

SUN, SEA, SAND ... AND SPACE: LAUNCHING TOURISTS INTO OUTER SPACE FROM THE DUTCH CARIBBEAN

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Abstract

With the first space tourist flights coming ever closer to reality, the interests in becoming part of this challenging new chapter of human spaceflight are also spreading across the globe. One of the legally most interesting projects concerns the plans of Space Experience Curaçao, a Dutch company, to develop a spaceport on the island of Curaçao in the Dutch Antilles, so far famous largely for its holiday resorts. The aim is to allow as of 2014 commercial spaceflights to be undertaken from the island as well as to start offering such flights itself from the island.

The Dutch Antilles are part of the Kingdom of the Netherlands. Hence, for the purposes of for example the international space treaties, it falls under the responsibility and liability of the Netherlands. The Netherlands however, while indeed having enunciated a national space law to implement the relevant provisions of those treaties vis-à-vis private space operators, has so far excluded the Dutch Antilles from the scope of the licensing regime thereby established. Furthermore, the likely involvement of US operators as clients or partners in such ventures also raises the issue of application and applicability of relevant US law on the matter.

The paper will analyse these main legal aspects in order to arrive at a conclusion regarding the extent to which private commercial spaceflights

undertaken from Curaçao are appropriately covered for the purposes of, in particular, international responsibility and liability under the space treaties.

1. The plans of Space Experience Curaçao (SXC)

When Scaled Composites in October 2004 succeeded in winning the X-Prize, proving the viability of using privately financed, developed, built and operated spacecraft to transport humans to the edge of outer space in a re-usable vehicle and thus inaugurating the era of sub-orbital space tourism,¹ one of those looking on in fascination was Mr. Harry van Hulten, a Dutch test pilot and major with the Dutch Air Force. Upon his return to the Netherlands, he contacted Mr. Ben Droste, amongst others former Commander of the Dutch Air Force, former Chairman of the Board of the Dutch Space Agency and former Dean of Delft University's Faculty of Aerospace Sciences.

Rapidly, their discussions evolved into the establishment of Space Experience Curaçao (SXC), a Dutch limited liability company aiming to develop space tourism activities from the island of Curaçao in the Caribbean.² Curaçao, part of the Dutch Antilles, was known to many as a sunny seaside resort with beautiful sandy beaches, but had been suffering several economic setbacks over the last decades and could certainly do with any economic boost

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such as a new attraction for tourists, now more than ever its main source of income.

More in detail, SXC plans to undertake four sets of activities:

1. The building, operation and exploitation of a Spaceport Curaçao adjacent to Hato Airport at Willemstad, in order to offer the facilities to private or other operators interested in launching manned as well as unmanned space vehicles from Curaçao.
2. The marketing, sales and operation of spaceflights from the Spaceport itself.
3. The operation and exploitation of a space experience centre at the Spaceport, allowing tourists not able or willing to take flight themselves to enjoy other elements of 'the space experience'.
4. The operation and exploitation of a knowledge centre targeted to support and stimulate economic activities on the island with the high technology expertise which comes with the conduct of space activities.

Since from a space (law) perspective the last two activities are not relevant the remainder of this analysis will only deal with the first two activities, the operation of a spaceport and the provision of spaceflights from that spaceport. Moreover, as the private launch of unmanned space vehicles is, in general terms, already a quite well-known phenomenon, the focus here will be on the launch of *manned* space vehicles.

2. The international legal context

The Kingdom of the Netherlands, of which the Dutch Antilles including Curaçao, even after the very recent establishment of the latter's status as an 'autonomous land'³, form part, has

ratified all five UN-originating space treaties. When it did, it did so also on behalf of the Dutch Antilles: the 1967 Outer Space Treaty⁴ on 10 July 1969⁵, the 1968 Rescue Agreement⁶ on 10 July 1980⁷, the 1972 Liability Convention⁸ on the same date⁹, the 1975 Registration Convention¹⁰ once again on the same date¹¹ and finally the 1979 Moon Agreement¹² as it entered into force on 11 July 1984.

