

THE SKY IS THE LIMIT - BUT WHERE DOES IT END? New Developments On the Issue of Delimitation of Outer Space

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Abstract

The discussion on the delimitation, and hence definition of 'outer space' as an area, and subsidiary to that on the need or desirability to have such a delimitation and definition, harks back to the beginning of the space age. Until then, it had been quite clear that every state exercised full sovereignty over the sky above its territory and territorial waters, whilst no one felt the need for finding out how high upward such sovereignty would exactly extend. With Sputnik, for the first time the practical question arose however whether there indeed was an upper limit to airspace, and if so, where it would lie. The debate since then has mainly been a theoretical one, partly because several important space-faring nations did not consider it necessary or even appropriate to establish a legally relevant fixed boundary between 'outer space' and 'airspace' as 'geographical' areas for human activities.

It is the main thrust of this paper, firstly, that this situation is changing. It is contended that in particular the recent adventures of SpaceShipOne which for a brief moment 'dipped' into outer space – if one agrees that outer space begins at an altitude of 100 km – bring the question of where 'outer space' begins back on the table. Consequently, wherever that question is indeed considered relevant, in the absence of any international agreement on such a delimitation or definition, viz. the need or desirability to establish

one, other legally relevant means are sought to deal with the issue.

Secondly, such development of alternate means has, in turn, its own indirect impact at the international legal plane. Such various developments as Australian national law referring to a lower boundary for outer space and the need to choose for certification of SpaceShipOne and crew may, in the end, through the mechanism of formation of international custom and *opinio juris*, lead to a customary legal rule.

The current paper thus, firstly, briefly recapitulates the discussion of the last decades on delimitation and definition of outer space, secondly, refers to a few events which directly touch upon this issue, thirdly, tries to analyse the legal aspects of the solutions chosen to deal with that, including the vexing question of formation of customary law, and finally tries to draw some conclusions with respect to the overarching question: if the sky is the limit, where does it end?

1. Introduction

In October 2004, a privately-paid, -built and -piloted vehicle by the name of SpaceShipOne achieved a major feat – winning the X-prize of US\$ 10 million, as well as getting thousands to sign up, in its aftermath, for a place in Sir Richard Branson's future Virgin Galactic seats for a trip higher upwards than any aircraft has ever flown.¹

Behind all the excitement and the discussions as to what this means for the future of space travel and space activities more in general, it also raised once more a question hitherto largely considered to be of a theoretical nature: where does outer space begin? Where would the territorial sovereignty of the underlying state, providing an easy legal tool for controlling such activities, extinguish; where by contrast would a different legal approach be necessary for controlling purposes in what basically constitutes a global commons?

2. Legal history

Many experts have discussed where outer space begins (often as part of the broader issue of the definition of outer space) ever since 1957. In that year, the orbits of Sputnik I posed the vexing question as to whether individual states could 'use' their well-established sovereignty over the airspace above their territories² to prohibit man-made space objects to be present above such territories.

The quick formalisation of one of the fundamental rules of international space law, that outer space itself remained outside any sovereignty as a *terra communis*,³ seemed to reinforce the need to establish a clear boundary between the two areas subject to regimes with such fundamental differences. Precedents could be derived from the discussion on the law of the sea. The 1958 treaties negotiated in Geneva dealt with the demarcation of territorial seas (where the sovereignty of the coastal states applied comprehensively, with the exception of the famed 'right of innocent passage') versus high seas (which were basically open to all states and regulated only at the international level).⁴

It soon turned out, however, that the newly-established Committee on the Peaceful Uses of Outer Space (COPUOS) could not establish any consensus on the boundary question.

Different states (and different experts, legal as well as non-legal) came forward with different proposals as to where the legal borderline would have to be drawn, variously based on scientific and/or practical considerations. Some adherents of a 'spatialist' approach, in addition, made a case for a more subtle zoning system, creating (an) intermediate space(s) between air space and outer space properly speaking, with combined or mixed characteristics. Even more importantly, amongst others some of the major space-faring nations considered establishment of a boundary premature, to say the least. They were hesitant to create artificial legal boundaries as long as the possibility of later technological developments ignoring a particular boundary chosen continued to loom large. More principally, finally, there were the adherents of full-fledged 'functionalist' theories, arguing that the application of the one or the other system of law should hinge *only* on the purpose of the activity and the characterisation of the hardware involved – air law for aircraft, space law for space objects.

