sec. 102 (b)). Private enterprise was to participate in the project,⁷ and COMSAT was to be the US agent in setting up the system. However, it is clear also that the intention of some in the US was originally that while the US would create the system 'in conjunction and in cooperation with' others, the others would be 'authorised users' of the

⁴ Cf. the General Assembly Declaration on International Cooperation in the Exploration and Use of Outer Space for the Benefit and in the Interest of All States, Taking into Particular Account the Needs of Developing Countries, A/RES/51/122 4 February 1997.

⁵ Cf. F. Lyall, *The ITU Reconstructed*, 36 PROC. COLLOQ. L. OUTER SPACE 78 (1993).

⁶ Pub. L. No. 624, 87th Cong., 2d Sess., 76 Stat. 419, approved 31 Aug. 1962.

⁷ Of course at the time only the USA had private enterprise providing telecommunication services.

system and their participation would be subject to the close US governmental control of the activities of COMSAT.⁸ Under these circumstances other states were suspicious.⁹ Thus the UK Postmaster General talked in the House of Commons of 'preventing an American monopoly'.¹⁰ While therefore in theory the US could have proceeded to build the system, access to telecommunications networks in other countries was essential for commercial viability. In particular trans-Atlantic traffic had to be gained, that being the arena in which a space system stood to prosper with minimal competition, cable traffic being close to saturation already and the wire cables of those days being unable to offer the wider services available through satellites (e.g. television). Access to Europe was, however, precisely the weapon which was used to combat the idea of a solely-US created system. This was not mere chauvinism. Other countries wished a more active role and participation in the new arrangements, in part so as to gain technological expertise for their own space industries through sharing in the planning, building and operation of the global system, and in part simply so as to have a larger say in the decision-making for the new system.¹¹ A united European front was created through the European Conference on Posts and Telecommunications (CEPT) at a meeting in late 1963, which proposed setting up a counterpart to COMSAT to be financed from among CEPT members. Such an independent development would have been a serious, if not disastrous, blow to the ideal of a global system, and a major difficulty for either a US or a European system, so negotiations between the views held on opposite sides of the Atlantic were begun.

A conference was held whose participants from the USA, Western Europe, Australia, Canada and Japan, between them represented approximately ninety per cent of the telephone traffic of the world. The upshot was the creation of a joint venture, Interim INTELSAT, through two interlinked agreements, an Agreement between states for the one part and a Special Agreement between telecommunications entities (one per state, and for the most part the relevant government department).¹² The innovation in international affairs represented by these arrangements was that the

⁸ Cf. F. LYALL, *LAW AND SPACE TELECOMMUNICATIONS* 34-36, 38-40 (Aldershot, Hants, Dartmouth Publishing Co.; Brookfield VT, Gower Publishing Co., 1989).

⁹ F. Lyall, *ibid.*, 74-79.

¹⁰ 690 *House of Commons Debates*, Oral Answers, cols. 420-422 (1963-1964). At that time the Post Office dealt with UK telecommunications, and was a governmental department.

¹¹ The restrictions in the COMSAT Act as to foreign participation in the company are very great. Officers must be US nationals, and foreign share-holding is restricted.

¹² Agreement Establishing Interim Arrangements for a Global Commercial Communications Satellite System, and Relative Special Agreement, 51 DEPT. STATE BULL., 281; 1964 Cmnd. 2436; III ILM 805 (1964). The participants, and agreed quotas were: Australia 2.75%; Austria 0.2%; Belgium 1.1%; Canada 3.75%; Denmark 0.4%; France 6.1%; West Germany 6.1%; Ireland 0.35%; Italy 2.2%; Japan 2.0%; The Netherlands 1.0%; Norway 0.4%; Portugal 0.4%; Spain 1.1%; Sweden 0.7%; Switzerland 2.0%; UK 8.4%; USA 61.0% and Vatican City 0.5%.

nineteen telecommunications entity participants were to share costs on a quota basis derived at first from ITU statistics on international telecommunications from each of their home states, and that decision-making within the most important governing body within the arrangements was also keyed to quota. This governing body, the Interim Communications Satellite Committee (the ICSC) was made up of representatives of all signatories to the Special Agreement with a quota of more than 1.5%, together with one representative from any two or more others whose combined quota would total more than 1.5%.

Over the next few years Interim INTELSAT was successful in establishing the first global telecommunications satellite system. COMSAT, the US signatory to the Interim Arrangements, was essential to the planning, design, creation and operation of the new facility, acting under a Management Services Contract. But Interim INTELSAT was always intended to be interim. Article IX of the Interim Agreement called for the ICSC to bring forward proposals for definitive arrangements within one year of the satellite system becoming operational, or in any event not later than January 1969. This was done, and a plenipotentiary conference convened by the US. Membership had risen by then to sixty-eight, and only one member was not in attendance. Definitive arrangements were agreed by May 1971 at a further conference which seventy-eight of the by then seventy-nine members attended, there being seventy-three affirmative votes, with France, the Malagasy Republic, Mexico and Monaco abstaining. These new arrangements were not as favourable to COMSAT as some within the US had hoped, largely because of distrust of the relationship between COMSAT and the US Department of State, and of general US space diplomacy.¹³

Be that as it may, the definitive arrangements met various requirements as to number and quota total for their implementation, and the Agreement (between states) and the Operating Agreement (between signatories designated by each state member) came into force on 12 February 1973.¹⁴ INTELSAT in the form we know it at present came fully into being on 1 January 1979 after a five year transitional period when the Director General and the new Executive Organ fully took over responsibility for the system, a number of key personnel transferring from COMSAT to take on duties formerly the responsibility under the previous Management Services Contract. The quadripartite structure of INTELSAT with the Assembly of Parties, the Meeting of Signatories, the Board of Governors and the Executive Organ under the Director General is well

¹³ Cf. WALTER A. MCDUGALL, *THE HEAVENS AND THE EARTH: A POLITICAL HISTORY OF THE SPACE AGE* (1985), especially chapters 17 (pp. 34-60) and 20 (pp. 415-35).

¹⁴ Agreement relating to the International Telecommunications Satellite Organisation (INTELSAT), 23 UST 3813, TIAS 7532; (1973) UKTS No. 80, Cmd. 5610; (1971) 10 ILM 1909. Operating Agreement relating to the International Telecommunications Satellite Organisation (INTELSAT), 23 UST 4091, TIAS 7532; (1973) UKTS No. 80, Cmd. 5461; (1971) 10 ILM 946.

known.¹⁵ The retention of the quota mechanism now based on the use of the system, for determining shares of ownership, financial liability and profit-sharing, and its use within the Board of Governors appointment and decision-making, was excellent, and is a model which other international organisations could with profit copy.

So INTELSAT began, and it has prospered. A global satellite telecommunications system has been established.¹⁶ The aspirations of the early UN Resolutions in favour of such a development have been in the main fulfilled, the exception being maritime services provided through the separate system, that of INMARSAT, for political and financial reasons. INTELSAT's public telecommunication services are open to all states, either by way of membership or by buying service. Direct access to the system, without the need to go through the signatory designated for the state concerned, has been permitted by many states since that possibility was introduced in the late 1980s.¹⁷ In terms of art. V(d) of the Agreement, charges for a particular type of service are uniform throughout the world. As authorised by Art. III(b) of the INTELSAT Agreement, in addition to inter-state public telecommunications services, INTELSAT has provided domestic public service for states whose territories are geographically divided, and where there are natural barriers to normal telephony. In addition, as permitted by Art. III(c), having fulfilled its remit as to these services, INTELSAT has provided domestic service to some states without impairing its primary services. And INTELSAT made money. Signatories have not been asked for capital payments for the last two series of INTELSAT satellites. So why have matters now changed? Why will INTELSAT be transmuted into a private company in the coming year?

2. Why change?

The reasons why change is to occur are many and various. They are not entirely coherent, nor are they mutually consistent. Not all are clearly expressed or adequately revealed for others fully to weigh. However, there appears to be a sufficient common mind that privatisation should go ahead for the variant premises on which the different parties operate to be

¹⁵ RICHARD R. COLINO, *THE INTELSAT DEFINITIVE ARRANGEMENTS: USHERING IN A NEW ERA IN SATELLITE TELECOMMUNICATIONS* (Geneva: European Broadcasting Union, 1973); MARCELLUS SNOW, *THE INTERNATIONAL TELECOMMUNICATIONS SATELLITE ORGANISATION (INTELSAT): ECONOMIC AND INSTITUTIONAL CHALLENGES FACING AN INTERNATIONAL ORGANISATION* (Baden-Baden: Nomos Verlag, 1987); F. Lyall, *supra* note 8, at 91-122.

¹⁶ Of course INTELSAT did not provide the full service that the UN Resolutions seem to have envisaged. For financial and political reasons INMARSAT had to be created to deal, at first at rate, with maritime communications.

¹⁷ For the US authorisation of direct access for US companies, see *In the Matter of Direct Access to the INTELSAT System*, FCC Report and Order, adopted 15 September 1999, released 16 September 1999; 14 FCC Rcd 15703; 16 Comm. Reg. (P&F) 769; Release No. FCC 99-236; IB Docket No. 98-192. Other signatories and countries have permitted direct access by simpler procedures.

ignored, or at least to be not fully acknowledged. Those which I, as an outsider, think I observe include the following.¹⁸

First, as a matter of fact Thatcherism and Reaganomics have occurred. Ideas as to the proper role of the state have altered. Competition has been deemed preferable to monopoly in the public interest.¹⁹ This doctrine (dogma?) has affected many of what were formerly considered as public services which it was the responsibility of the state to provide. Thus in many countries governments have divested or are in the process of divesting themselves of their responsibilities for operating rail and air services. Postal services have been privatised and opened to competition. A similar pattern is shown in telecommunications. As indicated above, when Interim and Definitive INTELSAT were being invented, in the bulk of states telecommunications were the responsibility of government. Only in the US were public telecommunications provided by private companies. Now many states have privatised their telecommunications services in whole or in part, and have encouraged or allowed the companies which have emerged to seek to share in both the national and the international telecommunications market. The deregulation of telecommunications services has significantly increased both the number of these rivals, and their ability to offer services. INTELSAT therefore now faces many competitors for customers within the market whose needs it was created to supply.

Second, as an international organisation INTELSAT cannot finance itself through the ordinary recourse that commercial enterprises can have to the international financial market. At present INTELSAT finances are very healthy. It has not had to call on capital from its Signatories to finance new satellites series for many years. But that could, of course, change if INTELSAT revenues were to lessen through loss of market share to its new competitors. It is, of course, prudent to anticipate such problems. It is also of course true that this argument is not as weighty as of itself to carry the day.

Third, as a matter of the dogma of competition it is alleged that INTELSAT does not compete on that mythical 'level playing field'.²⁰ This can be put in two ways. One is that INTELSAT's position as an inter-governmental organisation, with all the privileges of an international organisation, which includes tax exemptions, is an unfair distortion of competition. The alternative formulation is that INTELSAT's very existence, and the fact that its constitution calls for each member state to

¹⁸ I will not fully source what follows. My views are formed by reading, and conversations with a good many in the telecommunications field. To source all would breach the terms on which some conversations occurred. But to source some and not all might lead to inaccurate deductions by others. Therefore, although this is an academic article, I invoke the journalist privilege of non-disclosure of interview sources.

¹⁹ It is difficult to underestimate the effect within Europe of the requirements of the EU as to competition in what was originally conceived of as 'The Common Market'.

²⁰ It is curious how many advocates of the 'level playing field' consider the field level only when they are standing on the pitcher's mound.

designate a signatory to the Operating Agreement through which access to the INTELSAT system is given, affords it and its signatories a privileged position within a very competitive industry.²¹ This is alleged to be wrong. Of course this argument has been weakened significantly since 'direct access' to the INTELSAT system is now permitted with the consent of the appropriate Signatory. Nonetheless, the argument is still made.

Fourth, INTELSAT itself is said to be inefficient, or not as efficient as it could or should be, and unable to meet the challenge of competitors who have been newly released from their cages. On this view INTELSAT procedures and the procedural requirements of its constituent documents mean that the organisation is hobbled, cribbed, cabined and confined in its response to the changes of the marketplace, and the swift development of emergent telecommunications technologies. A 'better INTELSAT' should be created on the commercial models of private corporations, which would therefore be leaner, fitter, more responsive to market requirements. Such would be able to meet competition both from other satellite systems, as well as from the optical fibre networks, which were undreamed of until relatively recently.

But there are other elements in the story.

Fifth, I would not underestimate the element of Ego among those entrepreneurs (and some of them would say, buccaneers) active in the deregulated telecommunications business arena.²² There is a fundamental difference between competition and competitiveness. Entering my sixth decade, I have little confidence in the so-called 'interplay of market forces' that serve to camouflage the real interest of many (not just in telecommunications), not in the actual provision of services but rather in the inter-action between commercial empires and alliances. The 'deal' provides an adrenalin surge as addictive as cocaine: the world interest in and dependence on the provision of a global telecommunication service with freedom of access to all without discrimination, and with a global uniformity of rate for a particular type of service, involving where necessary to acceptance of loss in providing a service to certain geographic areas (enshrined in art. 5 of the INTELSAT Agreement), is seen as an 'uneconomic' penalty on entrepreneurial flair.

Sixth, there are now Trojan horses within INTELSAT. Many of the Signatories to the Operating Agreement, which were formerly nationalised enterprises, have themselves become commercial companies. As commercial companies the interests of these Signatories have mutated. Formerly government departments dedicated to the provision of telecommunications services, they have become companies active in telecommunications, whose primary purpose is the running of an enterprise which makes profit for their shareholders. That affects their view of INTELSAT's activities. It is also darkly hinted that certain

²¹ Cf. R. Frieden, *Privatisation of Satellite Cooperatives: Smothering a Golden Goose?* 36 VA. J. INT'L L. 1001 (1996).

²² Cf. F. Lyall, *Privatisation, Jurisprudence and Space*, 1999 42 PROC. COLLOQ. L. OUTER SPACE 149 (1999), §4 dealing with Ego, while other sections consider divergent attitudes to 'law' and their pernicious effects.

Signatories see profit to be made through the commercial valuation of INTELSAT, and through the sale of the shares that privatisation would allocate to them, allowing them perhaps to detach themselves from INTELSAT at a profit which could then be re-invested in other activities.

Seventh, we should recognise that, as indicated above, there was a view that the US should build, manage and operate a global system from which others would take and pay for service. When, thanks to the unwillingness of other states to subscribe to such an 'American monopoly', the INTELSAT system was created, instead of COMSAT becoming the global provider, its role changed. Certainly its position as Management Services Contractor for some ten years was important, but the contracts had to be shared with other non-US space industries. The requirements of the Definitive Arrangements as to procurement enshrined the dispersion of contracts, and the availability of information as to patents and inventions among many states and enterprises.²³ As a result INTELSAT came to be viewed as a hobble and restriction on freedom of enterprise. Its removal, or at least its reduction, was therefore something to be sought.

Eighth, the question of the privatisation of INTELSAT, and indeed of its cognates INMARSAT,²⁴ and EUTELSAT,²⁵ should not be seen in isolation. Telecommunications has become part of global business, to be thought of in those terms. The fundamental move towards privatisation in many areas in many countries, has not left telecommunications unaffected. Telecommunications has come to be seen less as a service, and more as a commercial enterprise. It therefore has been swept into questions of international trade, as that arena has moved from trade in goods to trade in services. Interacting with the general trend towards freedom of competition within the market and accompanying moves towards deregulation, has been the drive within the context of the General Agreement of Tariffs and Trade towards liberalisation of the telecommunications market. This has lately manifested itself in the form of the Protocol on competition in telecommunications.²⁶ INTELSAT could not be immune from the underlying premises of such developments.

Ninth, over its existence COMSAT has been under attack. Others have wished to enter its markets, and have opposed what they perceive as COMSAT's privileged position within the US telecommunications market because of COMSAT's statutory role as the US Signatory in INTELSAT, and the gateway to INTELSAT facilities. Some of the argument for privatisation of INTELSAT has been deployed really as a stalking horse for diminishing COMSAT.

²³ INTELSAT Definitive Arrangements, *supra* note 12, Agreement, Art. XIII, Operating Agreement, Arts. 16 and 17.

²⁴ See D. Sagar, *The Privatisation of INMARSAT*, 41 PROC. COLLOQ. L. OUTER SPACE 205 (1998).

²⁵ EUTELSAT is likely to privatise as a French commercial company in 2001.

²⁶ World Trade Organisation: Agreement on Telecommunications Services (Fourth Protocol to the General Agreement on Trade in Services), 36 ILM 354 (1997).

Lastly, and as a strange amalgam of many of the above, together with its own elements of Tabasco sauce, we must note the US ORBIT legislation.²⁷ The Open-market Reorganisation for the Betterment of International Telecommunications Act of 2000²⁸ amends the 1962 Communications Satellite Act of 1962 by adding a new Title VI, dealing with Communications Competition and Privatisation. Dealing with both INTELSAT and INMARSAT,²⁹ this Title, and particularly sub-title B, as to the criteria which the Federal Communications Commission and the President of the United States are required to adopt to ensure a 'pro-competitive (sic) privatisation' of both international organisations, strike an outsider as extraordinary. It is difficult to see how the Act squares with the international obligations binding on the US through its ratification of the INTELSAT Definitive Agreements.³⁰ Apparently, for example, by the new sec. 644(b) the President and Commission are to 'take the action necessary to ensure that the United States remains the ITU notifying administration for the privatised INTELSAT's existing and future orbital slot registrations', a provision that cannot square with international law on the matter. Much will depend on where the new INTELSAT is incorporated. By sec. 624 the relationship between INMARSAT and its spun-off company ICO Global Communications Inc., is hedged with restriction. By sec. 625 rules are created through which non-members of the World Trade Organisation and states which do not support competition in telecommunications, can be penalised.