As a consequence, there is no question that the Netherlands is the international respondent for any international legal claims that would arise out of SXC's operations. For example, flights conducted from Spaceport Curaçao would qualify as "national activities in outer space" for the purpose of Article VI of the Outer Space Treaty – certainly as long as the 100 km-altitude line above which these flights will culminate is not officially ruled out as providing for a borderline between national airspace and outer space.¹³ Thus, the Netherlands would be fully internationally responsible for those activities in case other states would claim they violate some rule of international law such as that of national sovereignty over airspace.

Similarly, at the very least the use of territory that under international law still has to be qualified as Dutch territory will, under Article VII of the Outer Space Treaty in combination with the Liability Convention¹⁴, lead to international liability for the Netherlands for any damage caused by space objects launched from Curaçao such as those involved in SXC operations.

To quote one last example, the Netherlands further to its qualification as a "launching State" for any object so launched and Article VIII of the Outer Space Treaty, would be obliged to register any such launches from the Dutch Antilles under the Registration

Convention, both in a national register and in the relevant UN register.¹⁵

3. The national context: the Dutch Space Law of 2007

For the general purpose of implementing its obligations under the aforementioned UN space treaties, in particular with a view to the growing level of private participation in space activities in the Netherlands,¹⁶ in 2007 the Dutch Space Law was enacted¹⁷.

The Dutch Space Law provided for a licensing regime with respect to private space activities, defined as “the launch, the flight operation or the guidance of space objects in outer space”¹⁸, as long as “performed in or from within the Netherlands or else on or from a Dutch ship or Dutch aircraft”¹⁹.

By Order in Council the scope of the application of the Law and its licensing system may be extended in two directions. Firstly, the Law may be so applied to “designated space activities that are performed by a Dutch natural or juridical person on or from the territory of a State that is not party to the Outer Space Treaty or on or from a ship or aircraft that falls under the jurisdiction of a State that is not party to the Outer Space Treaty”.²⁰

Secondly, its application may be extended to “the organization of outer-space activities by a natural or juridical person from within the Netherlands”.²¹

As to the first, the major reasoning behind this option was to prevent gaps in the application of the Outer Space Treaty from appearing as far as the Netherlands could reasonably be expected to help it. The option allowed extension of the application of Law, otherwise under Article 2(1) scoped exclusively *ratione loci*, to include cases where *no* state would *ratione loci* feel obliged to exercise jurisdiction, as

long as the Netherlands could still exercise their jurisdiction *ratione personae*.

As to the second, apparently the Dutch authorities did not consider those organization activities without further ado to lead to liability for the Netherlands under the Liability Convention, for example as constituting ‘procurement’ thereof²². Interestingly, the adjoining explanatory memorandum specifically refers to the commercial organization of space tourist flights as one of the activities under this heading which might in the not-too-distant future require application of the Law under this heading.²³ Of course space tourist flights conducted themselves from the territory of the Netherlands would fall directly within the scope of Section 2(1) of the Law.

4. Application of the Dutch Space Law to the Dutch Antilles

Already the terminology of the Dutch Space Law indicated, by referring plainly to “the Netherlands”, that only the European part of the Kingdom was intended to be covered, and the explanatory memorandum confirmed beyond doubt that the Law was not supposed to deal with private space activities from the Dutch Antilles. Which so far leaves out SXC and its activities from the scope of application of the Law and its licensing regime.

The reasons for leaving out the Dutch Antilles were essentially political ones, including the sensitivities involved in a colonial motherland telling its colonies how to legislate, the insistence of Aruba under its *status aparte* to flatly refuse all space activities to be conducted from its territory in any event, and the general intention of the other Antilles of, should this become

necessary or desirable, indeed drafting some (local) legislation taking care of the matter.

As a consequence Curaçao, thanks to SXC and the positive reception its plans have received on the island, is now also going to develop its appropriate legal regime, a kind of local version of a national space law.²⁴ Most fundamentally, such a local regulation will have to take care of the international responsibility and liability as still resting with the Dutch government in the Netherlands, as well as with some version of a local registration.