As long as those vehicles that would clearly qualify only as aircraft remained at altitudes far below the lowest orbits that other vehicles clearly qualifying as space objects could maintain, and as long as any trajectory of the latter to (and from) their orbits would not run through another state's sovereign airspace, the question remained, indeed, a theoretical one.

Nevertheless, from time to time it raised its head. Thus, the absence of any established legal boundary may have been partly responsible for a

handful of equatorial countries claiming in 1976, through the famous Bogota Declaration, that those parts of the geo-stationary orbit (at an altitude of some 35,800 km) which were 'above' their respective territories were subject to their respective sovereignty. Apart from difficult legal arguments pertaining to the physical similarities between the geo-stationary orbit and the areas surrounding it – which nobody contested *were* outer space – it was in particular the political opposition of the large majority of non-equatorial states which, in the end, caused such claims to be silently discarded or at least watered down fundamentally.⁵

Then, there was the advent of the space shuttle in the 80's: a vehicle that functioned partly as a space object, partly as an aircraft. And while the US version, operating ever since, apparently never traversed the airspaces over foreign states on its way to or from orbit (which few would contest *was* in outer space, regardless of the absence of any borderline), the Soviet Buran, which flew only once, did have to return over various African countries and Turkey at altitudes which could arguably be seen as upper airspaces of those states – defined in a recent Study by the International Academy of Astronautics (IAA) by reference to a 100 km altitude.⁶

The Buran flight was unmanned, and never repeated afterwards anyhow, so the United States had to make their own choice regarding how to treat the space shuttle in legal terms. Focusing on the shuttle's aim of taking humans into outer space and back rather than to and from a different spot on earth, its being launched instead of taking off, the large phase where it effectively continued to operate as a spacecraft, as well as the desirability of qualifying its crew as astronauts rather than pilots, the US government quickly came to the

conclusion that the space shuttle was equivalent to a spacecraft (space object). This meant, *inter alia*, its launches would be registered under the Registration Convention⁷, not under the applicable ICAO regime. No other state protested, so that one can now safely assume that, indeed, the space shuttle legally speaking *is* a spacecraft. All this, however, of course did not solve the delimitation issue as such.

3. International discussions – COPUOS and the ITU

Thus, from time to time discussions in the Legal Subcommittee of COPUOS reverted back to the issue of delimitation. For example first the Soviet Union, then Russia, repeatedly put proposals on the table to come to an agreement of legally establishing the boundary at an altitude of 100 km. The rationale for choosing that altitude, apart from the nice round figure, was mainly that aircraft, as the main subject matter of most of international (as well as national) air law, would never be able to reach such altitudes in view of their dependency, for purposes of lift, upon a density of air not available in those regions. Conversely, space objects orbiting the earth (a major target for space law) could not sensibly do that *below* such an altitude, as the atmosphere from *their* perspective was too dense for staying 'up' in their orbit, the attendant atmospheric drag no longer being compensated by the centrifugal forces resulting from their velocity.⁸ Still, such discussions did not lead to any agreement for reasons indicated earlier.

Debate on the issue resurfaced once more when the Legal Subcommittee addressed a questionnaire to its member states on the issue of 'aerospace planes'.⁹ This conceptual follow-up to

space shuttles would enjoy double functionality (as aircraft transporting passengers from city to city, as spacecraft orbiting a satellite or taking crew to or from the space station) and hybrid operability (using jet propulsion when in airspace, rocket propulsion when in outer space), which brought the debate on spatialism-*versus*-functionalist back to the table – and in its wake also the question of delimitation and definition of outer space and such sub-issues as existence of a possible ‘right of innocent passage’ for spacecraft through another state’s airspace.

The particular Russian proposal to deal with the issue was presented in 1992, the questionnaire drafted on the basis thereof distributed in 1995, and the first comprehensive analysis of the replies presented in a note by the COPUOS Secretariat two years later still.¹⁰ Even more tellingly, the response was considered to be rather meagre at the time (at that point only 15 states having taken the trouble of answering), and the questionnaire remained on the agenda basically until today.¹¹

Summarily surveying the answers that were provided, the views remained as varied as they had been before. Yet, on a number of occasions it became clear that states continued to struggle with the issue of respective application of air law and space law. A few points were specifically worthy of note from this perspective.