The various stages by which this legislation was arrived at, and the various Hearings involved, make it apparent that many interests in the US were and are intent upon the privatisation of INTELSAT with regard to US interests alone.³¹ An outside spectator can find some relief in the Statement by the President on March 17, 2000, on signing the ORBIT Act into law. President Clinton did indicate that he construed certain of the Act's provisions as advisory rather than mandatory, and that the new INTELSAT should be permitted to compete within the US. However, bluntly, one must wait and see what happens in the carrying of the ORBIT Act into

²⁷ H. Wong, *Comment 2001: A Space Legislation Odyssey - a Proposed Model for Reforming the Intergovernmental Satellite Organisations*, 48 AM. U. L. REV. 547 (1998), interestingly discusses the House and Senate bills that eventuated as the ORBIT legislation.

²⁸ Pub. L. No. 106-180, 114 Stat. 48 (2000).

²⁹ Many of the provisions of Title VI as to INMARSAT seem redundant, given the privatisation of INMARSAT was accomplished fifteen months earlier than the ORBIT Act.

³⁰ In 2000 INTELSAT did think about invoking the arbitration provisions of its Agreement to deal with this point. The decision not to proceed would appear to be commercially and politically motivated rather than on any fear that argument on the international lawfulness of the US legislation was not well-founded.

³¹ Cf. P. Salin, *New US Space Legislation affecting World-wide Satellite Communication Regulations*, in INTERNATIONAL ORGANISATIONS AND SPACE LAW, PROCEEDINGS OF THE THIRD EUROPEAN CENTRE FOR SPACE LAW COLLOQUIUM 387, (ESA SP 442)(Noordwijk, The Netherlands: ESA, 1999); J. M. Logsdon, *The United States, the only space superpower*, SPACE POL'Y 273 (1997).

effect in practice. Not all Presidential statements stand the test of time.³² And in any event, it remains extraordinary that the legislature of any state should seek in this way to pre-empt and also to influence the outcome of sensitive discussions of reform of an international organisation.

3. The probable change

Already, of course, in 1998 INTELSAT spun off a separate company, New Skies N.V., a company incorporated in The Netherlands, which operates as a Dutch company providing multi-regional video and interactive multi-media services for both business and individual customers.³³ It functions as a company independent of INTELSAT, though owned by the INTELSAT Signatories in proportion to their share in INTELSAT itself. The privatisation of INTELSAT is different, involving the provision of public telecommunications services, and all the other services that the new private entity or entities may decide to provide. Although circumstances may alter, and render what follows in this section obsolete, or partially erroneous, the broad picture of the privatisation of INTELSAT is likely to follow the INMARSAT privatisation model, and be the following.

New INTELSAT will in effect consist of three companies, a Holding Company (probably based, like many communications holding companies, in Bermuda), a company whose function it will be to hold the various licenses and permissions, including landing rights, required for the provision of services, a service company (likely to be in Washington, and incorporated in the USA) which will actually run the telecommunications satellite system,³⁴ and perhaps yet another company to handle other matters that the new INTELSAT will wish to deal with. Ownership of these will initially vest in the Signatories to the existing Operating Agreement. In due course shares in the main holding company will become tradeable, and a public offering made. The Holding Company will have a Board of Directors (probably seventeen in number) elected by shareholders, and it is possible that voting will be weighted by voting shares.³⁵ The existing Operating Agreement will terminate. The current intergovernmental Agreement will be amended so as to create what may well be called the International Telecommunications Satellite Organisation (ITSO). This would consist of an Assembly of Parties, and an Executive Organ headed by

³² One recalls the suggestion that the Ariane programme was redundant as the US would accommodate payloads on the Shuttle. However, non-US launches on the shuttle were suspended in the aftermath of the Challenger incident.

³³ New Skies N.V. was created in a functional state, as it were, five satellites and appropriate contracts being transferred as at the time of incorporation. In addition, the ITU has accepted the transfer of appropriate frequency and orbital positions from the US to The Netherlands.

³⁴ ITU registered orbital locations and frequencies will be transferred to this company.

³⁵ The INTELSAT Board of Governors will recommend to the Assembly of Parties next year which form to adopt. I would hope that weighted voting is used. That was a strength of elections to and decisions by the existing Board.

a Director General. It would be otiose to discuss the detail of the ITSO until that has been finally decided, and it is enough for our purposes to say that the main purpose of ITSO would be to ensure, so far as possible, that the new INTELSAT companies comply with certain 'Core Obligations'. In order to do so it will enter into a Public Service Agreement with the new INTELSAT. Any dispute arising therefrom will initially be a matter for negotiation, then arbitration in accordance with the rules of the International Chamber of Commerce, and ultimately an award would be enforceable in all probability through the courts of the District of Columbia, USA (This point remains open as at the date of writing, August 2000).

That point must lead us to worries and concerns.

4. Worries and Concerns.

Many of the worries and concerns that arise from the above narrative are those raised earlier, but either remain or have been resuscitated by the drive for privatisation. To some extent they can be grouped on the model of UN Res. 1721.³⁶ This also conveniently reflects elements of the Core Obligations which the new INTELSAT arrangements seek to protect. However, first something separate has to be stated.

Irreversibility

One cause of worry is simply that the privatisation of INTELSAT will not be a reversible process. In some contexts when something is done that proves unwise, undesirable or better tackled in practice in a former manner, the process can be reversed, and the *status quo* restored. The present form of INTELSAT will never be resuscitated from a privatised company. Indeed, it is true that were the matter to arise now, the present INTELSAT would not be set up. But it was set up, and it operated successfully. If the ideal of a global public telecommunications system, available to all without discrimination on the basis of price or politics is significantly departed from, that will be to the general world loss. But we will not be able to rethink, and restore the present INTELSAT.

A global system

The hope of the 1960s UN Resolutions was the creation of a global system, available on a non-discriminatory basis to all. In the sphere of public international telecommunications INTELSAT has accomplished that. One would hope that the nature of INTELSAT business as it has been developed will result in the maintenance of the global system. That hope seems very likely to be fulfilled in the sense that INTELSAT's system is likely to continue to be capable of world-wide coverage, and indeed that is the intention in the privatisation arrangements. However, the ability to provide coverage is not the same as actually offering service to all. Access

³⁶ *Supra* note 2.

to the system is different from the system having for technical reasons a global coverage.

Access to the system - 1. non-discrimination as a policy

The non-discriminatory basis of access to INTELSAT is built into the INTELSAT Agreements. The provision of 'international public telecommunications services of high quality and reliability to be available on a non-discriminatory basis to all areas of the world' is spelled out as the prime objective of INTELSAT in Art. III(a) of the INTELSAT Agreement. Articles III(b)(i) and (ii) go on to equate with public international services, certain domestic public services where the state concerned has particular topographic problems.³⁷ Telecommunications entities and administrations enter into appropriate agreements with the Organisation for the provision of these domestic services.³⁸ INTELSAT has done well in both the international and domestic provision of such services. The only hiccup in such provision for those who wish them has been for non-payment of bills, and even that sanction has been unwillingly applied by the Organisation. But will such freedom to connect with the INTELSAT system continue?

According to the 'Core Principles' non-discriminatory connectivity will continue. However, the privatisation of INTELSAT will render the new companies subject to the legal systems and legislatures of the states in which they are incorporated.³⁹ Under those circumstances, can it be expected that the states of incorporation will always remain aloof and allow the provision of service to all customers? If, for example, INTELSAT does privatise its service-providing arm in the US, will the US Congress refrain from seeking to direct how services are provided? Will contentions with Iran, Libya, Yugoslavia, or Iraq not impel the use of telecommunications as an economic weapon?⁴⁰ The willingness of the US Congress to pass laws with extra-territorial effect is not reassuring. The Helms-Burton Act in relation to Cuba is a stark model, seeking as it does to coerce nationals of other states in their relationship with the Cuban government, a government recognised by their home states.⁴¹ The rather hysterical opposition to

³⁷ This also raises the question of 'life-line services' to which we are coming. See *infra* note 45.

³⁸ See INTELSAT Agreement, *supra* note 14, Art. II(c).

³⁹ This point worried me early in the privatisation debate: F. Lyall, *Privatisation and International Telecommunications Organisations*, 38 PROC. COLLOQ. L. OUTER SPACE 168 (1995).

⁴⁰ EUTELSAT withdrew service for a Yugoslavian tv news broadcast through its facilities at the beginning of June 1999. This, however, is not quite the same as the withdrawal of telecommunications services.

⁴¹ See the US Cuban Liberty and Democratic Solidarity (Libertad) Act (Helms-Burton Act), 35 ILM 357 (1996). See also Cuba's Foreign Investment Act, 35 ILM 331 (1996). The US - European Understanding re Libertad Act 91 AJIL 497 (1997); 36 ILM 529 (1997), does not tackle the legalities involved, and is not working satisfactorily; see the European Commission, *Report on United States Barriers to Trade and Investment*, 2000, at 8-13 (July 2000). The Commission Report also

INTELSAT manifested in the draft bills and the debates on what became the ORBIT Act is not reassuring.⁴² The cynical question is whether any legislatures and governments of other states would behave otherwise. One might hope that the ITSO would be able to use the Public Service Agreement to prevent access to the INTELSAT system being used for political reasons. I have to say, however, that, if as seems likely, the US will have jurisdiction, the attitude to international law seen in recent US cases increases one's fears.⁴³ The residual body may have little actual power to secure INTELSAT's immunity from such pressures. Ultimately enforcement of any arbitral award would end up requiring the intervention of a normal judicial system. How would a court respond to an action to enforce an award under the Public Service Agreement if there is also either a governmental direction, or a congressional statute on the point?

Access to the system - 2. financial non-discrimination

For many countries a strength of the 1971 INTELSAT Agreements is art. V(d) which provides that utilisation charges for a particular type of service are uniform on a global basis for all applicants.⁴⁴ In short this means that low-traffic routes are subsidised by high traffic routes. Over the years there was debate about this both within INTELSAT, and outside it, particularly by those anxious to criticise INTELSAT either as not being sufficiently competitive because it otherwise could reduce charges on some routes, or as being anti-competitive in providing subsidised service since particular route charges did not reflect actual cost.

I fear that such arguments will hold sway within the new form of INTELSAT. The requirement of a commercial enterprise is to be profitable. Cost is allocated against identified revenue streams. Low traffic, and

takes issue with the US Iran and Libya Sanctions Act of 1996 (50 USC 1791; 104 P.L. 172; 110 Stat. 1541 (1996) for similar reasons. The equivalent Commission Report of 1999 makes the same points. Outsiders will also note the episode of Elian Gonzales in 2000 which, while ultimately correctly dealt with by the return of the boy to his father, provoked much rhetoric and odd proposals within the US Congress.

⁴² See Congressional debates and Hearings relevant to Bills S. 2365 on International Satellite Communications Reform, and H.R. 1872 on Communications Satellite Competition and Privatisation (105th Cong., 2d Sess.).

⁴³ See the death penalty cases, *Breard v Greene*, 523 U.S. 371, 118 S. Ct. 1352, 140 L. Ed. 2d 529 (1999), and *The Federal Republic of Germany v US*, 526 U.S. 111, 119 S. Ct. 1016, 143 L. Ed. 2d 192 (1999). In both instances the International Court of Justice had been approached by the home state of the accused, and had issued a 'Provisional Measures' Order calling for postponement of the executions until the Court would have held a hearing as to whether the US authorities had breached the relevant terms of the Vienna Convention on Consular Relations (21 UST 77, TIAS 6820): see ICJ Orders of 9 April 1998 and 3 March 1999, 38 ILM 308 (1999). In both cases the executions were proceeded with: matters are still pending before the International Court. I appreciate the reasoning of the Supreme Court in both cases as to US municipal law: the point is what it says about US relationship with international law.

⁴⁴ Reference point for note 49, *infra*. See also below at that note.

therefore unprofitable, routes are not likely to have the same traffic rates as similar services on high-density routes. That would not be a commercial response to circumstances. Nonetheless, while it would be difficult lawfully to prevent such a different attitude to what would be the same technical service, I hope that this form of discrimination in charges to different customers for the same technical service will be resisted. The locale of the service should be the satellite, not the ground station: in that case to provide a service from Lome to Addis Ababa would be no different from a service from New York to Frankfurt.

That point takes us on to a further worry - the fate of the life-line service.

Life-line services

As indicated above,⁴⁵ the non-discriminatory access INTELSAT provides for international public telecommunication services in terms of Art. III(a) of the INTELSAT Agreement has equated with it domestic public telecommunication services between areas of a state split by another country⁴⁶ or by the high seas,⁴⁷ or where natural barriers impede terrestrial relays and there was sufficient capacity beyond that required for 'proper' international services on the INTELSAT system.⁴⁸ In fact, as INTELSAT quickly established its coverage with capacity greatly in excess of requirements for international services, and the 'separated state' categories, a good number of countries have come to rely on INTELSAT for domestic service. Simply put it is cheaper and more reliable to link villages and scattered communities by satellite than it is either to provide cabled telephony, or short or micro-wave links.

But, *ex natura* many of the Art. III(b)(i) and (ii) services are low traffic, and hence of low revenue generating potential. They are precisely many of the services that are subsidised through the application of Art. V(d).⁴⁹ A question therefore arises as to their continuation. Strict commercial logic would indicate either that these services are terminated, or that their cost is immediately reflected in an increase in their charges.

In fact, it is likely that the new INTELSAT arrangements will preserve such services for a period at least under the terms of its privatisation agreements. The US itself provides a model in that telecommunications services to the remoter areas of the US are considered as 'life-line services' and are either subsidised, or requirements are imposed on providers as to their maintenance as part of licensing for other services.⁵⁰ It is therefore good to understand that the 'Core Principles'

⁴⁵ Reference point for note 37, *supra*.

⁴⁶ For example, US mainland and Alaska, and East and West Pakistan as was.

⁴⁷ For example, Indonesia, Australia, US and Hawaii.

⁴⁸ For example, Peru, which extends from the Pacific at sea-level to the headwaters of the Amazon.

⁴⁹ See *supra*, note 44.

⁵⁰ See §151 of the Communications Act, 1934 as amended, 47 USC 141, and §254 of the Telecommunications Act 1996, also 47 USC; and various reports and orders

secured in the privatisation effectively not only repeat the power of INTELSAT to provide such services, but are in form creative of an obligation to continue to provide such services. This Life-Line Connectivity Obligation (LCO) will be constituted by agreement between INTELSAT and each relevant state and policed (if that is the right word) by ITSO's ability to review INTELSAT's decisions on such services. However, in the current state (Aug. 2000) of discussions, the requirement to provide life-line services is likely to be limited to a period of twelve years. Further, a definition will be adopted for the eligibility of a state for life-line service, and those states for which life-line service is to be provided will be established as at the date of privatisation. While one can see a commercial logic for these steps, and even perhaps a political logic, nonetheless such attitudes seem remote from the aspirations of UN Res. 1721 (D).

The state of incorporation

Of course, it could be that INTELSAT will privatise in some state other than the US thus avoiding some of the US-referent difficulties outlined above. I have to say that that seems unlikely. While there might be some tax advantages, and while for that reason some of the elements of the INTELSAT privatisation package are likely to be incorporated elsewhere, the pressure on the INTELSAT service element to become a US national are immense. One can see them in the background to the ORBIT legislation. That said, it would in the last resort be possible for INTELSAT to separate itself from US control by moving its entire operation elsewhere. One example that comes to mind is the relocation of the Jardine-Matheson companies from Hong Kong prior to the return of Hong Kong to China.

If such a step were to be taken, it takes no crystal ball to foresee that INTELSAT might run into major problems in getting its services licensed for provision within the US. The FCC scrutiny and its licensing processes might well alter. The recent EU Commission Report on US Barriers to Trade and Investment indicates the hurdles that non-US

on Access Charge Reform, e.g. Third Report etc., 11 FCC Rcd 21354, 5 Comm. Reg. (P&F) 604, released 24 December 1996, adopted 23 December 1999, Release No. FCC 96-488, CC Docket Nos. 96-262, 94-1, 91-213 and 96-263; Sixth Report and Eleventh Report and Order etc., (no Rcd citation available at time of writing) released 31 May 2000, adopted 31 May 2000, Release No. FCC 00-193, CC Dockets Nos. 99-249 and 96-45; Order, (no Rcd citation available at time of writing), released 14 July 2000, adopted 13 July 2000, Release No. FCC 00-249; Order, (no Rcd citation available at time of writing), released 28 July 2000, adopted 27 July 2000, CC Docket Nos. 96-262, 94-1, 91-213 and 96-263. Cf. also the Universal Service Order, In the Matter of Federal-State Joint Board on Universal Service, CC Docket 96-45, released 8 May 1997, adopted 7 May 1997, 12 FCC Rcd 8776, Release No. FCC 97-157; *Idem.* Twelfth Report and Order, etc., (no Rcd citation available at time of writing) released 30 June 2000, adopted 8 June 2000, CC Docket No. 96-45, Release No. FCC 00-208. I would not pretend yet to have mastered all these, but clearly the US has given much thought to the problems of remoter areas and uneconomic public telecommunications services for them.

entrants face in FCC proceedings, despite the fact that these are contrary to US obligations under the WTO arrangements.⁵¹ While there is much to be said for US procedures in terms of the Federal Administrative Procedure Act of 1946, there appears to be a use of legal and quasi-legal procedures in order to deter, discomfit and 'run interference on' competitors within FCC procedures through participation in licensing hearings.⁵² Further, the FCC as custodian of the US interest is likely to listen to comments and argument made by US nationals,⁵³ and the very nature of these proceedings is culturally alien to most of the world and therefore their outcomes can be difficult to accept.

The General World Interest

The last sentence above has a corollary. The likely locus of privatisation of INTELSAT will mean that the new company will have to be licensed by the FCC. Indeed, successful steps have already been taken to that end.⁵⁴ However, it is to be noted that the decision involves various exemptions allowing the new company to use existing INTELSAT during a transitional period. Once that transition period is over INTELSAT will have to comply with FCC requirements.

That eventual requirement may be fair enough. But in licensing the FCC takes account of US interests. While it is true that it is supposed to have some regard to more general interests, it would be preferable to have INTELSAT's licensing done with regard to the world as a whole, and to leave

⁵¹ See *supra*, note 41. A non-US INTELSAT would have to apply in terms of the FCC 'DISCO II' decision: see *In the Matter of Amendment of the Commission's Regulatory Policies to Allow non-US Licensed Space Stations to provide Domestic and International Satellite Service to the US*, 25 November 1997, 12 FCC Rcd 24094; 10 Comm. Reg. (P&F) 587; IB Docket No. 96-111; CC Docket No. 93-23; Release No. CC 97-399.