If somehow Curaçao would fail to do so, or to do so in a manner considered sufficient for the purpose by the Dutch government, the question reverts back to whether the latter would then be willing and able to use the options to extend the scope of the Law by means of an Order in Council to ensure application of the licensing system on the island as well.

The first option mentioned earlier is formally targeted at a different situation. An absence of (appropriate) local regulation in Curaçao may perhaps equate to an absence of local application of the Outer Space Treaty, but it would be to the detriment of the Dutch government (in other words, essentially a domestic issue), not of the claimant state, which is the main concern and *raison d'être* of the international space treaties as far as these issues are concerned. It would be stretching this clause rather far if it were to be used as an argument for extending the scope of the Dutch Space Law to Curaçao, even apart from the political issues.

This would be considerably different with the second option, however. Though it would only work to the extent the *organization* of the activities would take place from the Netherlands,

any exercise of territorial jurisdiction over that part of the Kingdom would come perfectly natural; and with the explicit reference to space tourism in the accompanying memorandum nobody could feel taken by surprise. Of course, as mentioned, SXC at least presently is a Dutch company, and the plans of SXC clearly amount to 'organizing' the spaceflights – if not considerably more. The least one could say, is that this option could be a last-resort stick-behind-the-door in case the drafting process in Curaçao does not satisfy the Dutch authorities, worried about Dutch international responsibility and liability.

5. The involvement of the US legal regime for private manned spaceflight

In the above already a few times mention has been made of the United States, so before addressing the further issue of prospective local Curaçao regulation, the question will be addressed how the US legal regime may become involved in the context of private commercial manned spaceflight from the island. The United States happens to be in the possession of the largest experience with regulating private spaceflight in general and of the most elaborate national regime, even if only of a temporary nature, for *manned* private spaceflight with the latest fundamental amendments to the Commercial Space Launch Act²⁵ and follow-on regulations codified in the Code of Federal Regulations.

This US legal regime actually may become involved along two lines, both focusing on the US licensing regime for operating spaceflights (as the operation of Spaceport Curaçao itself as a launch facility would remain exclusively in Dutch hands). The US licensing regime applies not only *ratione loci* to flights

conducted from the United States, but also to launches conducted elsewhere, namely *ratione personae* as far as undertaken by “a citizen of the United States”, under three different scenarios.²⁶

The first pertains *inter alia* to cases where that citizen is to be defined as “an entity organized or existing under the laws of the United States or a State” so that any US company launching from SXC facilities would automatically require such a license.²⁷

The second and third both pertain to cases where such a citizen is by contrast to be defined as “an entity organized or existing under the laws of a foreign country if the controlling interest (as defined by the Secretary of Transportation) is held by an individual or entity described in subclause (A) or (B) of this clause [meaning Section 70102]”, where the one scenario relevant here requires that the launch takes place “in the territory of a foreign country if there is an agreement between the United States Government and the government of the foreign country providing that the United States Government has jurisdiction over the launch”.²⁸ This reflects obviously a more complex case, where a company is not a US company under international law (being incorporated outside the United States) yet is controlled by US interests as indicated, and operates from Curaçao with Curaçao / The Netherlands willing to agree to US jurisdiction being exercised over the launch.

In so far as this regime would simply apply to US companies using Spaceport Curaçao as (one of) their base(s) for manned spaceflight operations, the question arises regarding the nationality of the potential customers which might seek the services of SXC. It is probably fair to say that at present globally speaking three companies have plans

advanced far enough to be taken into consideration here: Virgin Galactic²⁹, XCOR³⁰ and Rocketplane³¹.

Of these, the latter two are without further ado US companies, and hence would require a US license under the Commercial Space Launch Act regardless of whether Curaçao (or the Netherlands, should the last-resort option there become reality) would come to require a license for their launch activities as well – the first scenario mentioned.