Firstly, Pakistan referred to “altitudes lower than between 90 and 100 km”, where a spacecraft was “bound to decay within the next orbit” and thus, in the language of the COPUOS Secretariat’s summary, would make it “subject to rules of air law”.¹²

Secondly, the Russian Federation “observed that international practice (...) was evolving, whereby State sovereignty did not extend to space

located above the orbit of least perigee of an artificial Earth satellite (approximately 100 kilometres above sea level). In cases where flights have occurred below this level, State have furnished, on the basis of goodwill, relevant information to States whose territory was overflowed”.¹³ Relevant “provisions of international customary law in this field were evolving”, according to the same state.¹⁴

Germany finally adorned an extended analysis of re-entry trajectories of the US space shuttle with an interesting graphical depiction. It showed the area between 100 and 60 km altitude as a shaded zone (the lower altitude being referred to as being a mere 14-15 minutes before touchdown), placing the entry below a 100 km altitude at about 30 minutes prior to touchdown, and in the accompanying text equating this to “re-entry into the Earth’s atmosphere”.¹⁵ It needs to be added here, that a relatively large number of states in their answers referred to “the atmosphere” as the area where (as far as spatialism was applied or considered to apply) air law would rule.

To wrap up the summary picture at the international level, as indicated another area of international law where discussions on the delimitation and definition had, at some time, been rather intense concerned the geostationary orbit. Here, the Bogota Declaration of 1976 forced states to face the claim that parts of the geostationary orbit, almost 36,000 km out, were basically part of the sovereign territory of the underlying state.

This discussion for a large part took place in the context of the ITU, in view of the paramount role of the ITU in coordinating the use of slots in that orbit for satellite communication purposes. It is noteworthy, therefore, that the ITU Radio Regulations in the definition section (Article S1) was also

confronted with the need to deal with this issue. Thus, a “space station” for ITU purposes was defined to be “an object which is beyond, is intended to go beyond, or has been *beyond the major portion of the Earth’s atmosphere*”.¹⁶ Likewise, in defining a “spacecraft” reference was made to that – rather vague and unhelpful – definition of what ‘space’ should be taken to mean.¹⁷

One can hardly blame the ITU however for not being more precise when at the general international level states were unable to agree even on the need for a specific definition and/or delimitation of outer space. The result, however, was that the attendant insecurity and imprecision still remained.

4. National (space) law on the issue

Apart from the discussions within UNCOPUOS and the ITU, that is at the international level, the issue of delimitation of (national) airspace and (everybody’s) outer space also became a matter for deliberation at the level of national law. With the growing private involvement in space and space-related activities especially since the late 80’s, states were increasingly confronted with the need to legally monitor and control such private activities and started developing national space laws to deal with them.

In a number of crucial respects there is no detailed international guidance regarding how to implement international duties on the domestic plane – also pertaining, as briefly analysed above, to the issue of delimitation. Not only on a particular borderline between air space and outer space, but even on the *need* to have one, states diverged fundamentally in their opinions so as to preclude any

international authoritative statement in this respect from becoming possible.

At the same time, this did not erase the abovementioned need and desire for particular states to deal with private space activities by means of national law; and when states can find no authoritative international guidance on the issue, they go and find a solution on their own – with all the possible fragmentation resulting.

In trying to establish legal control over relevant private space activities, furthermore, there is an inherent tendency for states to base themselves on ‘spatialist’ notions. Whereas a private person or company would be likely to prefer a legal approach which combines all applicable rules to his activity in one handy regime, regardless of what takes place where (in other words, would prefer a ‘functionalist’ regime as much as possible), a state will be naturally inclined to delineate its competencies and the exercise thereof principally by means of geographical borders. Territorial sovereignty and territorial jurisdiction, more important and effective than all other forms of jurisdiction, are key to a state’s existence, and any particular state is even *defined* in international law by reference to a territory over which it exercises effective control. The history of inter-state disputes is replete with disagreements over territorial borders, which started to include the seas and oceans as soon as borders became applied to those areas as well.