⁵² Cf. F. Lyall, *Privatisation, Jurisprudence and Space*, 42 PROC INTL. INST. SPACE L. 149 (1999). I find illuminating the difference between soccer (real football) and American football. In soccer, the rules foster continuity of play with the ball. Obstructing an opponent is a foul. In American football 'running interference' on non-ball-carriers is not only tolerated, but, if successful, praiseworthy, and the use of the rules by coaches through time-outs, etc. is integral to the game.

⁵³ Cf. the problems caused by first the requirement of and then the grant only of 'special temporary authority' for New Skies N.V. (the Dutch based INTELSAT spin-off company) to be accessed by US ground stations in 1998. See *In the Matter of New Skies Satellites N.V.; for Authorisation to Access the US Market*, 6 August 1999; 14 FCC Rcd 13003; 17 Comm. Reg. (P&F) 109; Release No. 99-216 (1999). Cf. *In the Matter of Market Entry and Regulation of Foreign-affiliated Entities*, Report and Order, 11 FCC Rcd 3873, 1 Comm. Reg. (P&F) 459, released 30 November 1995, adopted 28 November 1995, Release No. FCC 95-475, IB Docket No. 95-22; RM-8355 and 8392.

⁵⁴ *In the Matter of the Applications of INTELSAT ILC; For Authority to Operate and to Further Construct, Launch, and Operate C-band and Ku-band Satellites that Form a Global Communications System in Geostationary Orbit*, FCC LEXIS 4158 (2000), Release No. FCC 00-287, (FCC Rcd citation not available at time of writing).

national interests aside. As it is, US ideas as to permissible requirements will be imposed on a global basis.

FCC requirements become world requirements

An element of making INTELSAT subject to FCC licensing has the implication that what the US body determines becomes the law for the rest of the world. As noted in the paragraph above the recent licensing of INTELSAT by the FCC was accomplished through the grant of certain exemptions to the nascent privatised organisation. Some of these related to frequency use, and orbital separations. For example the FCC usually requires a 2° separation between satellites. INTELSAT does not always place its satellites that far from others. In the future as new satellites replace the existing it will have to comply with US views. Other countries might take a different attitude. Of course, in that example a greater separation seems justifiable, but will it always be the case that US decisions are generally justifiable? Is it good that such decisions are taken by a national licensing authority? I recall the FCC frequency licensing for IRIDIUM. Although the FCC made it clear that IRIDIUM would have to get licenses from other administrations in addition to the FCC decision, nonetheless by its grant of licence the FCC at least prejudiced, if not actually pre-empted decisions by others. As things have turned out, the rest of the world has been spared that factual development, but the basic legal geology remains the same. Decisions by the FCC have global effect.⁵⁵

A world authority

These considerations lead me to suggest yet again that in the spirit of the UN Resolutions of the 1970s, decisions that affect the world as a whole should be taken by a body whose primary, and perhaps exclusive, interest should be that of the world as a whole. National licensing authorities are bound to take their decisions with regard to their own national interest. The ITU should be given a quasi-FCC role in licensing systems that have global implications for spectrum use and orbital locations.⁵⁶

⁵⁵ Cf. note 54, *supra*, and: In the Matter of Amendment of Section 2.106 of the Commission's Rules to Allocate Spectrum at 2.Ghz for Use by the Mobile Satellite Service, Second Report and Order, released 3 July 2000, adopted 27 June 2000, ET Docket No. 95-18 (FCC Rcd citation not available at time of writing); In the Matter of The Establishment of Policies and Service Rules for the Mobile Satellite Service in the 2.Ghz Band, Report and Order, released August 25, 2000, adopted 14 August 2000, IB Docket No. 99-81; Release No. FCC 00-302 (FCC Rcd citation not available at time of writing).

⁵⁶ F. Lyall, *Space Law - What Law or Which Law?*, 34 PROC. COLLOQ. L. OUTER SPACE 240 (1991); *The International Telecommunication Union: A World Communications Commission?*, 37 PROC. COLLOQ. L. OUTER SPACE 42 (1994); *Expanding Global Communications Services*, Discussion Paper, PROCEEDINGS OF THE WORKSHOP ON SPACE LAW IN THE TWENTY-FIRST CENTURY, UNISPACE III, TECHNICAL FORUM, A/CONF.184/7, 64-80, and see also Comments by A. Noll, J. Galloway and R. Jakhu at 80-93.

Public service

Penultimately, I would again point out that a service to the public is not the same as a public service. I do fear that, even with the probable temporary securing of lifeline services for remote and under-developed areas, in fifteen years such services provided by the new INTELSAT structures on a subsidised basis will have disappeared on commercial grounds. Some other steps, not merely assurances (which history shows are never reliable) should be taken and secured to continue the idea of lifeline and subsidised connectivity in appropriate cases. Perhaps recourse could be had to a small multi-lateral agreement between ITSO and the states of incorporation of the new INTELSAT companies, and its enforcement through the International Court of Justice - an uncertain remedy given recent history, but better than reliance on national law.

Provisional application⁵⁷

Finally there is the point that neither the Agreement or Operating Agreement provide for the termination of alteration of either in quite the way that proposed arrangements require. INTELSAT has, of course, some experience in this area as the Definitive Arrangements had themselves a period of provisional application for some states during the transition from the Interim Arrangements. By art. 23(c) of the Operating Agreement its currency is that of the Agreement. However, the proposal is that the Agreement is amended *inter alia* to provide for the International Telecommunications Satellite Organisation (ITSO). Formally it will not terminate. So what happens to the Operating Agreement? Impliedly it simply ceases as the status of Signatory will not exist under the amended Agreement. The new Agreement's terms as to its provisional application seem at the time of writing to be those of the 1971 Agreement, which make reference to proportions of those states that were members of the Interim Agreement. There may be a *lacuna* here, into which fall all INTELSAT members which joined after the 1971 Agreement came into force. Of course, provisional application of the new arrangements and the amendment to the 1971 Agreement will be cured by lapse of time. However, for a period it will be open to a current (2000) INTELSAT member to halt the new arrangements on the ground that these prejudice its rights of property in the international system. I hope that that route is not followed. It would be very disruptive.

Conclusion

The heading may be inaccurate: there is no conclusion. Matters will move ahead, and development in technology and commerce will not stop. Our existing INTELSAT worked as well as it did through the willingness of its

⁵⁷ See the excellent article, D. Sagar, *Provisional Application in an International Organisation*, 27 J. SPACE L. 99 (1999).

members, state and telecom, to see the organisation function in the world interest. Its basic documents were, thanks often to David Leive, seen as a constitution rather than a statute. Politicians and lawyers played a background role, while the system was established and largely managed by technically qualified telecommunications engineers. In the new business climate, accountants and entrepreneurs hold the reins. I regret to say that, even with the likely steps to protect the 'Core Principles' that were Art. III, full attainment of the aspirations of UNGA Res. 1721, Part D, does not seem likely. Maybe my crystal ball is cloudy, but, whatever, it is certain that, once accomplished, the privatisation and commercialisation of a very significant organisation will not be rolled back.

EVENTS OF INTEREST

A. PAST EVENTS

U.N. REPORT

The Committee on Peaceful Uses of Outer Space holds its forty-third session (June 7-16 2000)*

I. Introduction

The Committee on the Peaceful Uses of Outer Space held its forty-third session at the United Nations Office at Vienna from 7 to 16 June 2000 under the Chairmanship of Raimundo González (Chile). The Scientific and Technical Subcommittee of the Committee on the Peaceful Uses of Outer Space had held its thirty-seventh session at the United Nations Office at Vienna from 7 to 18 February 2000 under the chairmanship of Dietrick Rex (Germany). The report of the Subcommittee A/AC.105/736) was before the Committee. The Legal Subcommittee of the Committee on the Peaceful Uses of Outer Space had held its thirty-ninth session at the United Nations Office at Vienna from 27 March to 6 April 2000 under the chairmanship of Vladimír Kopal (Czech Republic). The report of the Subcommittee (A/AC.105/738). was before the Committee.

Adoption of the report of the Committee

The Committee, at its 475th meeting, on 16 June 2000, adopted its report to the General Assembly containing the recommendations and decisions on topics as follows. (para 18).

II. Recommendations and Decisions

(A) Ways and means of maintaining outer space for peaceful purposes

During discussion of the agenda item, delegations expressed many views. It was the firm belief of the members of the Committee that current efforts to strengthen the role of the Committee in maintaining outer space for peaceful purposes should be continued. The Committee had responsibilities relating to strengthening the international basis for the peaceful exploration and uses of outer space, which could cover, among other things, the further development of international space law, including,

* This summary contains edited excerpts from the Committee's Report.

as appropriate, the preparation of international agreements governing various practical peaceful applications of space science and technology. Strengthening international cooperation in the peaceful exploration and use of outer space also implied the need for the Committee itself to improve, wherever necessary, the methods and forms of its work. (para 20).

Some delegations expressed the view that activities involving international cooperation, such as collaborative space missions, joint scientific activities, sharing of satellite data, training activities and piggyback launch opportunities, should be further encouraged to enable outer space to be explored and used for peaceful purposes. (para 21). The view was expressed that easy and unhindered access to space and access to technology without restraints were essential to pursuing the peaceful uses of outer space. That delegation also expressed the view that the Committee could contribute to maintaining outer space for peaceful purposes by strengthening national legislation of Member States, encouraging dialogue to harmonize conflicting interests, promoting international cooperative projects in space technology and applications and encouraging confidence-building measures to ensure the use of space exclusively for peaceful purposes. (para 22).

Some delegations expressed the view that the development and testing of weapon systems in outer space and the recent use of space systems for military purposes could lead to the intensification of militarization in outer space and trigger an arms race in outer space, which were against the tide of the time and the established principles guiding the peaceful use of outer space. (para 23). Some delegations expressed the view that an international legal regime should be developed for the prevention of an arms race in outer space and to prohibit any militarization of outer space, and that negotiations on an international agreement to prevent an arms race in outer space should be conducted as soon as possible. Those delegations also expressed the view that the existing legal regime was insufficient, especially under present-day conditions, and that additional principles were needed to ensure that outer space was kept free of weaponry. Some delegations also expressed the view that the Committee should consider the possibility of establishing a mechanism to coordinate its work with other related bodies, in particular with the Conference on Disarmament, since the two bodies shared common interests in promoting the peaceful uses of outer space and preventing an arms race in outer space. (para 24). Other delegations expressed the view that the Committee had been created exclusively to address international cooperation in the peaceful uses of outer space and that it would be more appropriate to deal with disarmament aspects of outer space in the Conference on Disarmament and the First Committee of the General Assembly. (para 25).

The view was expressed that the agenda item entitled "Ways and means of maintaining outer space for peaceful purposes" had produced

measurable results in the Committee and its subsidiary bodies, namely, the establishment in the Scientific and Technical Subcommittee of the Working Group of the Whole to Evaluate the Implementation of the Recommendations of the Second United Nations Conference on the Exploration and Peaceful Uses of Outer Space; the addition of new items to the agenda of that Subcommittee; the impetus for completing negotiations on the Principles Relating to Remote Sensing of the Earth from Outer Space (General Assembly resolution 41/65, annex) and on the Declaration on International Cooperation in the Exploration and Use of Outer Space for the Benefit and in the Interest of All States, Taking into Particular Account the Needs of Developing Countries (General Assembly resolution 51/122, annex); and the addition of an agenda item of the Committee on spin-off benefits of space exploration. (para 26). The view was expressed that the idea put forward earlier of establishing a world space organization responsible for space activities, including satellite communications and the space environment, should be further considered. (para 27).

B. Report of the Scientific and Technical Subcommittee on its thirty-seventh session

The Committee took note with appreciation of the report of the Scientific and Technical Subcommittee on its thirty-seventh session (A/AC.105/736), covering the results of its deliberations on the items assigned to it by the General Assembly in resolution 54/67 and the special presentations made.*

(1) United Nations Programme on Space Applications

At the outset of the deliberations of the Committee on the item, the Expert on Space Applications briefed the Committee on the overall strategy for the implementation of the United Nations Programme on Space Applications, which would concentrate on a few themes of major importance for developing countries and establish objectives that could be reached in the short and medium term. The objectives would be reached through activities of the Programme that would build on the results of other activities. The Committee noted that, within each priority theme, the two main objectives would be (a) capacity-building and (b) building awareness among decision makers in order to strengthen local support for the operational use of space technologies. (para 32).

The Committee noted that the priority themes of the Programme were: (a) disaster management; (b) satellite communications for tele-education and tele-medicine applications; (c) monitoring and

* For a review of the Scientific and Technical Subcommittee's Report on its thirty-seventh session, see 28 J. SPACE L. 29 (2000).

protection of the environment, including the prevention of infectious diseases, (d) management of natural resources; and (e) education and research areas in basic space sciences. Other areas that the Programme would promote included developing capability in enabling technologies, such as the use of global navigation and positioning satellite systems, spin-offs of space technology, including commercialization aspects, applications of small satellites and micro-satellites and promoting the participation of private industry in activities of the Programme. (para 33).

International space information service

The Committee noted with satisfaction that the eleventh in the series of documents containing selected papers from the activities of the Programme, entitled *Seminars of the United Nations Programme on Space Applications*, had been issued. A booklet entitled *Space for Development*, which contained detailed descriptions of past and ongoing activities of the United Nations Programme on Space Applications and an indication of its future activities had been issued for UNISPACE III. (para 50).

2. Implementation of the recommendations of the Third United Nations Conference on the Exploration and Peaceful Uses of Outer Space (UNISPACE III)

The Committee noted with satisfaction that the General Assembly, in its resolution 54/68 of 6 December 1999, had taken note with satisfaction of the report of the Third United Nations Conference on the Exploration and Peaceful Uses of Outer Space (UNISPACE III) and had endorsed the resolution entitled "The Space Millennium: Vienna Declaration on Space and Human Development". The Committee also noted that the Assembly had urged Governments, organs, organizations and programmes within the United Nations system as well as intergovernmental and non-governmental organizations and industries conducting space-related activities to take the necessary action for the effective implementation of the Vienna Declaration. The Committee further noted that the Assembly had called upon all concerned to implement the recommendations made by UNISPACE III as reflected in its report. (para 67).

Action taken by the Committee

The Committee endorsed the recommendations of the Working Group of the Whole concerning the implementation of the recommendations of UNISPACE III as contained in its report (A/AC.105/736, annex II, paras. 3-37). (para 70).

(a) Plan of action proposed by the Office for Outer Space Affairs to implement the recommendations of UNISPACE III.

The Committee noted that the Office for Outer Space Affairs had prepared and submitted to the Committee, for its consideration, a plan of action to implement the recommendations of UNISPACE III (A/AC.105/L.224), which the Committee endorsed. (para 70).

(b) Working methods of the Committee for the implementation of the recommendations resulting from UNISPACE III

The Committee had before it a proposal submitted by Canada and the United States of America regarding the creation of an informal working group on the implementation of the recommendations of UNISPACE III (A/AC.105/L.2261). The Committee also had before it a conference room paper (A/AC.105/2000/CRP.5) concerning an initiative undertaken under the auspices of IAF to engage non-governmental entities in the implementation of selected recommendations resulting from UNISPACE III under the theme "Priorities for space activities in the twenty-first century". (para 73).

The Committee agreed that its Scientific and Technical Subcommittee should be assigned the task of discussing and reaching a consensus on the implementation of the recommendations of UNISPACE III and their associated work plans and of reporting to the Committee each year the findings and recommendations of the Subcommittee to the Committee for final approval and/or modifications. (para 75). The Committee agreed that an item on the implementation of the recommendations of UNISPACE III should be included in the agenda of the Committee, in 2001, 2002, 2003 and 2004, to consider matters concerning the implementation of the recommendations of UNISPACE III and related matters, such as the recommendations and reports of the Scientific and Technical Subcommittee, the plan of action of the Office for Outer Space Affairs for the implementation of the recommendations of UNISPACE III (A/AC.105/L.224) and the engagement of non-governmental entities. The Committee also agreed that the Committee would prepare a report under that agenda item for adoption at its forty seventh session, in 2004, for review and evaluation by the General Assembly, on the progress made in implementing the recommendations of UNISPACE III, in accordance with Assembly resolution 54/68. The Committee further agreed that it should decide at its forty-seventh session, in 2004, whether to keep that item on its agenda. (para 76).

The Committee took note of the IAF initiative and other initiatives to engage non-governmental entities in the implementation of selected recommendations of UNISPACE III. The Committee agreed that those initiatives should be reviewed by the Scientific and Technical Subcommittee at its thirty-eighth session, in 2001. The Subcommittee should report its findings and views on the modalities for the engagement of nongovernmental entities during the forty-fourth session of the Committee. International and multinational nongovernmental entities,

including international scientific societies, would primarily interface with the Committee through the Office for Outer Space Affairs, which would ensure that the Committee and its Subcommittees were fully informed of the ongoing work arising from the initiatives of non-governmental entities. National organizations would continue to interface with the Committee through the delegations of their respective States. (para 77).

(c) World Space Week

The Committee noted that the General Assembly, in its resolution 54/68, had declared 4-10 October World Space Week to celebrate each year at the international level the contributions of space science and technology to the betterment of the human condition. (para 78). The Committee noted with satisfaction that some Member States had already planned activities to contribute to the celebration of World Space Week. Information on the planned activities by some of those Member States has been made available to the Committee in a conference room paper (A/AC.105/2000/CRP.4). (para 79). The Committee agreed upon the implementation of the plan of the Office for Outer Space Affairs to celebrate World Space Week (A/AC.105/2000/CRP.3 and Add.1). (para 81).

(d) List of priority project proposals

The Committee noted that the General Assembly, in its resolution 54/68, had requested the Secretary General to invite all States to contribute voluntarily to the Trust Fund for the United Nations Programme on Space Applications and, in his letter of invitation, to identify priority project proposals, on the basis of the recommendations of the Committee, and had requested the Office for Outer Space Affairs to provide the Committee with a report listing those States which had responded to his invitation. (para 85).