The former, however, is a UK company, part of the UK Virgin Group consortium,³² with no indication that a “controlling interest” under a normal interpretation would be held by US citizens or entities. On the other hand, Virgin Galactic is using the technology of Scaled Composites, a US company, brought into a separate daughter company The Space Company, a US company as well even if majority-owned by Virgin Galactic.³³ If therefore the US Secretary of Transportation, read the FAA’s Office of Commercial Space Transportation (OCST), would come to define “controlling interest” along the lines of such involvement of critical US-patented and US-owned technology, Virgin’s operations might still require a US license under the Commercial Space Launch Act.³⁴ This may be stretching the concept of “controlling interest” quite far, however, and even if the FAA’s OCST would define it as such, application of the licensing regime would furthermore be subject to an agreement with Curaçao / The Netherlands thereon – the other scenario mentioned.

The relatively limited number of companies (at least soon) able to offer manned spaceflight capabilities furthermore might well lead to even closer cooperation between some of them, for example through such mechanisms as ‘dry lease’ or even ‘wet

lease' of space vehicles from the one operator to the other. For US companies the key question then is whether such leases would qualify as "launch[ing] a launch vehicle" in terms of the Commercial Space Launch Act, so as to trigger the automatic application of the license requirement under the first scenario.³⁵

The concepts of 'dry lease' and 'wet lease' so far are complete unknowns in space law, no doubt since so far private commercial manned spaceflight has remained limited to a few flights of space tourists on public vehicles – the Russian Soyuz – to a public facility – the International Space Station. The key elements of the concepts, however, are quite clear.

A 'dry lease' would simply refer to the lease of the spacecraft as such, whereby all relevant operations are conducted by the lessee. Consequently, the US authorities would be rather unlikely to qualify the lessor's involvement as amounting to "launch[ing] a launch vehicle" so as to require a license under the Commercial Space Launch Act – while, by contrast, the export of the spacecraft would be covered by the US ITARs.³⁶

This would be rather different for a 'wet lease': the craft leased, the crew and the technical operations will all be the lessor's responsibility, essentially only marketing and selling would be the lessee's responsibility. What is more, such key elements of 'wet lease' are quite familiar in air law to the extent of having been dealt with in some international treaties.³⁷

In consequence, there can be little doubt that the US authorities would regard a spaceflight undertaken with a US company as a 'wet lessor' as "launch[ing] a launch vehicle".

It should be clear, however, that the mere existence and applicability of the US regime does not do away as such

with the need to establish a local Curaçao regulation.

6. Towards local Curaçao regulation

This brings the issue back to what Curaçao should or would do, *inter alia* with a view to filling any gaps arising from (non-)application of Dutch and US legislations or to dealing with any inconsistencies between those.

When drafting their local regulation, Curaçao would likely – following the lead of both the two fundamental types of activities that SXC is envisaging and the twofold approach to the licensing system that the United States³⁸ is developing – separate the licensing of the spaceport operations from those of the spaceflights themselves.

Licensing of spaceport operations will likely be of a more general nature, as it has to deal basically only with liability issues (spaceport operations themselves not easily qualifying as "activities in outer space" under Article VI of the Outer Space Treaty), and those liability issues will presumably also be tackled in the licenses for the spaceflights themselves. It could, for example, be provided for a certain period covering in principle all launches that will actually be carried out in that period – one key parameter here being that indeed the spaceflight operator itself will have a sufficiently elaborate license himself, whether under the Curaçao regulation-to-be or under another state's licensing system.

The licenses for spaceflights, by contrast, are likely to start out being granted on a one-by-one basis, on the assumption that the specific technology and operational know-how will change from launch to launch even with the same spaceflight

operator. Only as track records of certain spaceflight vehicles start to build up, might class licenses or licenses for a certain number of launches become a feasible option for the regulator.