When states, therefore, consider implementing national space law to apply the international space treaties on the domestic plane, naturally they tend to use territorial jurisdiction to define the scope of such laws. With it, at least in theory, comes a desire to delineate where such jurisdiction applies. And indeed, amongst the states so far having dealt with domestic legislation, several

have considered themselves forced to somehow deal with the issue of delimitation and definition of outer space – much as others have simply chosen, for the time being, to circumvent it.¹⁸

For example in Germany, where the potential need for licensing private spacecraft has not yet led to a distinct national *space* law, the Federal German Aviation Code in § 1(2) provides that “spacecraft, rockets and similar flying objects are regarded as aircraft *as long as they are in airspace*”, with the result of course that the other provisions of the Code then become applicable.¹⁹

As a matter of fact, already the very first national act on space, the 1958 US Act establishing NASA, defines “space” with a view to “space activities” as the area “outside the earth’s atmosphere”.²⁰ The atmosphere, it can be reiterated, is seen by many states and experts as equivalent to the area where air law applies. Until recently, the national space law coming closest to properly dealing with the issue was the South African one, where “outer space” was defined as “the space above the surface of the earth from a height at which it is in practice possible to operate an object in an orbit around the earth”.²¹ Keeping in mind amongst others the relevant statement taken from the Pakistani answer to the COPUOS questionnaire as quoted above, this would seem to point at a borderline at some 90 to 100 km altitude indeed, even if the South African government carefully refrained from quoting any figure on this.

This last – bold – step was taken by the Australian government. The original 1998 Act²² did not yet include any figure, or even an attempt to define outer space, along the lines of the Pakistani answer or the South-African Act. “Outer space” was simply referred to as such, e.g. in the definitions of

“launch”, “return” and “space object”.²³

In 2002, however, the Act was amended. Henceforth, the definitions of “launch”, “return” and “space object” replaced the reference to “outer space” with the phrase “an area beyond the distance of 100 km above mean sea level”.²⁴

The Australian authorities explicitly claimed this clear reference not to constitute any precedent or to prejudice in any sense the discussion at the international level – it was supposed to be a boundary for internal, domestic purposes only.²⁵ In other words: the Australian government excused itself for considering it necessary to quote a borderline for domestic legislative purposes, and kept its options open to immediately change that provision if ever it would be authoritatively agreed upon at the international level to establish a different boundary, or to not establish any boundary at all.

From a customary law perspective these developments certainly raise the question whether, at the national level, acceptance is slowly building that (a) some legal boundary will ultimately be necessary for states to create the legal certainty both they themselves and their private entrepreneurs crave for, and (b) that such a boundary would or should be situated at an altitude of 100 km or so. To the extent such acceptance becomes part of law and regulation, and would be expressed in addition by relevant official statements in COPUOS and/or the answers to COPUOS questionnaires moreover, it could then certainly come to constitute the state practice and contribute to the *opinio juris* as the two elements that together make up customary law. Perhaps more thorough research would unearth more growing acceptance still, but at any rate a trend seems to become visible.

So far, so good – one could still wonder to what extent such a precise borderline

made sense from a practical point of view, that is: had any realistic effect on the handling by governments of relevant space activities.

5. SpaceShipOne and recent US legal activities

All that changed with a Big Bang in October 2004 with the X-prize being won. This was not just about 'a' private space activity requiring some form of legal control not necessarily having to deal with any boundary between airspace and outer space. Here, that boundary was key to the whole undertaking. After all, the decisive – winning – element of SpaceShipOne's achievement was its presence twice within three weeks above an altitude broadly advertised as 'in outer space' – an altitude expressly quantified as 100 km. Of course, a mere advertisement by a private company cannot achieve the feat of constituting or establishing a fact of (international) customary law. But one is immediately reminded of NASA awarding astronaut status to those having been further away from the earth's surface than 100 km.

So the achievements of SpaceShipOne immediately raised assorted questions as to the legal treatment of similar ventures – trips – in the future (first with Virgin Galactic, then probably with others as well), in this case from within US jurisdiction – which does, however, not extend to outer space in the same manner as it extends to US airspace; so where does the one begin and the other end?