The Committee recommended that the following list of projects and activities should be included in the letter of the Secretary-General:

(a) Support of operational activities of the regional centres for space science and technology education, affiliated to the United Nations (five at present), and the Network of Space Science and Technology Education and Research Institutions for Central Eastern and South Eastern Europe;

(b) Development of disaster-specific modules and implementation of pilot projects in developing countries to introduce the use of space technologies in disaster management;

(c) Provision of satellite data and hardware and software to user institutions in developing countries to initiate or strengthen pilot projects that use Earth observation data for protecting the environment and management of natural resources;

(d) Development and implementation of a training module on the use of satellite communications for distance education, tele-medicine and tele-health applications;

(e) Organization of outreach activities for young people and for the general public. (para 87).

3. Matters relating to remote sensing of the Earth by satellites, including applications for developing countries and monitoring of the Earth's environment

In its discussion of remote sensing, the view was expressed that the Committee should consider practical steps towards increasing access to remote sensing data, such as obtaining free access to remote sensing imagery in order to handle natural disasters. (para 92). The view was also expressed that the full benefits of remote sensing technology could reach only those countries with access to real-time data and the capability to interpret them and that most developing countries were at a disadvantage in that regard because of the high cost of real-time data. That delegation also expressed the view that regional ground receiving stations should be established in developing countries, through international cooperation. (para 93). Further, the view was expressed that the Committee should develop a strategy for embodying in an international instrument the Principles Relating to Remote Sensing of the Earth from Outer Space (General Assembly resolution 41/65, annex). (para 94).

4. Use of nuclear power sources in outer space

The Committee noted that, in accordance with the four-year work plan adopted by the Scientific and Technical Subcommittee at its thirty-fifth session (A/AC.105/697 and Corr.I, annex III, appendix), the Subcommittee had identified terrestrial processes and technical standards that might be relevant to nuclear power sources, including factors distinguishing nuclear power sources in outer space from terrestrial nuclear applications. The Committee also noted that the Subcommittee had reconvened the Working Group on the Use of Nuclear Power Sources in Outer Space. (A/AC.105/736, paras. 75-83 and annex III). (para 95).

The Committee recalled that the General Assembly had adopted the Principles Relevant to the Use of Nuclear Power Sources in Outer Space, contained in Assembly resolution 47/68 of 14 December 1992. (para 96)

The Committee agreed with the Scientific and Technical Subcommittee that, while a revision of the Principles was not necessary at the current stage, it was important that States making use of nuclear power sources should conduct their activities in full accordance with the Principles (A/AC.105/736, para. 78). (para 97).

The Committee agreed that Member States should continue to be invited to report to the Secretary-General on a regular basis with regard to national and international research concerning the safety of space objects with nuclear power sources, that further studies should be conducted on the issue of the collision of orbiting space objects with nuclear power sources on board with space debris and that the Subcommittee should be kept informed of the results of such studies. (para 99).

5. International cooperation in human spaceflight

The Committee noted with satisfaction the wide variety of space activities and the extensive international cooperation being carried out in this area, as reflected in the report of the Subcommittee (A/AC.105/736, paras. 84-88). (para 101).

6. Presentations on new launch systems and ventures

The Committee noted that, in accordance with General Assembly resolution 54/67, the Subcommittee had heard presentations on new launch systems and ventures as a single issue/item for discussion and expressed its satisfaction with the information (A/AC.105/736, paras. 89-93). (para 102).

7. Space debris

The Committee noted that, in accordance with General Assembly resolution 54/67, the Scientific and Technical Subcommittee had continued its consideration of the agenda item on space debris. The Committee also noted that, under that agenda item, the Subcommittee had reviewed international application of standards of the International Telecommunication Union (ITU) and recommendations of the Inter-Agency Space Debris Coordination Committee (IADC) concerning the disposal of satellites in geosynchronous orbit at the end of their useful life. (A/AC.105/736, paras. 94-113). (para 104).

The Committee agreed with the Scientific and Technical Subcommittee that consideration of space debris was important, that international cooperation was needed to expand appropriate and affordable strategies to minimize the potential impact of space debris on future space missions and that Member States should pay more attention to the problem of collisions of space objects, including those with nuclear power sources, with space debris and to other aspects of space debris (A/AC.105/7,6, paras. 95 and 96), in accordance with General Assembly resolution 54/67. (para 105).

The Committee agreed that the Secretariat should prepare a sample index to the United Nations Register of Objects Launched into Outer Space for the thirty-eighth session of the Scientific and Technical Subcommittee.

SESSION 3: The Interrelation Between Public International Law and Private International Law in the Regulation of Space Activities.

Chairmen: Prof. Dr.Karl-Heinz Böckstiegel (Germany) and Dr. Rosa Maria Ramirez de Arellano (Mexico)

Rapporteur: Dr. Valnora Leister (Brazil)

Report by Dr. Ramirez and Dr. Leister

Of the 14 papers registered for this session, 11 were presented, 2 were summarized and 1 was withdrawn. The 11 papers presented focused on different questions generated by the conflict between national and international legislation in regulating space activities as well as by the lack of legislation to protect inventions driven by the discoveries or technological applications and their treatment or copyright protection. Existing national legislations have several restrictions for the development of national space activities, mainly in the developing countries in which we clearly find a limitation for the development of those activities. Additionally, space commercialization and the more frequent participation of private corporations in space activities imply on the one hand a search for recovering their investment, and on the other, establishing some exclusivity rights on the space activities in which they participate.

From the abovementioned aspects, the papers suggest the necessity of modifying the pertinent space treaties and above all, searching for the harmonization of national and international legislation in order to facilitate the development of space activities and the participation and access to most of the developing countries in this arena.

Valnora Leister (Brazil) and Mark C. Frazier (USA) in their paper entitled: "The Role of National and International Law in the Regulation of Space Activities" examine the interaction of national and international law in the regulation of activities taking place in outer space. The paper indicates areas where national regulations do not conform to the obligations undertaken under the outer space treaties and suggests some measures to bring harmony between the national and international principles, such as international auditing, arbitration and monitoring by a group of high qualified technicians to assure that military activities are not taking place in national launching facilities.

Maria Helena Fonseca de Souza Rolim (Brazil) in her paper on "The Impact of the International Space Station program on the Brazilian Legal System" analyzes the interrelation between Public International Law and Private International Law vis-à-vis the Brazilian Program for International Space.

Station and its impact on the Brazilian Legal System. She describes how the impact of the Brazilian International Space Station Program on the Brazilian legal system enhances the pressure of facts on Law. That is, the impact of new technologies on the traditional structures of Law, both international and national Law.

Patrick A. Salin (Canada) in his paper entitled: "Legal Consequences of the increasing reliance of Space Nations on Private Enterprises in the Exploitation of Low Orbiting- Leo- Resources" analyses the legal consequences of the gradual appropriation of the utilization of LEO Outer Space resources by private enterprises. First, he comments the way in which activities are affected by the consequences of deregulation and budget constraints. In the second part of his paper, he outlines several probable consequences of such a huge shift in terms of legal and political issues. He illustrates the accelerating privatization trend while, at the same time, he underlines deficit in the slow considerations of the specificity of outer space.

Gabriella Catalano Sgrosso (Italy) in her paper "Applicable jurisdiction conflicts in the International Space Station" states that the partial commercialization of the ISS is a necessity felt by several Partner States. Private companies want a profit with the attribution of exclusive and protected rights of intellectual property even if limited in time and space. The paper intends to verify if this financial necessity may not be in conflict with the rules dictated by the Outer Space Treaty and if the eventual conflict between national rules for the protection of intellectual property could be solved on a more general international level, specially by the "Space Station Procedures for the Protection of User Intellectual Property", currently being discussed by partner states.

Jürgen A. Heilbock (Germany) ("Rights of privileges in frequency spectrum") presents a reference in respect to the changes that some services such as telegraphy or telephony have had, from their consideration as monopolies up to the possibility that through a concession, its owner not only has the privilege in the frequency spectrum in use but also has the property rights. Changes that have arisen in the last 10 years in different countries have been motivated mainly by the auctions or radiospectrum frequencies in which the concessionaries have paid considerable amounts of money, therefore creditors are interested in getting a guarantee that they will recover their investment. In some countries if exclusivity rights for the usage of the frequency are not given, there is an option that the concession of the frequency allow several services applications. The paper suggests that the existing regulatory authorities have to create a new form of a frequency registry, which allows

interested third parties to gather information about a specific frequency and its users.

Sylvia Ospina (Colombia) ("Revisiting the Registration Convention: A proposal to Meet the Need to Know 'What's up there'") says that many of the satellite operators are not familiar with the Convention of Registration of Objects Launched into Outer Space (1976), so they do not observe its content, therefore she proposes a few steps and measures that can be taken to insure compliance with the Registration Convention, as well as other principles of space law incorporated in the various treaties and resolutions.

William A. Gaubatz, Leslie Tennen and Patricia Sterns (USA) presented a paper entitled: "International Rule Planning for Governing Space Transportation" in which they consider that space transportation is a fundamental infrastructure for all spacefaring nations. Consequently, international planning for its governments should begin now during the formative stages of the Spaceways development and operations to assure functional safety, and for the protection of the public they will serve. The paper identifies and examines the primary areas that will need to be studied for the international rule planning for governing space transportation. A proposal is made for the creation of an International Spaceways Forum working group as a mean to address those specific issues.

Claire Jolly (France) presented "Reusable Launch Vehicles Regulations: First Step Towards an International Framework" and discusses the main reasons why an international framework for Reusable Launch Vehicles regulations should be discussed. It offers some suggestions on how an international regulatory framework could be started as reusable technologies start emerging. She added that technological developments are taking place and national space policies are slowly being adapted. But, as for Aviation Law or the Law of the Sea, sooner or later, an international framework for aerospace operations will need to be created.

In his "Proposal for a Multilateral Treaty Regarding Jurisdiction and Real Property Rights", Wayne N. White, Jr. (USA) discusses, in general terms, the need for a multilateral treaty regarding jurisdiction and real property rights in outer space, and proposes a language for such treaty. Part of his proposal is regarding jurisdiction that would expand upon Article VIII of the 1967 Outer Space Treaty and states that the provisions relating to real property rights would implement his proposal for limited real property rights in the absence of territorial sovereignty.

Bertrand de Montluc (France) addresses a "Space Strategy for Europe" and says that if we take into account the changes that the space activities have

had after the end of the cold war, we find a necessity to establish more synergy between the European Union- EU and the European Space Agency- ESA and creating a joint group for elaborating strategy guidelines which should be assessed at the end of 2000, both by the ESA Council and the EU Council. All of it in order to work effectively on a regular basis in partnership between EU and ESA as it is being done, for instance, in the Galileo program to define an European doctrine for future application of space programs for the world wide context.

Paul B. Larsen (USA) in his paper on "Financing of Space Assets: UNIDROIT Convention's International Registry of Financial Interests in Space Property", focused on the possibility of creating a special Protocol which would do the same for space property, and examined if UNIDROIT could co-sponsor such a Protocol with COPUOS or some other international agency. In addition, the author analyzes how the proposed UNIDROIT Convention on Secured Interests in Movable Property can best be shaped to resolve problems and improve financing for international business involving space assets.

Lastly, the papers by Bradford Smith ("New Initiatives in Intellectual Property Law for Space Activities") and Kenneth Weidaw ("Space Development Partnerships: A New Way to Finance Future Projects") were summarized by Tanja Masson-Zwaan.

SESSION 4: Other Legal Matters

Chairpersons: Dr. Sylvia Ospina (Colombia) and Dr. Leslie Tennen (USA).

Rapporteur: Maria Helena Fonseca de Souza Rolim (Brazil).

Report by Dr. Ospina.

Of 17 registered papers, 14 were presented during this session, on topics ranging from dual use of space technology and missile defense systems; the need for definitions of space debris; space debris as "space objects", to the launching of human ashes on the "Celestis" satellite (1 paper was withdrawn, 1 was summarized and 1 is forthcoming). One underlying theme in many of the presentations is the need to revise and update many of the definitions provided in the space-related treaties, in particular the Liability Convention and the Registration Convention, to include liability for the creation of space debris, as well as indemnification caused by debris of private parties. The amendments need to take into account the private sector's increasing involvement in space activities, as well as this sector's responsibility and exposure to liability. A short summary of most of the papers follows, with apologies to the authors if the summary does not reflect what they felt were the most important points they made.

The paper by Maurice Andem (Finland) on the "Implementation of the 1967 Outer Space Treaty in the New Millennium: a Brief Reflection on the Implications of Proposed Missile Defence Systems", tended to be a philosophical reflection on the implications of proposed missile defense systems, and the need to maintain outer space for peaceful purposes, as provided in the 1967 Outer Space Treaty. His emphasis was on the need to take action, rather than just talk about bringing about peace, an aspiration expressed by a number of actors, of varying ages and religious convictions.

Jonathan Galloway's (USA) paper ("The Law of Outer Space and U.S. Policy on National Missile Defense") dealt with the USA's policy on national Missile Defense and US international policies and relations. He also provided a political context for the current policy (the US Presidential election). Two alternatives exist: one is to deploy more systems, leading to greater risks of war; the other possibility is to further develop international co-operation, and settle conflicts by negotiations rather than by war.

John Heath (USA), in his paper "Beyond Ballistic Missile Defense: Will A New Generation of Weapons Fit Into the Old", addressed the issue of space-based weapons and their compatibility with future commercial use of outer space. He drew analogies between naval power and commerce as articulated by Admiral Mahan in the 19th century, and current space endeavours. He also suggested that policy makers should re-examine the linkage between "national" and "economic" security, to avoid competition between the industrial (commercial) and military sectors.

Virgiliu Pop (UK), in "Security Implications of Non-Terrestrial Resource Exploitation" analyzed the legality of solar power satellites and peaceful nuclear explosions, taking into account the Outer Space Treaty, and various treaties banning nuclear tests, the deployment of anti-ballistic systems and other weapons in space. He concludes that using solar energy is not necessarily illegal, but that appropriate safeguards need to be in place, especially in regard to dual use technology.

The paper by Yasuaki Hashimoto (Japan) was summarized by Prof. Kosuge. "Missile Defence Systems and International Law - Environmental Perspective" addressed the need to prevent the destruction of outer space by radioactive contamination as well as from pieces of nuclear warheads. One issue he raised is who is responsible for cleaning up debris, and stated that perhaps it is the responsibility of the whole world, as outer space is the province of mankind. He concluded that this responsibility might not be acceptable to States that have no means of creating space debris or causing contamination of the outer space environment.

Toshio Kosuge (Japan), in "Legal Implications of Basic Human Needs in Satellite Communication Networks for Rural Areas in the Developing Countries Within the Framework of Space Law" spoke on the "digital divide", or the increasing gap between countries with access to information and technology, and those without such assets. He concluded that there is great need to improve the infrastructure, to have computers everywhere, as provided in a plan of the International Telecommunication Union (ITU). [This goal sounds like a reiteration of the 1985 Maitland Commission Report, which stated that everyone should be within easy access to a telephone by the end of the 20th century.]

Francis Lyall (UK) ("Re-Thinking the ITU") spoke on the need to "re-think" the ITU to take into account the increasing participation of the private sector, and the need to develop standards and regulations in an expeditious manner. He advocates for the creation of a world (regulatory) authority, or to give the ITU the authority to review decisions taken by national authorities as to licensing of frequency [use] and orbital assignments. He concludes that the ITU is already in the process of reforming itself, seeking to better serve its clientele, which are increasingly private, commercial entities.

Catherine Baudin (ESA, France) in "The European Space Agency and its Enlargement Process" also addressed the issue of agency reform, focusing on the European Space Agency's enlargement process. The changes are taking place as more States apply for ESA membership, and as ESA enters into agreements with a greater number of entities. This paper provided a clear description of the enlargement process, and of the many steps or stages associated with it, prior to a State becoming an ESA member.

Masahiko Sato (Japan) analyzed the legal and political background and elements regarding co-operation between the US and Japan, particularly in relation to the development of launch vehicles, in his paper entitled "Analysis of Legal and Political Background Concerning International Cooperation Between Japan and the United States in the Space Development Area". The terms of several agreements (1969, 1976, 1978, 1980) have led Japan to develop much of its own hardware, since only the sale of hardware was allowed, and not the transfer of technology. One result has been the Japanese expansion in the space sector, and development of its space industry.

The paper by José Monserrat, Filho and Valnora Leister (Brazil) discussed the "Brazil-USA Agreement on Alcantara Launching Center", which was reached in April 2000. One of the main purposes of this agreement is to preclude any and all unauthorized transfer of satellite and launch vehicle-related technologies to Brazil in the course of any commercial launch to

take place at the Alcantara Spaceport. The terms of the agreement seem to be based on politics rather than law or economics. However, Brazil is in a good position to develop its launch capabilities, and in due time, less developed countries will receive the same treatment as the developed ones.

Edward Frankle (NASA, USA) in "International Regulation of Space Debris" addressed the growing concern and work of several international committees on its mitigation. One concern is that the potential for collision increases with the quantity of debris in space. Dr. Frankle noted that there is no definition, nor consistent use in the space treaties of "space object" or of "space or orbital debris". He states that more knowledge and information are necessary, prior to developing technical standards or drafting binding regulations. He outlined NASA's four "standard practices" for limiting debris. [Dr. Frankle also differentiated between "orbital debris" (man-made objects), and "space debris (natural, such as pieces of meteorites). This distinction was challenged, since a definition of space debris that was drafted several years ago is accepted by the majority of the international community.]

Maria de la Mercedes E. de Cocca's (Argentina) paper on "Liability and Responsibility for Space Debris, Abandoned and Unregistered Space Objects, and for Damages Caused During Rescue Operations" highlighted the need to update the Liability Convention, and include liability for damage caused by space debris, which should be considered "space objects". In some respects, Ms. Cocca's arguments were the "other side of the coin" to those made by Dr. Frankle. In addition, Ms. Cocca makes several proposals, including the establishment of a common fund to which States involved in space activities would contribute, to cover damages caused by small particles of (non-manmade?) debris.