As to the further substance of the licensing obligations, in the former case the supremacy of territorial sovereignty of the Netherlands and its international constitutional arrangements vis-à-vis Curaçao as well as the absence of a license for *spaceport* operations under US law should lead the Curaçao authorities to implement and apply the prospective license obligation without much deference to any US (or other) licenses for *spaceflight* operations (and whatever requirements these may have imposed). It would be sensible though to actually require such a spaceflight license before Spaceport Curacao would be allowed to offer its launch site services to non-Dutch customers under its own spaceport license, so as to ensure that the part of the operations which is controlled by the spaceflight provider is also sufficiently screened before being allowed to proceed.

Especially in the latter case of a spaceflight license, however, efficacy and minimising bureaucratic hurdles would call for the possibility in the local licensing process to defer to other states' licenses, if considered sufficiently elaborate and precise to cover the Dutch interests in terms of international responsibility and liability, and perhaps even to waive the license requirement altogether. Those Dutch interests as a minimum include the possibility that international claims under the Liability Convention would be addressed to the Netherlands and should ensure that such claims would give rise to appropriate reimbursement and insurance obligations. Moreover, it would at least make sense to include in those licenses the same or similar

requirements in particular the US regime, as the most articulate on the issue, would currently impose were it to apply.

Also, the Curaçao regulation should provide for a solution to the registration issue, in close cooperation with the Dutch authorities in the European part of the Kingdom. The Registration Convention explicitly speaks of states (the "launch State(s)") being required to take care of national and international registration, and as indicated the Netherlands has established a national register following the 2007 Dutch Space Law. Whilst this is limited to "space activities as referred to in Section 2", in first instance therefore excluding those undertaken from the Dutch Antilles, any extension of the scope of the Law by means of an Order in Council could easily take care of the fact that the Netherlands remains responsible also for registration of relevant flights from Curaçao.³⁹

And as for the Registration Convention, it does allow states considerable discretion as to the "contents (...) and the conditions under which it is maintained".⁴⁰ This would also allow the Netherlands and Curaçao to avoid a formal extension of the scope of the Law. A solution could be envisaged whereby Curaçao would develop its own, local version of a national register, and in cooperation with the Dutch authorities would ensure that the appropriate information, in accordance with Articles III and IV of the Registration Convention, will end up in the international register.

7. Concluding remarks

Without the establishment of a 'local space regulation' by and for Curaçao as indicated – and as likely being developed soon – the only real 'gaps'

that would arise would be on the domestic front, within the Netherlands. Since the Kingdom as a whole would remain internationally responsible and liable for any activities from the island such as are being developed by SXC, the current absence of any such regulation would leave the Kingdom exposed to international responsibility and liability claims for such activities without any proper legal or regulatory guarantees.

The interests of the Netherlands and Curaçao, however, would go further than merely filling this domestic gap in an appropriate manner – which at the same time will make it very likely that the gap will soon be filled, indeed. The regulatory regime to be developed will thus offer all parties concerned, not just the Netherlands, legal certainty on their respective responsibilities, liabilities, rights and obligations, and thus allow the activities concerned to maximise the benefits for Curaçao, the Netherlands and the private parties involved. It will also, obviously, enhance the general trust of public and customers alike in those activities, which would seem the only way to make the business proposals come true and make them generate the required economic activity without unduly endangering, for example, the local environment.

Finally, it will be clear that the US regulatory regime will become involved in various manners (including the export control issues not further discussed here). Whilst it will make sense for the Curaçao regulation-to-be to closely scrutinise and in many respects follow the US regime, it will also be important to ensure that specific local or national legal aspects are not overlooked, or *de facto* left for the US authorities to regulate.

After all, whilst application of the US regime in many cases would be a given,

the territorial sovereignty of the Kingdom of the Netherlands and the autonomous decision-making powers of Curaçao do not (and should not) principally rule out the possibility for other customers to use the island's facilities – such as with Virgin Galactic, potentially bringing in also the much less articulate UK regulatory regime. In all events, the underlying legal and regulatory basis will be a locally applicable regime, even as existing applicability of US or other national regimes will be taken into consideration as appropriate. In that way, Curaçao will become a truly attractive private destination not only for reasons of its sun, sea and sand, but for 'its' space also.