Of course, the US government could maintain its legal approach and refuse to refer to any specific borderline in its domestic legislation. It could well treat any private flight launched from US territory as just another launch, the spacecraft involved being subject to US

jurisdiction on the basis of US territory being used for the launch alternatively US registration of the space object, and not on the basis of its being in US airspace (which would directly have triggered the haunting perspective that private business, in every instance where the US government would determine such a boundary in such a manner as to encapsulate the whole flight within its national airspace for purposes of exercising territorial jurisdiction, would respond by sending space tourists higher yet precisely because these tourists want to be in *outer space!*).

So far, indeed the US authorities have followed such an approach. SpaceShipOne almost of necessity was given an *ad hoc*-treatment, but the perspective of more prizes, more private flights and certainly more and more passengers lining up and paying up with Sir Richard Branson coaxed the US government into more substantial legislative action.

The result so far was, essentially, the Commercial Space Launch Amendments Act of 2004.²⁶ It amended the various relevant Sections of the existing part of the US Code (Title 49) on launch activities and space transportation²⁷, to the extent of adding the concepts of "space flight participants", "suborbital trajectory" and "permit" (in addition to the existing concept of "license"), all to cater for the general inclusion of SpaceShipOne-like flights in the licensing regime of the Act.²⁸ In addition, "experimental permits" could now also be handed out, the main difference being that this last category could not apply to flights "carrying any property or human being for compensation or hire", only to flights *preparing* for such events.²⁹

In both cases, effectively a waiver from the Section on "liability insurance and financial responsibility requirements"³⁰

was construed, allowing a ‘permittee’ or ‘experimental permittee’ to forego expensive insurance – at the price of informing crew and space flight participants of the absence of US certification of the spacecraft and the attendant risks in flying to outer space, allowing such passengers to take their own risk-abating measures if they would so desire.³¹

In other words, for the time being a light regulatory regime was established to stimulate the take-off of private spaceflight activities in the wake of SpaceShipOne without fundamentally changing the underlying philosophy that it would be premature to establish any borderline between (US) airspace and outer space. *For the time being*, as the period of application of the Commercial Space Launch Amendments Act specifically allowed the Secretary of Transportation as of eight years from its enactment to propose new safety regulations, taking the then-state of play into account.³² Also, the Commercial Space Launch Amendments Act specifically calls for studies on risk sharing, international competition and safety issues, with a view to allowing updates of the Act if US private space tourism is to be protected or otherwise re-regulated.³³

6. Towards the future...

The main question is, then: is this current approach going to remain sufficient? The United States government may well have avoided the establishment of any boundary between airspace and outer space, creating what amounts to a functionally-based regime for space tourism whilst using its territorial jurisdiction over the launch site, but that might work satisfactorily only as long as such launches would take place exclusively from US

territory. Launches conducted from elsewhere overflying US territory, once becoming seriously possible, could no longer be legally controlled in that way as long as they would not fly at such a low altitude that no one would contest this to be US airspace, that is below a zone where it will be difficult or even impossible for a spacecraft to operate.

Already in regard of Sir Richard Branson it might be noted that he is a UK citizen, and Virgin Galactic has been established in the United Kingdom. In other words: that state may soon have to be less evasive than ‘defining’ “outer space” merely as to “include(...) the moon and other celestial bodies”.³⁴ Will the United Kingdom, or for that matter the Russian Federation (whose Mir space station had after all in 2001 constituted the original target for the first space tourist-ever Dennis Tito) – both not the least amongst the space-faring nations! – be tempted to follow the Australian example, in view of all the other references to 100 km altitude collected in the present paper? Australia may have modestly and explicitly limited the scope of its own delimitation so as to preclude anyone from perceiving this to provide some form of precedent – if other states would copy such a ‘non-precedent’ (which, after all, will not have come about totally arbitrarily) Australia obviously cannot stop them, and the country *volens volens* may have provided a basis for establishment of a relevant customary rule.

And what happens if a state clinging to non-delimitation would find a foreign-registered, foreign-launched private passenger spacecraft to be present vertically above its territory at an altitude neither unequivocally considered airspace nor unequivocally considered outer space? Would it feel itself entitled to apply for example tort law on a territorial basis to liability

issues possibly arising? Or would it be content to wait and see whether its interests, persons or property would actually be harmed? And if that, in turn, would mean *any* event vertically above its territory might become subject to its jurisdiction, would that not stifle the interests in a flourishing private space industry? What if other nations start applying similar all-out legal approaches on a basis of reciprocity?