Carl Christol (USA) spoke on "Protection against Space Debris", and noted that a definition of space debris was drafted several years ago, and is accepted by the majority of the international community. The definition may be found in the 1994 Buenos Aires International Instrument on Protection of the Environment from Damage caused by Space Debris. Prof. Christol maintains that there is a need for legal rules directly applicable to space debris, and that a sufficient number of States have an interest in mitigating, if not eliminating large and small debris.

Mahulena Hoffman from Germany presented the last paper of the 4th session and discussed the challenge to the legal regime of outer space provided by "space cemeteries", such as the "Celestis" satellite with human ashes which was orbited in December 1999 ("Space Cemeteries - A Challenge for the Legal Regime of Outer Space"). The fact that human remains may be orbited to the Moon and beyond raises a number of

questions as to compliance with the Outer Space Treaty ("space activities for the benefit of mankind"), as well as questions of continued responsibility for an object launched to outer space. Questions of pollution, and increasing space debris and potential collisions are also raised. One suggestion is to place containers with human remains in an orbit for useless (geostationary) satellites, or "graveyard orbit" (no pun intended). Another suggestion is to separate out legal from extra-legal arguments, to either support the expansion of such activities, or at least determine whether they are for the benefit and interest of all countries.

DISCUSSION SESSION

The Chairmen and Rapporteurs of the four sessions first gave a short overview of points raised in the various papers that were interesting for further discussion. These remarks can be found in the session reports above. Below is a reflection of some of the discussion. The notes do not claim to represent official views by any of the participants in the discussion. Apologies for any remarks not properly recorded.

On space debris:

Dr. Frankle noted that we should not mix up "liability for what" and "liability to whom"; and that a regime for space debris is premature. He recommended not to address this issue until really necessary. We should not start drafting new treaties at this time.

Dr. Perek noted that the US have carried out 3 launches for Celestis and asked Dr. Frankle whether NASA's four "standard practices" would also apply to commercial launches, to which Dr. Frankle replied that yes, via their launch agency they would be bound, the rules apply to both commercial and government launches. Dr. Perek strongly recommended such strict application for Celestis. Regarding Dr. Frankle's distinction between "orbital debris" (manmade) and "space debris" (natural), he noted that the IAA in its position paper on debris had decided that only artificial or manmade objects qualify as space debris, but that this included de-orbiting objects. In his view, it is not necessary to include natural objects in the definition of space debris. Dr. Frankle replied that NASA is mainly worried about "being hit", irrespective of whether it is by something manmade or something natural, and that NASA's definition of debris should be regarded merely as an internal working definition.

Dr. Ospina noted that although Dr. Frankle believed a treaty on space debris is premature, the issue might indeed become pressing sooner than later if the 77 Iridium satellites would de-orbit, or when the Celestis

capsules with human remains would disintegrate and somehow cause harm to the space environment. She suggested that Iridium might be requested to study the environmental effect of its de-orbiting satellites, but realized that no-one could oblige them to do that. Dr. Frankle replied that NASA is providing technical support to the government on this matter, but that it would take about 150-200 years for all satellites to de-orbit and that about 200 pieces of debris might re-enter each year which would not greatly change the average per year.

Dr. Gantt called for attention to economic considerations in the discussions on space debris (optical fiber for instance is becoming an important competitor for satellites), and warned that legal uncertainty would harm commercial involvement.

On IISL's role in COPUOS work:

Ms. Uchitomi reflected on the possibility of IISL contributing to the COPUOS work and was strongly in favour of IISL submitting working papers with its views to the Legal Subcommittee. This was supported by many others and the President mentioned that IISL has created a task force to look at ways for the IISL to contribute to COPUOS' work.

On the Registration Convention:

Regarding Dr. Ospina's paper on the Registration Convention, Dr. Perek agreed that the Convention deserves more attention as it is a very weak instrument but has great potential. We must know when an object is not active anymore and in general he called for more attention to the possibilities of the Convention.

On Treaty updates/amendments:

Prof. Beckman noted that the space treaties do not have any mechanism to keep them up-to-date, contrary to *e.g.* the new environmental law convention. The mechanism provided by this convention, or the UN Convention on the Law of the Sea (UNCLOS), might be adapted for use in the space treaties. Also their ways of dealing with "flags of convenience" to avoid liability may serve as an example. Thus, space law should look at other, similar regimes for examples.

Dr. Jasentuliyana mentioned that both these issues are now on COPUOS' agenda: to check what other organizations are doing, and to study the connections between the UNCLOS and the Outer Space treaty. He also noted that some "bad" parts of the UNCLOS had been integrated into the Moon Agreement, so some caution should be applied in "copying" other regimes.

Hereafter, the 43rd Colloquium was closed. The President thanked all those who contributed to it and invited all to the 44th Colloquium in Toulouse, France.*

Tanja Masson-Zwaan (Editor)**
(IISL Secretary/Colloquium Coordinator)

* 1-5 October 2001. Information about the Colloquium, session topics and procedure for the submission of abstracts, as well as the Manfred Lachs Space Law Moot Court Competition may be obtained from the IISL Secretary via e-mail (jtmasson@cyberway.com.sg), or from the IAF Website (<http://www.iafastro.com>)

** With many thanks to the Session Chairpersons and Rapporteurs who submitted excellent reports that hardly necessitated any editing:

Prof. Maureen Williams (Argentina) for session 1,
Prof. Elisabeth Back Impallomeni (Italy) and Dr. Sylvia Ospina (Colombia) for session 2,
Dr. Rosa María Ramírez de Arellano (Mexico) and Dr. Valnora Leister (Brazil) for session 3,
Dr. Sylvia Ospina (Colombia) for session 4.

COMMENT

INTERNATIONAL NEGOTIATIONS CONCERNING THE GLOBAL POSITIONING SYSTEM*

Evan T. Bloom*

This article provides some background concerning on-going negotiations and discussions between the United States and other governments related to the Global Positioning System (GPS), and discusses the role of the Department of State in that process. It also outlines a number of the major legal issues faced by the negotiators.

I. *Background*

GPS is a constellation of twenty-four satellites providing precise timing, positioning and navigation information that can be accessed by receivers anywhere in the world. The system was originally designed by the United States Government to support United States and allied military forces. It has become, however, a system that supports numerous non-military applications, and is now managed by an Interagency GPS Executive Board (IGEB), jointly chaired by the Departments of Transportation and Defense. The system, operated by the U.S. Air Force, is becoming particularly important in the fields of civil aviation and navigation.

My role in this process is as adviser to the Bureau of Oceans and International Environmental and Scientific Affairs at the State Department on legal issues which arise concerning GPS. In that context, I have participated in the on-going negotiations and discussions with other governments on GPS issues.¹

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The views expressed herein are those of the author and not necessarily those of the U.S. Government.

* This comment is based on remarks to the legal panel at a conference on the Global Positioning System (GPS), hosted by the Institute of Navigation, September 16, 1999, in Nashville.

¹ The negotiations referred to herein concern the GPS Standard Positioning Service, the service provided by the United States globally and without restriction for all uses. The United States also provides a GPS Precise Positioning Service, using an encrypted signal for military applications.

The State Department chairs an interagency working group on international GPS policy issues. The Department is also represented on the IGEB. Under the relevant Presidential Decision Directive (PDD/NSTC 6), the State Department is instructed to:

- In cooperation with appropriate departments and agencies, consult with foreign governments and other international organizations to assess the feasibility of developing bilateral or multilateral guidelines on the provision and use of GPS services.
- Coordinate interagency review of instructions to US delegations to bilateral consultations and multilateral conferences related to the planning, operation, management and use of GPS and related augmentation systems; and,
- Coordinate the interagency review of international agreements with foreign governments and international organizations concerning international use of GPS and related augmentation systems.

The PDD sets forth a number of policy goals, including to encourage acceptance and integration of GPS into peaceful civil, commercial and scientific applications worldwide, to promote international cooperation in using GPS for peaceful purposes, and to strengthen and maintain US national security.

The PDD also sets forth policy guidance, including certain key elements which bear repeating in this context because of their impact on the international discussions: For example, the United States will continue to provide the GPS Standard Positioning Service for peaceful civil, commercial and scientific use on a continuous, worldwide basis, free of direct user fees. The United States will also cooperate with other governments and international organizations to ensure an appropriate balance between the requirements of international civil, commercial and scientific users and international security interests. The United States will advocate the acceptance of GPS and US Government augmentations as standards for international use.

To disentangle relevant policy parameters, I want to emphasize a few key points:

- The PDD indicates a policy direction for the US Government which provides the underpinning for our international policies. On the basis of the PDD, we can assure our international partners that the US Government stands behind GPS, and that we intend to provide the

standard positioning service on a continuous basis. Moreover, we will provide this service worldwide, and free of direct user fees.

- We want to promote GPS as an international standard. This means that we want to prevent the kind of balkanization of markets and territories which we find with mobile telecommunications. Your handy GPS receiver should work wherever you go. The GPS equipment on your plane should function for navigation in national or international airspace and for landings at any airport in the world.
- Augmentation systems and policies should be consistent with these principles and not create any barriers to trade, or to the growth of the market for GPS services.

The PDD implies the need for international agreements to support these policies, and the US Government is willing to negotiate agreements that do so. Such agreements are subject to review under State Department regulations like all other international agreements (*i.e.*, under the State Department's Circular 175 process.²)

Key elements of the PDD have been reflected in legislation.³

II. *Status of Negotiations*

As a result of the PDD, the USG contacted a number of foreign governments to begin a process of discussing international cooperation on GPS issues at the government-to-government level. Thus, in particular, we have been holding discussions with the European Union, Japan and Russia. I can comment on public aspects of these discussions in the following terms:

1. *Japan.* We have had a number of meetings with the Government of Japan in Washington and in Tokyo. Those discussions have been successful, and resulted in a joint statement released by the President and by Prime Minister Obuchi on September 22, 1998, at the time of their meeting in connection with the opening session of the UN General Assembly.⁴ That joint statement, concerning cooperation in the use of GPS, establishes a framework for bilateral cooperation in this area.

² See 11 FAM Subch. 720.

³ See *e.g.*, National Defense Authorization Act, F.Y. 1998 (P.L. 105-85), § 1074, 10 U.S.C. § 2281 note.

⁴ Japan-United States Joint Statement on Cooperation in the Use of the Global Positioning System, II *Pub. Papers* 1643 (Sept. 22, 1998).

The Joint Statement notes that the parties will work closely to promote broad and effective use of the GPS Standard Positioning Service as a worldwide positioning, navigation, and timing standard. It goes on to list a number of areas in which cooperation is anticipated, such as promotion of compatibility of operating standards, development of adequate radio frequency allocations, and identifying potential barriers to trade.

Of particular note is that the parties have established a consultative mechanism for GPS cooperation. The governments will hold annual plenary meetings to discuss GPS issues, and will form a series of working groups to handle specific issues such as international policy and public safety issues, transportation applications, and commercial and scientific uses. These working groups will meet for the first time later this month.

2. *Russia.* We have held some discussions with the Russians to discuss issues of mutual interest related to both GPS and the Russian system GLONASS. Those discussions are continuing.

3. *European Union.* This is an important moment in our discussions with the European Union. In November of 1999, the European Commission received a mandate to negotiate with the United States concerning Global Navigation Satellite Systems (GNSS). As we begin this period of engagement with the EU, some of the key issues that the parties will face are starting to come into focus. My colleagues and I will welcome the opportunity to learn more about the Galileo proposal and how the EU sees the future relationship between Galileo and existing satellite navigation systems.

Over the past two years, we have held a number of rounds of meetings with the EU, led in this case by the European Commission's Directorate-General for Energy and Transport (previously DG VII), to discuss GNSS. After the last round in November of last year, both delegations released a Joint Summary Report concerning their discussions. The Report reflects the US Government's interest in promoting GPS, and notes its belief that a GNSS based on GPS and its related augmentations would effectively meet the needs of global users.

Both delegations have outlined a number of issues which might be appropriate for inclusion in a bilateral agreement. For example, the United States has stated that it is prepared to consider in a cooperative agreement opportunities for expanding European insight and input into the operation, management and modernization of GPS civil functions through

appropriate mechanisms. An agreement might also address policy issues such as spectrum management and civil-military interfaces.

Both sides will work together on GNSS issues that arise in a number of international organizations and meetings, such as certification, liability, and spectrum management. I will address the issue of liability further on in relation to the deliberations in the International Civil Aviation Organization (ICAO).

From my personal perspective, it will be most interesting to see how the advent of Galileo affects our bilateral discussions of legal issues. After all, in the past, some proposals about liability had the character of requests by non-signal providers to adjust the liability exposure of signal providers. Europe is no doubt in the process of thinking through how any changes the international community may decide to make to international liability law will affect its future status as a signal provider.

4. *Other Contacts.* I note as well that there is a constant flow of agency-level contacts on GPS with respect to technical issues. For example, the FAA holds many technical discussions with counterpart agencies on GPS, and has entered into a number of agreements with those counterparts to promote those discussions. The Defense Department also holds technical discussions with NATO-member defense ministries and others. Such meetings run in parallel with the government-to-government efforts.

III. *Sectoral Discussions*

There are several important international fora in which GPS is being discussed, and which are quite important from a legal point of view. The discussions in these fora are very much related to our bilateral discussions.

1. *Aviation.* There are on-going discussions in ICAO with respect to legal issues related to GNSS. Some of those issues have a direct relationship on our bilateral discussions. Chief among these is the question of liability for damage related to operation of a GNSS system.

In ICAO, a number of delegations have taken the view that a convention on GNSS issues, including liability, should be negotiated. The United States position remains as it has been stated on many occasions in that forum -- that we do not believe such a convention is necessary. Our reasons include the following:

- In our view, the current legal regime is adequate. GNSS is like other navigation aids currently in service, - e.g. LORAN, Omega and

CONSOLAN. Their signals are often used beyond the national territorial jurisdiction of their source. Their operation has not, to our understanding, created major difficulties with respect to liability. We do not view GNSS as presenting significantly new and different issues from a legal perspective.

- Thus, we believe that the existing Chicago Convention regime is adequate for development and use of GNSS. The Convention sets out binding rules for essential relationships of States with each other and with ICAO for global air traffic management. The ICAO Council has already issued important guidance for GNSS, the Legal Committee has been working steadily on these matters, and a legal study group has been formed to look at relevant issues.
- The existing tort-based liability scheme is not perfect, but it is adequate. Every state has a liability claims system of some kind that can address air navigation liability issues. It is far from clear that a convention-based liability regime would be simpler to run or more equitable than relying on the current tort-based system.

A major practical concern - and we must pay attention to practical concerns because GPS is being used widely now - is that negotiation of a convention would take many years. Indeed, it could take a decade or more, and ratification by states would take years more. Such a convention would be unprecedented, and hard to negotiate. Liability regimes are notoriously difficult to construct; indeed, few exist and the United States is party to an even more limited subset of those that do. An additional consideration is that GNSS concerns an evolving technology; we do not know what that technology will look like ten years from now, and it will be difficult to design a convention that can accommodate conditions that may be quite different in the future.

2. *Spectrum.* Allocation and protection of GPS radio frequencies is a matter of critical concern to the United States. If frequencies are not adequately protected, we endanger the benefits that GPS provides to all of us. These important issues were addressed at the World Radio Conference in Istanbul earlier in 2000. At that Conference, the EU (no doubt influenced by its planned status as a GNSS signal provider) effectively joined the United States in promoting effective spectrum protection.

IV. *Legal Issues*

Through the discussions with foreign governments, and the development of our international policies supporting the PDD, we have

identified a number of significant legal issues, many of which you have already heard referred to in this forum. Let me touch upon a few that may be of particular interest:

1. *Continuity of Service.* Foreign governments are particularly concerned with whether the United States will maintain its system. This is quite understandable as decisions about reliance on the system and investment in GPS technologies depend on the continuous availability of the service. This concern about continuity has been reflected in questions directed to us about whether the US Government can or should make a legal promise on which foreign governments and/or users can rely.

On one level, our reaction has been that we do not see a need for a legal promise of this nature. We have made clear our intent to continue to provide the service free of direct user fees. Persons all over the world (who receive the signals courtesy of the US taxpayers, and with no fee paid) are using the service and investing in GPS technologies without any direct legal relationship with the US Government. They do so because they have confidence in the system. They also see that the United States and its users already rely to such an extent on GPS that there is no way that the United States Government could consider terminating the service, because of the severe impacts this would have domestically. US dependence on GPS is a real world guarantee that means at least as much as anything we could put on paper in an international agreement.

In addition, there are domestic legal parameters to consider. We have the Presidential Decision Directive and some helpful legislation, but these on their own provide insufficient legal bases to offer a binding promise in an executive agreement. If what is needed is a treaty, that requires advice and consent to ratification by the Senate, and legislation might also be needed. Thus, an agreement incorporating any type of binding continuity guarantee, if one were needed, could face a number of legal and procedural hurdles.

2. *National Security.* Related to the issue of continuity of service is the question of how any agreement or agreements would take into account relevant national security concerns. GPS is a dual use system operated by the US Department of Defense, but managed by the IGEB. Although the civilian and peaceful uses are of paramount importance, GPS is also capable of being misused, for example by forces hostile to the United States and its allies. For that reason, any agreement or agreements concerning GPS must take into account national security concerns, including issues related to provision of service in times of conflict, terrorist threats and other similar circumstances.

Although we wish to prevent misuse of GPS and its augmentation systems, at the same time, we are committed to doing so without unduly disrupting or degrading civil uses.

3. *Liability.* Liability has an important place in our bilateral discussions. The parameters of our position bilaterally are naturally consistent with those we have taken in ICAO. Liability is certainly an important issue, and we are willing to work with others to attempt to resolve relevant concerns.

But addressing issues of this sort through agreements of any type presents many challenges. One point is that liability issues affect a wide range of persons and governments, and conclusions reached with one or two parties cannot bind all other interested parties. Another point is that legal issues related to GPS arise in many sectors. Thus, while the discussions at ICAO may be more advanced than in some other places, similar issues apply in other transportation fields, such as in the maritime sector. And certainly liability issues are relevant not only in the transportation sector, but more generally. You can imagine that a legal solution fashioned in ICAO could have ramifications outside the aviation field; and solutions reached bilaterally on discrete points could not resolve issues that affect many other stakeholders.