Endnotes

¹. See, e.g. S. Freeland, *Up, Up and ... Back: The Emergence of Space Tourism and Its Impact on the International Law of Outer Space*, 6 *Chicago of International Law* (2005), 1-22; S. Hobe & J. Cloppenburg, *Towards a New Aerospace Convention? Selected Legal issues of "Space Tourism"*, *Proceedings of the Forty-Seventh Colloquium on the Law of Outer Space* (2005), 377-85; the author's *Passing the Buck to Rogers: International Liability Issues in Private Spaceflight*, 86 *Nebraska Law Review* (2007), 400-38.

². See for further details <http://spaceexperiencecuracao.com/>.

³. A referendum on 15 May 2009 confirmed the transition per 10 October 2010 of Curaçao from being part of the Dutch Antilles as a political unit within the Kingdom of the Netherlands to that of an 'autonomous

land' still part of the Kingdom. See <http://en.wikipedia.org/wiki/Curaçao>.

⁴. 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).

⁵. See *Nederlandse Staatswetten, Editie Schuurman & Jordens*, 104a (1981), at 3.

⁶. Agreement on the Rescue of Astronauts, the Return of Astronauts and the Return of Objects Launched into Outer Space, London/Moscow/Washington, done 22 April 1968, entered into force 3 December 1968; 672 UNTS 119; TIAS 6599; 19 UST 7570; UKTS 1969 No. 56; Cmnd. 3786; ATS 1986 No. 8; 7 ILM 151 (1968).

⁷. See *Nederlandse Staatswetten, Editie Schuurman & Jordens*, 104a (1981), at 12.

⁸. Convention on International Liability for Damage Caused by Space Objects (hereafter Liability Convention), London/Moscow/Washington, done 29 March 1972, entered into force 1 September 1972; 961 UNTS 187; TIAS 7762; 24 UST 2389; UKTS 1974 No. 16; Cmnd. 5068; ATS 1975 No. 5; 10 ILM 965 (1971).

⁹. See *Nederlandse Staatswetten, Editie Schuurman & Jordens*, 104a (1981), at 18.

¹⁰. 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).

¹¹. See *Nederlandse Staatswetten, Editie Schuurman & Jordens*, 104a (1981), at 29.

¹². Agreement Governing the Activities of States on the Moon and Other Celestial Bodies, New York, done 18 December 1979, entered into force 11 July 1984; 1363 UNTS 3; ATS 1986 No. 14; 18 ILM 1434 (1979).

¹³. Of course, the international question of the lower boundary of outer space has not yet been decided in any definitive manner, and the mere insistence by a few private companies that the 100 km-altitude line serves as such and that flights above that altitude should be labelled 'spaceflights' with the passengers receiving astronaut certificates, cannot create a rule of customary international law to that effect. Still, if the number of those flights would start to build up rapidly and continuously without relevant states formally protesting or denying the validity of such private assertions, there may be a point where silence by those states comes to be seen as constituting consent to precisely such a customary rule. At least the operators themselves could then no longer deny the space character of their activities in any legal context anymore.

¹⁴. Cf. Art. I(c), sub (ii), Liability Convention, causing "A State from whose territory (...) a space object is launched" to become a "launching

State”, liable for any international damage caused by the space object so launched.

¹⁵. Cf. Artt. II, III, IV, Registration Convention.

¹⁶. See e.g. the author’s Implementing the United Nations Outer Space Treaties – The Case of the Netherlands, in C. Brünner & E. Walter (Eds.), *Nationales Weltraumrecht / National Space Law* (2008), 81-104.

¹⁷. Law Incorporating Rules Concerning Space Activities and the Establishment of a Registry for Space Objects (hereafter Dutch Space Law), 24 January 2007; 80 *Staatsblad* (2007), at 1 (text in Dutch); *Nationales Weltraumrecht / National Space Law* (2008), at 201.