Ultimately, the development of private space flight depends on legal certainty and predictability. Now that the means to unequivocally establish one's position in three dimensions relative to the earth with GPS, GLONASS and soon Galileo are within everyone's reach, should we not work towards an agreement on establishing a boundary line before possible legal disputes would become a nasty political reality? Over the past centuries, global fishing, global shipping transport and sea-based communications have flourished immensely partly because a certain Hugo Grotius proclaimed the freedom of the high seas – which needed a determination where those high seas began and ended. Notwithstanding that those boundaries have shifted over time, have become more complex with in-between zones and have led to a number of border disputes; who is to deny that the absence of an off-shore non-tangible boundary out at sea would have produced far worse results?

Perhaps the sky is the limit to private spaceflight in economic terms, but if the legal certainty and justice is to be ensured which allows for a beneficial and balanced development thereof, we should delineate – and hence limit! – the extent to which territorial jurisdiction could reach for the sky. We should finally start working on a boundary between the 'high seas' of outer space (and then provide for an appropriate transportation regime for

that international area) and the sovereign area of national airspaces. In other words, it is time to seriously reconsider whether we should not firmly but flexibly establish the boundary between airspaces and outer space at an altitude of 100 km, following the considerable number of instances where this number has already been referred to. After all, what is wrong with a nice round figure?

Endnotes

¹. See e.g. G. Maryniak, *When will we see a Golden Age of Spaceflight?*, in 21 Space Policy (2005), 118.

². See also Art. 1, Convention on International Civil Aviation, Chicago, done 7 December 1944, entered into force 4 April 1947; 15 UNTS 296; TIAS 1591; Cmd. 6614; UKTS 1953 No. 8; ATS 1957 No. 5; ICAO Doc. 7300.

³. Cf. Princ. 2, 3, Declaration of Legal Principles Governing the Activities of States in the Exploration and Use of Outer Space, UNGA Res. 1962(XVIII), of 13 December 1963; UN Doc. A/AC.105/572/Rev.1, at 37; and Artt. I, II, Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies (hereafter Outer Space Treaty), London/Moscow/Washington, done 27 January 1967, entered into force 10 October 1967; 610 UNTS 205; TIAS 6347; 18 UST 2410; UKTS 1968 No. 10; Cmnd. 3198; ATS 1967 No. 24; 6 ILM 386 (1967).

⁴. Cf. Artt. 1, 2, 14-17 (on the right of innocent passage), 24 (determining the

contiguous zone to extend to at most 12 miles off-shore, which inherently also determined the maximum breadth of the territorial sea), Convention on the Territorial Sea and the Contiguous Zone, Geneva, done 29 April 1958, entered into force 10 September 1964; 516 UNTS 205; TIAS 5639; UKTS 1965 No. 3; Cmd. 584; ATS 1963 No. 12; and Artt. 1, 2, Convention on the High Seas, Geneva, done 29 April 1958, entered into force 30 September 1962; 450 UNTS 82; TIAS 5200; 13 UST 2312; UKTS 1963 No. 5; Cmnd. 584; ATS 1963 No. 12.

⁵. Cf. however Colombia, as late as 1998 still claiming the relevant "segment of geostationary orbit to which it is entitled by virtue of its geographical location, (...) being included in article 101 of its Political Constitution as part of its territory" would fall within its jurisdiction; A/AC.105/635/Add.5, p. 4.

⁶. According to the IAA Cosmic Study on Space Traffic Management, yet to be published, at about 8,000 km from its landing site Buran slipped beneath an explicitly quoted altitude of 100 km.

⁷. Convention on Registration of Objects Launched into Outer Space (hereafter Registration Convention), New York, done 14 January 1975, entered into force 15 September 1976; 1023 UNTS 15; TIAS 8480; 28 UST 695; UKTS 1978 No. 70; Cmnd. 6256; ATS 1986 No. 5; 14 ILM 43 (1975).

⁸. So e.g. the IAA Cosmic Study on Space Traffic Management, yet to be published.

⁹. Questionnaire on possible legal issues with regard to aerospace objects, 1995 (A/AC.105/C.2/1995/CRP.3),

based on a Russian working paper presented in 1992 (A/AC.105/C.2/L.189).