Moreover, as with the issue of continuity of service, there would likely be a major role for Congress in any agreement that involved addressing US Government liability as a signal provider. It could be rather difficult to convince Congress that the US Government should take on additional liability for a worldwide service the Government offers for no charge, and at very high cost to the US taxpayers.

4. *Trade Practices.* Barriers to trade are a recurring theme in international discussions, mostly in the sense of reminding all parties that measures should not be allowed to interfere with development of trade in GPS equipment or growth in the market for GNSS generally. We must ensure that certification and standard-setting procedures are fair and transparent; GPS should be treated like other information technologies. We must ensure that any cost recovery mechanisms employed for GNSS systems are compatible with international trade law norms and practices. This is an area that will continue to receive attention.

These are some of the areas we are reviewing from a legal perspective. There will be many more raised in negotiation of GPS-related international agreements in the future.

SHORT ACCOUNTS

Other Meetings during the International Astronautical Congress in Rio

In addition to the above reported IISL Colloquium, the Rio meeting during the 51st International Astronautical Congress also had a number of sessions which were of special interest to lawyers and policymakers. Among them were Symposia on Earth Observation Missions and International Cooperation, Future Earth Observation Systems, Earth Observation Business Development and Economic Benefits, Space Transportation Symposium, including Launch Systems and Services, Space Station Symposium, also extending of International Utilization; Symposium on Economics and Commercialization of Space Activities, including Commercial Space Financing, Space Tourism and other Novel Space Applications; International Space Plans and Policies Symposium designed to cover International Cooperation and Competition; Satellite Communications Symposium focusing on areas of Mobile, Broadcasting, and other Fixed Satellite Services; Space and Natural Disaster Reduction Symposium focusing on International Cooperation and New Concepts; Space Activities and Society Symposium with a focus on Contribution of Space Activities to Society; a Symposium on International Moon/Mars Exploration, including near- and long-term Goals and a Review Meeting of the Search for Extraterrestrial Intelligence.

Also to be noted was a Plenary Event organized by the IISL October 6 on "Making Space Profitable, Roles of Law and Policy" under the Chairmanship of N. Jasentuliyana who noted that if the Plenary was a success it might remain on the IISL agenda in the future. He invited representatives from China, Japan, Russia, etc. to suggest high quality speakers for such future plenary events.

World Space Week

Public events around the globe were planned for World Space Week, Oct. 4-10, 2000 to celebrate the contribution that space makes to the betterment of life on Earth. The primary goal of World Space Week has been increasing awareness among decision makers and civil society of the benefits of the peaceful uses of space sciences and technology for sustainable development.

The UN General Assembly declared World Space Week last year. Since then, over 20 nations have responded by planning events that link the public and students with space in a myriad of ways.*

* Countries participating in World Space Week 2000 included Australia, Austria, Brazil, Canada, China, Columbia, Hungary, Indonesia, Iran, Japan, Libya.

Two important dates recalled during World Space Week reflected significant milestones in humanity's expansion into space:

4 October 1957 was the date of the launch into outer space of the first human-made Earth satellite, SPUTNIK I, thus opening the way for space exploration and 10 October 1967 was the date of the entry into force of the Treaty on Principles Governing the Activities of States in the Exploration and Peaceful Uses of Outer Space, including the Moon and Other Celestial Bodies.

Chronology of World Space Week

Events leading up to the establishment of World Space Week may be traced back to 30 July 1999 when all nations attending UNISPACE III in Vienna called on the UN General Assembly to declare Oct. 4-10 annually as World Space Week.

On 5 October 1999, meeting with UN representatives in Amsterdam, the Spaceweek International Association Board of Directors agreed to merge the 20-year-old celebration of Spaceweek with World Space Week effective in 2000.

After a committee of the General Assembly approved on 29 October 1999 in a resolution the new dates, the full General Assembly on 6 December 1999 voted to proclaim World Space Week.**

On 8 June 2000, the UN Committee on Peaceful Uses of Outer Space reviewed plans for World Space Week and on 4 October 2000 the UN launched the celebration with events both at its Headquarters in *New York*, as well as in *Vienna, Austria**** and was followed by Space Week events worldwide.

A partial list of reported events planned in participating countries included a major youth space conference (*Canberra, Australia*), the meeting of World Space Leaders Oct. 2-6 at the International Astronautical Congress (*Rio, Brazil*); the celebration of the 25th anniversary of Apollo-Soyuz Test in which cosmonaut Alexei Leonov and astronaut Thomas Stafford recalled their historic handshake in space that launched a new era of international cooperation. The two spacemen drove a Lunar Rover in Rio with legendary Indy 500 winner Emerson Fittipaldi.

The reported theme of the *China's* programme for celebrating World Space Week was to publicize science, combat superstition and pseudoscience, enhance the awareness and knowledge of outer space by the

Mexico, Morocco, Netherlands, Pakistan, Panama, Philippines, Poland, Portugal, Romania, Russia, Saudi Arabia, Spain, Sweden, Turkey, United Kingdom, and the United States.

** The General Assembly Resolution was released on 11 Feb. 2000.

*** For a discussion of "*World Space Week: UN Program in Vienna and USA Section Program in New York*," see next entry *infra*.

public, especially the youth, and encourage the masses to participate in and support the outer space cause. *Hungary* planned to draw attention of the scientific community, scientific and official leaders, and the general public on the significance of space research. *Japan* was to hold a public symposium on space tourism on Oct. 3 in Tokyo, with the theme "In 2001, Can you travel to space?"

Other reported planned activities included a round table on Uses of outer space in light of modern technologies (*Libya*), a scientific exhibition on space and its uses (*Morocco*), series of documentaries on the conquest of space (*Panama*), a web design contest for high school students (*Philippines*), screening an educational film "Blue Planet" made partially from Earth orbit (*Poland*), an exhibition on *Portuguese* participation at the International Space Camp 2000; a Press Conference, Radio and TV shows and festive sessions devoted to World Space Week (*Romania*); Supporting the UN opening of World Space Week in Vienna, Austria on 4 October and updating the exposition on Russian space activities in the Vienna International Centre; Space Shows and Space Exploration Galleries, space films, space adventures (*Saudi Arabia*); open houses, informative talks and lectures, distribution of illustrated teaching materials (*Spain*), holding of a Space Business Conference (*Sweden*), free space movie to schools, rocket competition for school students, symposium on the latest space education initiatives (*United Kingdom*),

As to the *United States*, NASA launched the Space Shuttle Discovery to the International Space Station and promoted the role of women in space with special webcasts for teachers and children. Among other scheduled U.S. activities were the appearance by NASA Astronaut Dr. Bonnie Dunbar; a panel discussion of astronauts and cosmonauts; distribution of World Space Week teacher kits showing space in the classroom; viewing the launch of the Space Shuttle Discovery to the International Space Station; first public viewing of Liberty 7, the Project Mercury capsule that spent nearly 40 years on the ocean floor; evening public lectures at the Hayden Planetarium; teacher hands-on astronomy classroom activity demonstrations; special planetarium shows, films, demonstrations, workshop, special speakers.*

World Space Week: UN Program in Vienna and USA Section Program in New York

The United Nations hosted an event on October 4, 2000 in Vienna, Austria at the National Library to launch World Space Week from 3:15 to 6:15 p.m. The event featured a special, video address by the science fiction author Arthur C. Clarke and a panel of space explorers.

* For more information on World Space Week, visit the International Spaceweek Association Web site (www.spaceweek.org).

An event to launch World Space Week was held on October 4 at United Nations Headquarters. The event was opened with a message read on behalf of Secretary-General Kofi Annan by Kensaku Hogen, Under-Secretary-General for Communications and Public Information. The programme included a special video address by the science fiction author Arthur C. Clarke, a panel of space explorers (Rakesh Sharma of India, Dumitru-Dorin Prunariu of Romania, Franklin Chang-Diaz of USA and Jean-Francois Clervoy of ESA) and presentations on uses of space in disaster management and humanitarian relief. A Student Press Conference was organized in collaboration with the Planetary Society for middle and high school students from New York schools, with Bill Nye the Science Guy and astronaut Franklin Chang-Diaz answering questions from the audience on the search for life.

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Missile Defense

The U.S. Administration has been in favor of a national missile defense system that would not discard the ABM Treaty and revive the chance of a renewed arms competition with Russia and China but would allow construction and deployment of one hundred interceptors in Alaska by 2005 to destroy a few "rogue" missile warheads after they re-enter the atmosphere.

Two consecutive failures to shoot down mock warheads in Space with a land-based interceptor have called into question the realism of the preceding proposal. Opposed to the Administration's stance has been the view of Republicans favoring a boost phase interception. This is shared by many Israeli Defense officials, who relying on their experience in the Gulf War point out the difficulty, and the dangers, of exploding enemy warheads above the very territory they want to defend.

As a result, the Pentagon's 2005 target date for having an initial, limited means of defending all 50 states against attack by a small number of ballistic missiles has been scrapped, and the decision about the deployment of a national missile defense system appears to be deferred to the next president.

Achieving a solid deal with North Korea that would muzzle North Korea's perceived missile threat has been a major U.S. policy objective but U.S. Secretary of State Albright left Pyongyang recently without a firm agreement and without announcing whether President Clinton would visit there.

Concerned about possible gaps between the coverage of U.S. theater missile defense systems and emerging missile capabilities and potential threats posed by certain medium-range or intermediate range ballistic missiles, the 2001 Defense Authorization Act directs the Pentagon's

Ballistic Missile Defense Organization to address coverage gaps and adapt ballistic missile defense systems and architectures to counter such threats.

International Space Station

Zvezda, the first control module to be built solely by the Russians, was flawlessly launched July 12 and docked with the International Space Station on July 25. The 24-ton cylindrical Zvezda - which means Star in Russian - is crucial for the station in providing initial crew quarters, steering controls and the propulsion needed to keep the lab complex in safe orbit. A U.S.-Russian crew of seven unpacked the shuttle Atlantis, and an unmanned cargo ship that was launched from Kazakhstan carrying fuel to adjust the space station's orbit. They hooked up equipment both inside and outside the outpost orbiting at an altitude of about 240 miles. Discovery, NASA's 100th space shuttle flight, followed on October 12 with a first major truss which carried electronics and communications equipment, the station's stabilization system and got the space station ready for the arrival of its first full-time residents. With the additions the station extends 143-feet in length and weighs just about 170,000 pounds. The first permanent crew - NASA astronaut Bill Shepherd and two Cosmonauts, Sergei Krikalev and Yuri Gidzenko - were launched aboard a Soyuz spacecraft from Kazakhstan at end of October after a delay of more than two years. They arrived at the station for a four-months stay to be replaced by three new crew members. On November 30, Endeavour carried huge, American-made solar panels to provide much needed electrical power and in January Atlantis is to carry Destiny, America's science laboratory.

However, the \$60 billion-plus international space station, a massive 16-nation joint project which includes - under the Leadership of the United States - Russia, Canada, Japan and 10 member countries of the European Space Agency will not be complete until 2006 after more than 40 space flights. NASA plans a total of eight shuttle flights in 2001 and about every year thereafter and hopes to keep using the station for scientific research at least a decade beyond that.**

Arrival of the station's first residents, heralds a new era in which people will learn to live and work in space for extended periods. But humanity's ability to spend years in transit across the cosmos, or colonize other world, could ultimately depend on an ability to reproduce and raise healthy children, as well as plants and animals, in those environments.

Nobody knows for sure what effects prolonged sojourns off Earth will have on human reproduction and development. A relatively well

** Several NASA centers have Internet sites providing dates and times for viewing the station in certain cities. Sighting information also can be found at <http://spaceflight.nasa.gov/realdata/sightings/>

documented threat is cosmic radiation. According to officials, for the foreseeable future, critters other than humans will be the only ones testing their procreative proclivities in orbit.

Case Developments

In *Hughes Communications Galaxy, Inc. v. United States*, 47 Fed. Cl. 236 (2000) the U.S. Court of Federal Claims entered a judgment for Hughes in the amount of \$102,680,625. The government was previously held liable for breach of a best efforts contract clause (resulting from a government policy change on commercial satellite launches via the space shuttle after the Challenger disaster.)

In another contracts case involving *Satcom International Group PLC v. Orbcomm International Partners*, (L.P., No. Civ. 9095, 2000 U.S. Dist. LEXIS 7739, S.D.N.Y. June 6, 2000) Orbcomm won summary judgment on a breach of contract claim. Satcom contracted and failed to provide marketing and other ground support to Orbcomm's LEO satellite data-communications services in the Middle East and Central Asia. The court found that Orbcomm was entitled to terminate its contract with Satcom.

Meng v. Schwartz, 2000 U.S. Dist. LEXIS 14959 (D.D.C. Sept. 30, 2000). Loral shareholders filed this derivative suit against Schwartz after Loral was investigated by Department of Justice's Campaign Finance Task Force. Plaintiffs alleged that defendant bribed President Clinton and other government officials with campaign contributions to obtain export licenses for Loral products, in violation of the racketeer influenced and corrupt organizations act. Both the lawsuit and the DOJ investigation followed Loral's receipt of two presidential waivers to place communications satellites in low earth orbit. The court dismissed plaintiff's federal claim and declined to exercise supplemental jurisdiction over state law claims.

In *Space Systems/Loral, Inc. v. Lockheed Martin Corp.*, No. 99-1255, 99-1289, 2000 U.S. App. LEXIS 21414 (Fed. Cir. Aug. 23, 2000), the court upheld the trial court's finding that defendant's satellite did not infringe upon plaintiff's patents. Patents for satellite were not literally infringed or infringed under the doctrine of equivalents (e.g., plaintiff's satellites operated independently and without external control; defendant's satellite operated with ground control).

In *AMSC Subsidiary Corp. v. Federal Communications Commission*, 216 F.3d 1154 (D.D.C. 2000), AMSC held an FCC license to provide mobile satellite service (MSS) in the U.S. using the entire upper L-band of the electromagnetic spectrum. Subsequently, the FCC granted a foreign-owned entity a similar license in the same band without providing AMSC a hearing. AMSC challenged the FCC's decision to deny AMSC a hearing. AMSC asserted that their license was modified, triggering a hearing, because two MSS systems cannot use the same frequency in the overlapping footprints without interference. The court upheld the FCC's

decision to deny a hearing because AMSC's claim of an increased likelihood of interference was too speculative and thus their license was not modified.

Executive and Legislative Notes

The National Oceanic and Atmospheric Administration published: Licensing of Private Land Remote-Sensing Space Systems: Interim Final Rule, 65 Fed. Reg. 46821 (2000) (to be codified at 15 C.F.R. pt. 960).

The FAA issued a number of significant final rules, notices of proposed rulemaking, and advisory circulars pertaining to launch vehicle and launch site safety, which include:

Licensing and Safety Requirements for Operation of a Launch Site; Final Rule, 65 Fed. Reg. 62811 (2000) (to be codified at 14 C.F.R. pts. 401, 417, 420). This rule provides for licensing and safety requirements for the operation of launch sites, on or off federal launch ranges. The rule provides (1) criteria and information requirements for obtaining a license; (2) license terms and conditions; and (3) responsibilities of a licensee.

Commercial Space Transportation Reusable Launch Vehicle and Reentry Licensing Regulations; Final Rule, 65 Fed. Reg. 56617 (2000) (to be codified at 14 C.F.R. pts. 400, 401, 404, et seq.). In response to the advancement in commercial reusable launch vehicle (RLV) and reentry capabilities, the FAA prescribed requirements for obtaining a license to launch and reenter an RLV, to reenter a reentry vehicle, and to operate a reentry site.

Commercial Space Transportation Licensing Regulations; Notice of Proposed Rulemaking, Licensing and Safety Requirements for Launch, 65 Fed. Reg. 64120 (2000) (to be codified at 14 C.F.R. pts. 401, 413, 415, 417).

Financial Responsibility Requirements for Licensed Reentry Activities; Final Rule, 65 Fed. Reg. 56669 (2000) (to be codified at 14 C.F.R. pt. 450). Under its licensing authority pursuant to the Commercial Space Act of 1998, Public Law 105-303, the FAA determines financial responsibility requirements for licensees authorized to launch and reenter reusable launch vehicles (RLVs). This rule implements a financial responsibility and risk allocation program for RLVs. Due to the fact that the United States could bear international responsibility for a U.S. licensed RLV or one of its stages, the FAA determines the amount of insurance the licensee must carry and the U.S. Government covers the remaining liability risk.

FAA Advisory Circular, Reusable Launch and Reentry Vehicle System Safety Process, AC 431.35-2, (Sept. 2000).

FAA Advisory Circular, Expected Casualty Calculations for Commercial Space Launch and Reentry Missions, AC 431.35-1 (Aug. 30, 2000).

NASA's Curation Office is undergoing organizational changes. The new Curation Office will continue to curate lunar, meteorite, and cosmic dust samples but will become more active in curation of new collections, including the solar particles to be returned from the Genesis Mission, followed by Stardust Mission which is to collect comet particles and the Japanese mission, Muses C, from which asteroid material should be received.

NASA policies define lunar samples as a limited national resource and future heritage and require that samples be released only for approved applications in research, public display and education. To meet its responsibility, NASA screens all sample requests. Individuals requesting a lunar sample should follow the procedures outlined for each particular category of samples (research, public display and educational samples) in the "Lunar News" publication.*

After the failure in 1999 of two robot craft, the Mars Orbiter and the Polar Lander, NASA is considering reorganization of its Mars exploration to include six robot missions this decade and another in 2011 to bring back rock samples.

A Nov. 21 statement of the Department of State permits resumption of processing requests for the export commercial satellites to China which has been regarded off limits by American companies since early 1999.

Despite Congressional criticism that its current effort is poorly managed and has a low priority, the U.S. Air Force says that it remains committed to exploring the concept of a reusable space plane that would be launched on relatively short notice to perform urgent surveillance and reconnaissance missions.