¹⁸. Sec. 1(b), Dutch Space Law.

¹⁹. Sec. 2(1), Dutch Space Law.

²⁰. Sec. 2(2)(a), Dutch Space Law.

²¹. Sec. 2(2)(b), Dutch Space Law.

²². Cf. Art. I(c), sub (i), Liability Convention, and the extended discussion amongst space law experts on what precisely constitutes ‘procurement’ under this provision.

²³. See *Tweede Kamer der Staten-Generaal, Vergaderjaar 2005-2006*, 30 609, nr. 3 (text in Dutch).

²⁴. Note that there is an interesting precedent for such a ‘local space law’, namely 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 *Zeitschrift für Luft- und Weltraumrecht* (2002), at 50). This Ordinance took care of preserving the legal regime for private space entrepreneurs applicable under 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 *Zeitschrift für Luft- und Weltraumrecht* (1987), at 12) upon Hong Kong becoming a (minor) part of the People’s Republic of China.

²⁵. See Commercial Space Launch Amendments Act, Public Law 108-492, 108th Congress, 23 December 2004, 49 U.S.C.; 118 Stat. 3974.

²⁶. Sec. 70104(2), (3) & (4), Commercial Space Launch Act.

²⁷. Sec. 70104(2) in combination with Sec. 70102(1)(B), Commercial Space Launch Act.

²⁸. Sec. 70104(4) in combination with Sec. 70102(1)(C), Commercial Space Launch Act. The other scenario, not relevant here, refers to launch activities outside of any state’s territory.

²⁹. See <http://www.virgingalactic.com/>.

³⁰. See <http://www.xcor.com/>.

³¹. See <http://www.rocketplane.com/>.

³². See for further information http://en.wikipedia.org/wiki/Virgin_Group.

³³. The Space Company was established in 2005 and is headquartered in Mohave, California, United States; see http://en.wikipedia.org/wiki/The_Space_Ship_Company.

³⁴. This is without prejudice to the requirement for Virgin Galactic in any event to acquire an export license for the relevant technology under the US International Trade in Arms Regulations, the (in)famous ITARs. Cf. on the issue of ITARs in the context of private manned spaceflight e.g. M.N. Gold, *Lost in Space: A Practitioner's First-Hand Perspective on Reforming the U.S.'s Obsolete, Arrogant, and Counterproductive Export Control Regime for Space-Related Systems and Technologies*, 34 *Journal of Space Law* (2008), 163-85.

³⁵. Sec. 70104(a), Commercial Space Launch Act.

³⁶. See *supra*, n. 34.

³⁷. Thus, Art. 39, Convention for the Unification of Certain Rules for International Carriage by Air (Montreal, done 28 May 1999, entered into force 4 November 2003; ICAO Doc. 9740; 48 *Zeitschrift für Luft- und Weltraumrecht* (1999), at 326), distinguishes between the “contracting carrier” (i.e., the lessee), defined as the one which “makes a contract of carriage (...) with a passenger” and the “actual carrier” (i.e., the lessor), defined as the one which “performs, by virtue of authority from the contracting carrier, the whole or part of the carriage”, and proceeds to deal with the apportionment of liability in this context; see Artt. 40-48.

³⁸. The US Commercial Space Launch Act (Commercial Space Transportation – Commercial Space Launch Activities, 49 U.S.C. 70101 (1994)) fundamentally distinguishes between a license “to launch a launch vehicle [and a license] to operate a launch site” (Sec. 70104(a), Commercial Space Launch Act). The only other national space law going into great detail into licensing launch activities, the Australian Space Activities Act (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), though not of importance in the present context, harbours the same fundamental difference, requiring a ‘launch permit’ or ‘overseas launch certificate’ for the launch itself (depending upon whether it is undertaken from within Australia or not) and a ‘space license’ for the operation of a spaceport (cf. e.g. Secc. 18-41, Australian Space Activities Act).

³⁹. Sec. 11(1), Dutch Space Law.

⁴⁰. Art. II(3), Registration Convention.