¹⁰. Matters relating to the Definition and Delimitation of Outer Space and to the Character and Utilization of the Geostationary Orbit, Including Consideration of Ways and Means to Ensure the Rational and Equitable Use of the Geostationary orbit without prejudice to the Role of the International Telecommunication Union, A/AC.105/C.2/L.204, of 18 February 1997.

¹¹. Cf. A/AC.105/635/Add.12, of 9 March 2005.

¹². A/AC.105/635, of 15 January 1996, p. 6; A/AC.105/C.2/L.204, of 18 February 1997, at § 18.

¹³. A/AC.105/C.2/L.204, of 18 February 1997, at § 63; A/AC.105/635/Add.1, of 15 March 1996, p. 6. An example next referred to the US government informing the Soviet Union in 1990 of the shuttle overflying eastern regions of the latter, though it was expressly claimed once more to be a matter of courtesy, not a legal precedent.

¹⁴. A/AC.105/C.2/L.204, of 18 February 1997, at § 63.

¹⁵. A/AC.105/635, of 15 January 1996, pp. 4-5.

¹⁶. Italics added. Term S1.64, Radio Regulations.

¹⁷. Term S1.178, Radio Regulations.

¹⁸. For example, the UK Outer Space Act, 18 July 1986, 1986 Chapter 38; National Space Legislation of the

World, Vol. I (2001), at 293; Space Law – Basic Legal Documents, E.I; 36 ZLW (1987), at 12; Sec. 13(1), determines that, for the purpose of the Act, ““outer space” includes the moon and other celestial bodies”. The same phrase is found in the Hong Kong Outer Space Ordinance, An Ordinance to confer licensing and other powers on the Chief Executive to secure compliance with the international obligations of the People’s Republic of China with respect to the launching and operation of space objects and the carrying on of other activities in outer space, 13 June 1997, as amended 1999, Chapter 523; National Space Legislation of the World, Vol. II (2002), at 403; 51 ZLW (2002), at 50; Sec. 2(1).

¹⁹. *Italics added. See A/AC.105/635, of 15 January 1996, p. 12.*

²⁰. Sec. 103(1)(A), National Aeronautics and Space Act, Public Law 85-568, 85th Congress, H.R. 12575, 29 July 1958; as amended through 1983; 72 Stat. 426; Space Law – Basic Legal Documents, E.III.1.

²¹. Sec. 1, 15th indent, Space Affairs Act, 6 September 1993, assented to on 23 June 1993, No. 84 of 1993; Statutes of the Republic of South Africa – Trade and Industry, Issue No. 27, 21-44; National Space Legislation of the World, Vol. I (2001), at 413.

²². An act about space activities, and for related purposes, No. 123 of 1998, assented to 21 December 1998; National Space Legislation of the World, Vol. I (2001), at 197.

²³. Sec. 8, An act about space activities, and for related purposes.

²⁴. Sec. 8, Space Activities Act 1998, Act No. 123 of 1998 as amended by Act No. 100 of 2002.

²⁵. See S. Freeland, *The Australian Regulatory regime for Space Launch Activities: Out to Launch?*, in Proceedings of the Forty-Seventh Colloquium on the Law of Outer Space (2005), 60, 63.

²⁶. Commercial Space Launch Amendments Act of 2004, Public Law 108-492, 108th Congress, 23 December 2004, 49 U.S.C.; 118 Stat. 3974.

²⁷. Commercial Space Transportation – Commercial Space Launch Activities, 49 U.S.C. 70101 (1994) (hereafter Title 49 of the US Code).

²⁸. E.g. Sec. 2(b), Commercial Space Launch Amendments Act, sub (9), (10), and Sec. 2(c), sub (4), (5), amending resp. Secc. 70102, 70104, Title 49 of the US Code.

²⁹. Sec. 2(c), Commercial Space Launch Amendments Act, sub (16), inserting Sec. 70105(a) into Title 49 of the US Code.

³⁰. Sec. 70112, Title 49 of the US Code.

³¹. See Sec. 2(b), Commercial Space Launch Amendments Act, sub (13), amending Sec. 70105(b), Title 49 of the US Code.

³². Sec. 2(b), Commercial Space Launch Amendments Act, sub (14).

³³. Sec. 3, Commercial Space Launch Amendments Act.

³⁴. See again Sec. 13(1), UK Outer Space Act.