(a) Enacted Space-Related Legislation

National Aeronautics and Space Administration Authorization Act for Fiscal Years 2000, 2001, and 2002, Pub. L. No. 106-391 (2000).

Commercial Space Transportation Competitiveness Act of 2000, Pub. L. No. 106-405 (2000) to promote the development of the commercial space transportation industry, to authorize appropriations for the Office of the Associate Administrator for Commercial Space Transportation, to authorize appropriations for the Office of Space Commercialization, and for other purposes.

(b) Proposed Space-Related Legislation

Pending in the 106th Congress are the following bills and resolutions:

* See LUNAR NEWS, No. 65, Sept. 2000, at 13-5.

H.R. 89: to amend title 17, United States Code, to reform the copyright law with respect to satellite retransmissions of broadcast signals, and for other purposes.

H.R. 2572: to direct the Administrator of NASA to design and present an award to the Apollo astronauts.

H.R. 2815: to present a congressional gold medal to astronauts Neil A. Armstrong, Buzz Aldrin and Michael Collins, the crew of Apollo 11.

H.R. 433: to limit the authority of the National Reconnaissance Office to use external contracting offices to negotiate, write, and manage launch vehicle acquisition and launch services contracts.

H.R. 3862: to amend title 18, United States Code, to prevent certain frauds involving aircraft or space vehicle parts, and for other purposes.

H.R. 3898: to amend the Internal Revenue Code of 1986 to exclude from Federal taxation certain income derived from the manufacture of products and provision of services in outer space).

H.R. 4417: to provide that the Secretary of Commerce have control over exports of satellites and related items, to provide certain procedures for exports of satellites and related items to the People's Republic of China, and for other purposes.

H.R. 4676: to amend the Internal Revenue Code of 1986 to encourage the timely development of a more cost effective United States commercial space transportation industry, and for other purposes.

H.R. 5106: to make technical corrections in copyright law.

H.R. 5183: to authorize the National Aeronautics and Space Administration to lease, jointly-develop, or otherwise use a commercially provided inflatable habitation module for the International Space Station).

S. 2046: a bill to reauthorize the Next Generation Internet Act, and for other purposes.

S. 2316: a bill to authorize the lease of real and personal property under the jurisdiction of the National Aeronautics and Space Administration.

S. 2498: a bill to authorize the Smithsonian Institution to plan, design, construct, and equip laboratory, administrative, and support space to house base operations for the Smithsonian Astrophysical Observatory Submillimeter Array located on Mauna Kea at Hilo, Hawaii.

S. 2522: an original bill making appropriations for foreign operations, export financing, and related programs for the fiscal year ending September 30, 2001, and for other purposes).

S. 2632: a bill to authorize the President to present gold medals on behalf of the Congress to astronauts Neil A. Armstrong, Edwin E. "Buzz" Aldrin, Jr., and Michael Collins, the crew of Apollo 11.

S. 2702: a bill to require reports on the progress of the Federal Government in implementing Presidential Decision Directive No. 63 (PDD-63).

S. 2988: a bill to establish a National Commission on Space.

International Developments

Recognizing the increasing potentials and interest in space technology transfer activities, a recent ESA publication "Preparing for the Future" (Vol. 10, No. 2 August 2000) is devoted to a number of short summations of relevant materials.

On June 16, 2000, the U.S. entered into a bilateral agreement with Canada to permit the export of U.S. remote sensing technology in exchange for a supply of radar imagery and assurances that Canada will cooperate with the U.S. on national security issues relating to remote sensing.

The World Telecommunication Standardization Assembly of the ITU meeting in Montreal 27 September - 6 October 2000 was focusing on "Global Standardization in an Era of High-Speed Networks."

As a follow-up to the Kyoto Protocol of 1997 under which advanced nations must reduce and control greenhouse gas emissions, the United Nations Environment Program and the World Meteorological Organization proposed the Global Climate Observation System (GCOS), an objective of which is to reinforce both regular and scientific observations of land, oceans, and space. Japan's NASDA is to initiate the Global Change Observation Mission as part of the space segment in the GCOS aimed at performing systematic Earth observations necessary for researching climate changes.

Desertification which may be caused both by natural factors (changes in atmospheric cycles and droughts) but also by artificial factors including over-grazing, poor irrigation, inadequate deforestation practices, and vegetation destruction, can have grave adverse effects on the environment and also wide ranging impact on climatic changes. NASDA has accomplished much from its JERS-1 SAR data by creating high resolution mosaic images showing the forest distribution in regions of Africa, Southeast Asia, and the Amazon River area.

Europe Star used a hardware-glitch-plagued Koreasat to secure rights to two orbital positions that it was at risk of losing. It did so by taking advantage of an ITU regulation that permits operators to use a satellite to register more than one orbital slot.

ITU Telecom Asia 2000 is being staged in Hong Kong, China December 4-9, 2000. The Asia-Pacific region, with its population of over 3.6 billion people, is the world's largest single market for telecommunications products and services.

The International Space University that annually alternates the site of its summer session will hold next year's session for the first time in Germany at the University of Bremen.

Manfred Lachs Space Law Moot Court Competition

Hamline University and the University of Paris were in the finals of the 9th Manfred Lachs Space Law Moot Court Competition (*Homeria v. San Marcos*). The contest was held October 5, 2000 during the IISL Colloquium at the First Court of Rio de Janeiro and was adjudged by ICJ President Guillaume (presiding), Judge Rezek and Judge Vereshchetin. The finals were won by the University of Paris XI. Allen Blair of the USA received the award for the Best Oralist, and the winning Brief was that of the University of Paris XI team whose members were Odile Giraud, Oliver Huth & Marie Diop.*

The finals of the 10th Competition dealing with "The Case Concerning Access To ESI-1 Data (*Soliscalar v. Cornucopia*)" will take place in Toulouse, October 4, 2001, after regional preliminaries to be held in the Spring of 2001 in Europe, the USA, Australasia and, hopefully, the non-US Americas.

Other Events

Among the Symposium highlights of the 6th Annual Cape Canaveral Spaceport Symposium (previously known as the Florida Space Launch Symposium) held November 14-15, 2000 were Alternative Management Models for Spaceport Operations and the creation of a New Legal Framework for Today's Spaceport.

Brief News in Retrospect

Insofar as can be seen with our ever improving telescopes, it appears that there are at least a **hundred billion galaxies** spread out throughout the universe. Each, like the Milky Way, is an "island Universe" containing billions of stars."

Champions of a **flat universe** received unexpected help from a high-flying balloon, dubbed "Boomerang" which carried extremely sensitive instruments over the Antarctica and brought the cosmic microwave background into sharp focus.

Recent findings from a magnetic field detection device on the Galileo spacecraft suggest that there might be **liquid water** beneath the

* For additional information, please see the Rio Colloquium, *supra*. The case is reproduced in CURRENT DOCUMENTS, *infra* and is expected to be published with the winning Brief in 43 PROC. COLLOQ. L. OUTER SPACE (AIAA, 2001).

** See "Millennium in Maps" relating to the Universe, "NATIONAL GEOGRAPHIC", October 1999.

ice of **Europa**, one of Jupiter's 17 named moons, which is the brightest of the large Jovian moons.^{***}

A new **black hole** was discovered by the orbiting **Chandra X-ray Observatory**. It falls between very small "stellar" and extremely large "supermassive" black holes.

Astronomers reported findings of nine new planets circling stars outside our solar system.

While unlikely, scientists reported that there was a 1-in-500 chance that an asteroid, known as 2000 SG344, could strike the earth in 2030. However, after examining additional observations, scientists at the Jet propulsion Laboratory in Pasadena downgraded the chance of a collision in 2030 and asserted that there was a 1-in-1000 chance the asteroid could hit the Earth in 2071.

A new 4-inch square, personal minisatellite (**CubeSat**), weighing 2.2 pounds and costing \$45,000, plans to be marketed in the near future.

Notwithstanding strong protests by ardent project supporters, NASA has discontinued working on its planned mission to **Pluto**, the solar system's last unexplored planet. Cost overruns plague another high priority mission to **Jupiter's moon Europa** which many scientists suspect has a liquid ocean that might harbor some form of life.

The **Near Earth Asteroid Rendezvous** spacecraft launched in 1966 has been flying within 18,000 feet of **Eros** taking pictures and gathering data on the asteroid's composition and natural history and is believed to be showing the same rock forming elements that may have been present at the formation of the solar system 4.5 billion years ago.

Space fungi are a far greater problem than previously thought. Exposure to increased radiation, especially on long missions, can cause the fungi to mutate into more dangerous forms.

Russia expects to crash the aging **Mir**, a symbol of Soviet space achievements, in a controlled manner at the end of February 2001. Most of **Mir** is expected to burn up in the atmosphere with the remainder falling in a remote area of the Pacific Ocean.

A Russian decree was issued October 26 centralizing control of the defense and space industries under the federal government.

Participating in the Space Shuttle **Discovery's** October mission, **Japan's Koichi Wakata's** main duty was to attach the **Zenith 1 Truss** and **Pressurized Mating Adaptor** to the **International Space Station** by manipulating the robotic arm.

China hopes to send astronauts aloft, becoming the third State apart from the United States and Russia having a domestic manned space program. As a long-term goal, China expects to conduct exploration of the Moon and actively participate in Mars exploration.

^{***} For a discussion of "Why Europa Might Host Life", see "NATIONAL GEOGRAPHIC", October 1999, at 44..

A recent Indian cabinet decision has lifted the ban on private companies to provide direct-to-home satellite television services under certain conditions and safeguards.

B. FORTHCOMING EVENTS

An announcement has been made about holding "The Space Law Conference 2001: legal challenges and commercial opportunities for Asia", jointly organized by IISL and the Society of International Law, Singapore, on 11th-13th March 2001 at the Regent Hotel in Singapore. The Conference to be co-chaired by Professor Tommy Koh, President of the Singapore International Law Society and N. Jasentuliyana, IISL President, is aimed at increasing knowledge and expertise relating to space law in the Asia region. It is hoped that the recommendations from this conference will have a significant impact on the further development of the legal regime for the peaceful uses of outer space. The IISL intends to hold such regional meetings every two years in a different region so as to provide a platform for interested parties in the region to learn about space law and to network with experts from all around the world.*

The ASIL International Space Law Committee has been considering selecting a topic for a proposed panel at ASIL Annual Meeting (Washington Monarch Hotel, April 4-7, 2001) which would appeal to more than one Interest Group. It was agreed that a proposal would be put forth jointly with the Interest Group on the Antarctica to suggest such a panel, which could be titled: "Challenges in Negotiating and Implementing International Liability Regimes." The details of the proposed program would be expected to be worked out by the two Interest Groups who would look for expression of interest and input from ASIL members and others (e.g. ABILA) and look forward to great turnout and participation in 2001.

Kyoto, Japan is the venue of the 10th AIAA/NAL/NASDA/ISAS International Space Planes and Hypersonic Systems and Technologies Conference on April 24-7, 2001.

The Global Air & Space 2001 International Business Forum is scheduled to meet May 7-9, 2001 in Arlington, VA.

As reported in our last issue, the 44th IISL Colloquium on Emerging Legal Issues in Space Activities will be held in Toulouse, France, October 1-5, 2001 during the 52nd International Astronautical Congress the theme of which is "Meeting the Needs of the New Millennium".

* For more details, see CURRENT DOCUMENTS, *infra*. Also, the Singapore International Law Society may be contacted for information. Fax (65) 779-0979; E-mail: spacelaw@sils.org

The following sessions are planned:

Session 1: Emerging issues of interpretation and application of space treaties (including definitional issues of state responsibility, launching states, space objects and related legal issues). *Chairs:* G. Lafferranderie and P. Sterns; *Rapporteur:* M. Mejia Kaiser.

Session 2: Emerging legal issues in satellite communications (with special attention to the national regulation of licensing mobile satellite systems); *Chairs:* L. Rapp and A. Goh; *Rapporteur:* S. LeGouëff.

Session 3: Legal issues arising from the commercial availability of high quality remote sensing imagery (topics will include the extent to which such imagery can be admitted as evidence in civil and criminal cases; what legal requirements must be established to guarantee that such digital data used in legal proceedings are unaltered; the extent to which such data can be used to mediate international disputes; and what personal and corporate rights of privacy exist with regard to the acquisition and dissemination of such data). *Chairs:* A. Kerrest de Rozavel; S. Ospina; *Rapporteur:* O. Ribbelink.

Session 4: Other Legal Matters, including: the teaching of space law at the dawn of the new millennium; space debris; conflicts relating to space activities; legal aspects of human habitations in outer space; emerging legal issues in the field of navigation by satellite. *Chairs:* T. Kosuge and M. Bourély; *Rapporteur:* L.I. Tennen.*

Apart from the foregoing matters, an Earth Observation Symposium will address the policy and infrastructure of international cooperation and coordination, the emergence of commercial systems to satisfy market needs, the technical descriptions of new missions and sensors to be used, data processing and other topics. Also, the International Academy of Astronautics will have several symposia of likely legal interest, such as those on Economics and Commercialization of Space Activities; International Space Plans and Policies; Safety, Rescue and Quality; International Moon/Mars Exploration; and Space Activities and Society. In addition, the planned program includes meetings of the Search for Extraterrestrial Intelligence and of the 19th IAA/IISL Scientific-Legal Roundtable.

The 2002 IISL Colloquium will be held during the Second World Space Congress (53rd annual IAF meeting) in Houston, Texas and the location of the 2003 meeting will be in Bremen, Germany.

* Submission deadline for abstracts is February 23, 2001 to be sent to: The IAF Secretariat, 3-5, rue Mario Nikis, 75015 Paris, FRANCE; E-mail: iaf@wanadoo.fr - The coordinator of the Colloquium is T. Masson-Zwaan, 116 University Road, Singapore 297 912, Rep. of Singapore; Tel. (65) 251.5911; FAX: (65) 251.5922; E-mail: jtmasson@cyberway.com.sg - Deadline for submission of manuscripts is September 28, 2001 in accordance with the written instructions the authors will receive after their paper has been accepted.

BOOK REVIEWS/NOTICES*

AN INTRODUCTION TO SPACE LAW, by I.H.PH. DIEDERIKS-VERSCHOOR (2nd rev. ed., Kluwer Law International 1999), pp. 266.

The second edition of Professor Dr. Diederiks-Verschoor's Introduction to Space Law is an updated version of her 1993 book. The structure of the latest book is similar to her previous one, covering: boundaries of outer space; the space law conventions; exploration and use of outer space; environmental issues; preserving outer space for peaceful purposes; and trends in case law. This new edition includes, however, the most recent happenings in each of the book's sections. For example, in the section on cases in space law, she includes two newer cases.

In keeping with her previous edition, Dr. Diederiks-Verschoor summarizes the law succinctly and clearly, providing footnotes for the reader to pursue matters in more detail. While the second edition could carry more up-to-date references in the footnotes to include recent literature that may be needed for extensive research, nonetheless, for students of space law and others requiring an overview of legal issues and challenges faced by space practitioners and governments, her book is an excellent resource. All libraries should have a copy.

PROCEEDINGS OF THE THIRTY-EIGHTH COLLOQUIUM ON THE LAW OF OUTER SPACE, OCT. 2-6, 1995, OSLO, NORWAY (Am. Inst. of Aeronautics and Astronautics, 1996) and PROCEEDINGS OF THE FORTY-SECOND COLLOQUIUM ON THE LAW OF OUTER SPACE, OCT. 4-8, 1999, AMSTERDAM, THE NETHERLANDS (Am. Inst. of Aeronautics and Astronautics, 2000), 408 and 549 pp.

The annual Colloquia of the of the International Institute of Space Law of the IAF have provided a convenient forum for space law and policy enthusiasts to present and discuss their views since the beginning of the space age. Many of the old issues, like the upward extent of national sovereignty, are still with us, but there are many newer ones such as, for instance, issues relating to the international space station and property rights in outer space.

The presentations and discussions of these newer topics have undoubtedly added to the scope of coverage of the more recent Amsterdam Proceedings which is clearly revealed by the substantially higher number of printed pages.

* Compiled and edited by Michael A. Gorove, Attorney at Law, Associate Editor, J. SPACE L.

It must have been a difficult decision in connection with the fine editorial work of the AIAA to make a choice between competing desires, *i.e.* to curtail the number and lengths of presentations and discussions and thereby limit expenditures or to opt for a more comprehensive publication. At any rate, the second approach won out for the benefit of interested scholars and readers.

As to the general outlay of the proceedings, perhaps a future approach of the AIAA could be directed toward an effort of standardization of the articles in terms of font, text, and footnote arrangements by stipulating that submissions be made on e-mail attachments. This would likely allow easier formatting and could also serve purposes of uniformity and attractiveness.

SPACE SAFETY AND RESCUE 1997, edited by Gloria W. Heath and SPACE SAFETY AND RESCUE 1998, edited by Macgregor S. Reid and Walter Flury (Am. Astronautical Soc'y, Science & Technology Ser., vols. 96 & 99 (Univelt 1999 & 2000, pp. 400 & 398).

These two soft cover publications are the best analyses of Space Safety and Rescue of the particular period. The contributions were presented in connection with Symposia organized by the International Academy of Astronautics' Committee on Safety, Rescue and Quality and its subcommittee on Space Debris in 1997 and 1998. Both publications reflect the shift in NASA's philosophy to "faster, better, cheaper" which means less expensive projects and more frequent missions with tolerance for some minimal level of failures.

Organized under the headings of "New Concepts in Safety, Rescue and Quality in Space programs", "Risk Assessment and Management", "Space Debris Measurement, Modeling and Risk Analysis", "Space Debris Mitigation", and "New Challenges in Space Debris Research and Application" the wealth of scientific data presented by academicians as a joint Committee effort is quite impressive. Space lawyers who are concerned about the legal issues in connection with the rescue and return of astronauts, requirements for space debris mitigation and avoidance, will have to adjust their thinking and approach to take into account the most recent scientific and technical findings and suggestions. In this regard, the 1998 volume contains a number of valuable recommendations for lawyers and policy makers to consider both near-term (0-5 years) and mid-term (5-10 years) steps and measures for dealing with space debris and meteoroids, as well as radiation hazards.

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Legal challenges and commercial opportunities for Asia

11th-13th March 2001 (Regent Hotel, Singapore)

FIRST ANNOUNCEMENT

PROGRAMME AND

REGISTRATION INFORMATION

This Conference, jointly organised by the International Institute of Space Law and the Society of International Law, Singapore (SILS), is aimed at increasing space law knowledge and expertise in the Asian region. The economic and technological changes of the last decade have made space law increasingly important. No longer is space the exclusive domain of powerful nations using outer space for scientific or military purposes. A large proportion of satellites in space are now owned and operated by smaller nations or private corporations. Today, global communications relies heavily on radio signals to and from these satellites. The growth of the new economy, the Internet and e-commerce will therefore in part be determined by the legal frameworks regulating such use of outer space.

The International Institute of Space Law (IISL) intends to hold regional meetings every two years in a different region so as to provide a platform for interested parties in the region to learn about space law and to network with experts from all around the world. Singapore will host the first of these meetings, and will also host the IISL Board of Directors' bi-annual Meeting in conjunction with the Conference.

In addition to the above, this particular Conference will have the opportunity to build upon the recommendations and conclusions from a workshop held during the Third United Nations Conference on the Exploration and Peaceful Uses of Outer Space (UNISPACE III), Vienna, Austria, July 1999. It is hoped that the recommendations from this conference will have a significant impact on the further development of the legal regime for the peaceful uses of outer space.

The Society for International Law, Singapore (SILS) recognised the importance of this conference for the new global economy and decided to co-organize the conference. It is hoped that this conference will lay the foundations for the development of local and regional expertise in this important area of international law. As such, the conference will be structured so as to facilitate discussion and networking opportunities, and the Manfred Lachs Space Law Moot Court Competition will be held in

conjunction with the Conference to promote the study of space law amongst local and regional law students.

Co-Chairmen of the Conference

Professor Tommy Koh President, Society of International Law, Singapore
Dr. Nandasiri Jasentuliyana President, International Institute of Space Law, Former Director, UN Office of Outer Space Affairs

Workshop Coordinator: Ms. Tanja Masson-Zwaan, Secretary, IISL

Sunday, 11th March, 2001

From 15.00 onwards Arrival and Registration of Participants

18.00 - 20.00 Welcoming Dinner

Monday, 12th March, 2001

08.00 - 09.00 Breakfast and Late Registration

09.00 - 10.00 OPENING SESSION

09.00 - 09.05 OPENING WORDS

Professor Tommy Koh, President, Society of International Law, Singapore

09.05 - 09.25 WELCOMING ADDRESS

Minister for Communication and Information Technology, Singapore (invited)

09.25 - 10.00 KEYNOTE SPEECH: An Overview of the Major Legal Challenges Facing Space Activities in the 21st Century

Dr. Nandasiri Jasentuliyana, President, International Institute of Space Law; Former Director, UN Office of Outer Space Affairs

10.00 - 10.30 Refreshments

10.30 - 12.30 SESSION 1 - *Space Law and the Expanding Role of Private Enterprise, with Particular Attention for Launching Activities*

Chairmen: Prof. Tommy Koh and Dr. Nandasiri Jasentuliyana

Rapporteur: Mr. Michael Ewing-Chow, Faculty of Law, National University of Singapore

10.30 - 11.00 Discussion Paper Author: Dr. F. von der Dunk,
International Institute of Air and Space Law, Leiden University, The
Netherlands

11.00 - 11.30 Commentators:

11.00 - 11.15 Ms. Francesca Schroeder, Milbank, Tweed, Hadley & McCloy,
New York, USA (invited)

11.15 - 11.30 Dr. Huang Huikang, Department of Treaty and Law, Ministry
of Foreign Affairs, Beijing, People's Republic of China

11.30 - 12.30 Discussion

12.30 - 14.00 Lunch

13.00 - 13.15 Lunch speaker: Dr. Alfons Noll, Former Legal Adviser,
International Telecommunication Union, Geneva, Switzerland (invited)
The ITU in the 21st Century

14.00 - 16.00 SESSION 2 - *Safeguarding the Concept of Public Service in
View of Increasing Commercialization and Privatization of Space Activities,
with Particular Attention to the Global Public Interest & the Needs of
Developing Countries*

Chairmen: Prof. Tommy Koh and Dr. Nandasiri Jasentuliyana

Rapporteur: Dr. Ida Bagus Rahmadi Supancana, Supancana, Suastama
& Partners, Jakarta, Indonesia

14.00 - 14.30 Discussion Paper Author: Prof. Ram Jakhu, Law Faculty
McGill University, Montreal, Canada

14.30 - 15.00 Commentators:

14.30 - 14.45 Ass. Prof. Abu Bakar Munir, Faculty of Law University of
Malaya, Kuala Lumpur, Malaysia; Legal Adviser to Dubai Internet City,
UAE

14.45 - 15.00 Ms. Patricia Sterns, Law Offices of Sterns & Tennen, Phoenix
AZ, USA

15.00 - 16.00 Discussion

16.00 - 17.00 Refreshments

17.00 - 19.00 FINALS OF THE MANFRED LACHS SPACE LAW MOOT COURT

Transportation by bus to the Supreme Court (tbc) for the Final of
the Australasian Round of the Manfred Lachs Space Law Moot Court
Competition, hosted by the National University of Singapore

19.30 Dinner

Tuesday, 13th March, 2001

08.00 - 09.00 Breakfast

09.00 - 10.30 SESSION 3 - *The Legal Regulation of Remote Sensing in View of the Commercial Availability of Very High Quality Remote Sensing Imagery; the Need to Safeguard the Right to Privacy and the Principle of Non-Discriminatory Access to Data*

Chairmen: Prof. Tommy Koh and Dr. Nandasiri Jasentuliyana

Rapporteur: Ms Masami Onoda, External Relations/Earth Obs. Planning Dept., NASDA, Tokyo, Japan

09.00 - 09.30 Discussion Paper Author: Prof. Priyatna Abdurrasyid, Tetana Duta Konsulindo, Jakarta, Indonesia

09.30 - 10.00 Commentators:

09.30 - 09.45 Mr. K.R. Sridhara Murthi, Indian Space Research Organisation, Bangalore

09.45 - 10.00 Mr. Emmanuel Nabet, Managing Director, SPOT Asia, Singapore

10.00 - 10.30 Discussion

10.30 - 11.00 Refreshments

11.00 - 12.30 SESSION 4 - *The Development of Effective Mechanisms for the Settlement of Disputes Arising in Relation to Space Commercialization, Taking into Account Existing Arbitration Rules Used in International Practice for Dispute Settlement*

Chairmen: Prof. Tommy Koh and Dr. Nandasiri Jasentuliyana

Rapporteur: Mr. Tan Kok Peng, NUS 2000 Space Law Moot Team, Singapore

11.00 - 11.30 Discussion Paper Author: Prof. Chia-Jui Cheng, Chairman, Asian Institute of International Air and Space Law, Taipei, Taiwan ROC

11.30 - 12.00 Commentators:

11.30 - 11.45 Prof. Alexis Goh, University of Western Sydney (MacArthur), Sydney

11.45 - 12.00 Prof. V.S. Mani, School of International Studies, Jawaharlal Nehru University, Delhi, India

12.00 - 12.30 Discussion

12.30 - 14.00 Lunch

13.00 - 13.15 Lunch speaker: Prof. Doo Hwan Kim, Honorary President,
The Korean Association of Air and Space Law, Seoul, Korea
The Possibility of Establishing an Asian Space Agency

14.00 - 16.00 SESSION 5 - *Legal Issues of Expanding Global Satellite
Communications Services and Global Navigation Satellite Services, with
Special Emphasis on the Development of Telecommunications and E-
Commerce in Asia*

Chairmen: Prof. Tommy Koh and Dr. Nandasiri Jasentuliyana
Rapporteur: Mr. Ricky Lee, Minter Ellison, Australia

14.00 - 14.30 Discussion Paper Author: Prof. Francis Lyall, Faculty of
Law, University of Aberdeen, Scotland UK

14.30 - 15.00 Commentators:

14.30 - 14.45 Mr. Alan Auckenthaler, General Counsel INMARSAT, UK
(invited)

14.45 - 15.00 Prof. Toshio Kosuge, University of ElectroCommunication
Tokyo, Japan

15.00 - 16.00 Discussion

16.00 - 16.30 Refreshments

16.30 - 17.00 CONCLUDING SESSION

Prof. Tommy Koh, Dr. Nandasiri Jasentuliyana, Ms. Tanja Masson-
Zwaan

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A Registration Fee of 500 Singapore Dollars will be charged to private and
public sector participants. This fee includes all conference materials,
meals and social events.

No fee will be charged to academics and students upon written proof of
their affiliation.

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Information on alternative accommodation will also be available.

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MANFRED LACHS SPACE LAW MOOT COURT COMPETITION

2000*

Case of Homeria v. San Marcos

Statement of Facts

Maglandia, San Marcos and Homeria are neighboring states. Homeria is an island archipelago comprised of hundreds of small islands spread over an area of approximately 300 kilometers by 1,000 kilometers. The three nations share the same language and religious heritage, but developed distinct religious sects and linguistic dialects, as well as similar but distinct cultural traditions and practices. During the Cold

* Statement of Facts reproduced here with AIAA permission. For full texts, including the award-winning Brief, please see the Proceedings of the RIO Colloquium expected to be published in 43 PROC. COLLOQ. L. OUTER SPACE (AIAA, 2001).

War, Maglandia officially was neutral, but San Marcos and Homeria each received substantial technical and economic aid from the competing superpowers.

The relations between San Marcos and Homeria were characterized as "diplomatic brinkmanship." Both states have taken actions which have instigated diplomatic crises. However armed hostilities were averted, largely through the efforts of Maglandia acting as a neutral mediator. On occasion, the mediated resolution of a diplomatic crisis has included a program for cooperation between the states in various economic and technological areas. Nevertheless, San Marcos and Homeria have continued to be very suspicious of each other, and diplomatic incidents often have been accompanied by inflamed rhetoric.

Maglandia developed an independent space program, including an operational launch system, which competes on the open market as a launch services provider, offering launches of payloads into both low Earth orbit (LEO) and geostationary orbit (GSO). The launches are conducted from a facility located on a small island in the territory of Homeria, pursuant to a 99 year lease of land from the Homeria government. The tracking and control (T&C) center for the Maglandia launches, however, is located in the territory of San Marcos, also pursuant to a 99 year lease of government property from San Marcos. Both of these leases were executed as intergovernmental agreements on the same day in January, 1990, as part of a Maglandia-mediated resolution to a diplomatic incident between San Marcos and Homeria. The leases contain identical provisions except for the legal description of the leased premises and the specific purposes for which the premises can be used. Included among the lease terms is a provision prohibiting discrimination against or interference with the use of leased facilities for the launch or T&C of any payload. The two agreements were notified to the United Nations as treaties.

In 1992, the government of Homeria established a program for a geostationary telecommunications satellite named BARTSAT. The BARTSAT was launched using Maglandia's launch services in 1995. BARTSAT provides a full range of telephony services throughout the island archipelago, which otherwise lacks an effective and complete terrestrial communications infrastructure. The satellite had an intended useful life of 10 years, and cost US\$100 million, including launch costs. Maglandia's standard form of launch services contract was utilized for this launch, and provided that Homeria is the "launching State" of the payload, which was carried on the national registry of Homeria and filed with the United Nations pursuant to the Registration Convention. Furthermore, pursuant to the standard form of contract, Homeria agreed to be primarily responsible for the satellite commencing thirty days following its successful orbital insertion.

On December 15, 1999, pursuant to a standard form of launch services contract, Maglandia launched a telecommunications satellite,

LISAT, into a GSO for SMT&T, an agency of the San Marcos government. LISAT was spaced two degrees from BARTSAT on the GSO. LISAT was intended to provide commercial television and voice and data communications to customers throughout the geographic region, including customers in Maglandia, San Marcos and Homeria. On January 1, 2000, LISAT experienced a malfunction, which resulted in an intermittent loss of control over the physical positioning of the spacecraft. That is, the satellite developed a perturbation in its orbit and as a result, the satellite periodically intersected with the orbital slot occupied by BARTSAT. Nevertheless, LISAT remained capable of performing approximately 95% of its intended commercial telecommunications functions, and did not directly interfere with the functioning of BARTSAT.

Homeria government officials were concerned with the safety and security of BARTSAT, and engaged in close active monitoring of LISAT. This required the stationing of several additional personnel at the Maglandia tracking and control facility in San Marcos. Based upon such monitoring, the BARTSAT periodically was maneuvered, as deemed necessary as a preventative measure, to avoid either a collision with or harmful interference by LISAT. These maneuvers were very expensive, and interfered with the ability of BARTSAT to perform all its intended functions during the conduct of the maneuvers. These maneuvers also required the premature use of BARTSAT'S on-board attitude control and positioning propellants, thereby reducing the expected useful life of the satellite by an estimated two and one half years. Nevertheless, at no time did LISAT intersect the segment of the orbit where BARTSAT had been immediately prior to a preventative repositioning maneuver.

The perturbed orbit of LISAT slowly but inexorably extended further and further from the original orbital slot. Homeria held discussions with many other states and private satellite operators, but San Marcos was not invited and did not request to be included in these discussions. The consensus of the participants was that LISAT posed a substantial risk to other satellites. No other state or satellite operator, however, had engaged in active maneuvering of its satellite to avoid a collision with or harmful interference from LISAT.

On July 1, 2000, Homeria sent a diplomatic note to San Marcos requesting that LISAT be removed from the GSO as a safety precaution "for the benefit of the international community," by either de-orbiting the satellite or boosting it to a higher "parking" orbit. This diplomatic note stated that in the event San Marcos refused to remove LISAT from the GSO, Homeria reserved the right to take whatever action it deemed necessary for the protection of its citizens and property. San Marcos responded through official channels, and declined to remove LISAT from the GSO. The San Marcos response claimed that the satellite remained "95% functional" and that the alleged danger was exaggerated.

Three days after San Marcos issued its response, the BARTSAT exploded. Fragments of the BARTSAT struck LISAT, rendering the satellite completely useless. In the first few days following the explosion of BARTSAT, the popular press reported that measurements by scientists from around the globe indicated the presence of an abnormally high degree of radiation on the portion of the orbital arc occupied by BARTSAT immediately preceding the explosion. San Marcos claimed that the explosion of BARTSAT was intentional by Homeria, and for the precise purpose of destroying LISAT. Officials of Homeria issued a statement claiming that the explosion was purely accidental, and denied any intent to destroy the property of another state. The official statement of Homeria further claimed that it could not account for the reports of abnormal radiation readings. Privately, Homerian government sources suggested that LISAT may secretly have had a nuclear power source.

The statement of Homeria inflamed the population of San Marcos, and massive demonstrations against Homeria took place in every major city in San Marcos. An angry mob descended on the Maglandia T&C facility, and removed Homeria's personnel from the building. In addition, the mob seized the computers and records of Homeria located within the facility, and turned the property over to the San Marcos national police. In an official public statement, San Marcos announced that a review of these records revealed that BARTSAT was powered by a nuclear power source. That information was not contained in either the national registry of Homeria nor disclosed in the U.N. registry. San Marcos and Homeria denounced each other for "flagrant and blatant violations of international law."

Following the disclosure of its own records, Homeria conceded publicly that BARTSAT did in fact contain a nuclear power source. Homeria claimed that the use of a nuclear power source was reasonable for the satellite, that disclosure was not required, and that it acted in conformity with international law. In addition, Homeria claimed that the nuclear power source was not the cause of the explosion of BARTSAT. Tensions between Homeria and San Marcos reached an unprecedented intensity. Maglandia interceded, and offered to act as a mediator if both sides would agree to maintain the status quo. Through exhaustive diplomatic efforts, Maglandia was able to obtain agreement to a temporary cooling off period, and armed hostilities were averted.

Homeria and San Marcos each convened separate Boards of Inquiry to investigate the circumstances of the BARTSAT explosion. Officials of Homeria declined an invitation to participate in the San Marcos investigation, asserting that San Marcos already had all available information in the materials which were "improperly seized" at the Maglandian facility. Officials from San Marcos were not invited to participate in the Homerian investigation, for the stated reason that such persons could not add any "relevant" information. The San Marcos Board

concluded that the BARTSAT explosion centered in the nuclear power source, but could not reach a conclusion as to the precise event which triggered the explosion or whether the explosion was caused intentionally. The Board of Homeria also concluded that the explosion centered in the nuclear power source. However, the precise cause was identified as a lack of sufficient coolant as a result of the premature depletion of the coolant by the maneuvers to avoid a collision with the LISAT. The report emphatically concluded that the explosion was an accident.

Maglandia was unable to mediate a resolution of the crisis. Both San Marcos and Homeria claimed damages against the other. Through the good offices of Maglandia, the parties agreed to submit the dispute to the International Court of Justice for resolution. The parties also agreed to the Compromis.

San Marcos and Homeria are members the United Nations and the ITU, and are parties to the Outer Space Treaty, the Return and Rescue Agreement, the Liability Convention, the Registration Convention, and the Moon Agreement. In addition, the delegation of San Marcos to the U.N. General Assembly favored adoption of the Principles Relevant to the Use of Nuclear Power Sources in Outer Space, but the delegation of Homeria was not present at the General Assembly on the day the principles were adopted. All parties to this dispute are self-insured. There has been compliance with all procedures of the ITU. There are no issues relating to the jurisdiction of the Court, the standing of the parties, or the monetary amount of damages being sought by either party. In addition, the parties are conducting separate diplomatic discussions to resolve issues pertaining to the exclusion of Homertian personnel from the Maglandia T&C facility, and the seizure of Homeria's property.

The following issues are presented by the Compromis for decision by the Court:

1. Is San Marcos in breach of international law for failing and refusing to remove LISAT from the GSO?
2. Is San Marcos liable under international law for the premature loss of BARTSAT and the expenses of and lost revenues incurred during the monitoring and maneuvers to avoid a collision with LISAT?
3. Is Homeria in breach of international law for launching the BARTSAT with a nuclear power source without first disclosing its existence?
4. Is Homeria liable under international law for the damage to LISAT?

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