

**ECSL Practitioners Forum – 2011**  
**‘Manned Spaceflight Safety Issues: Legal & Policy Aspects’**

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**AN ACADEMIC PERSPECTIVE ON COMMERCIAL SPACEFLIGHT:  
LIABILITY AND WAIVERS**

**INTRODUCTION**

Every time commercial, and therefore private, entities embark on a new kind of space venture, a number of fundamental legal issues arise. Often they do not need immediate resolution to facilitate the commercial activities, as pragmatic commercial solutions are devised for the purpose. But, to sustain and grow private participation in such ventures the law has to become certain on solid and consistent foundations.

To that extent commercial spaceflights are no exception. The luxury enjoyed by academics is the time and environment in which to identify and research the issues and to devise alternative solutions for adoption.

**AREAS OF UNCERTAINTY**

Several aspects of commercial spaceflight present challenges for the current legal regime. One obvious question is whether the relevant activity takes place in Outer Space or Air Space.

This in turn highlights the need to determine whether a new regulatory system is required to licence the craft, the spaceport and their operation. The competing regimes are those applicable to air transport and that in relation to space activities and objects. There are also different liability regimes in relation to aircraft and air transport and in respect of space activities and space objects.

**COMPETING APPROACHES**

An approach advocated by some, as a means of determining which system of law should apply, is to define and delimit *outer space*. However, such delimitation does not resolve any uncertainty relating to the liability regime.

**LIABILITY**

Although there are different liability provisions relating to air and space activities, a definition of *outer space* will not resolve any conflict.

The primary international liability provisions applicable to space activity are contained in the Liability Convention.<sup>1</sup> Under the Convention a State is liable for “damage caused by its space object...”<sup>2</sup>

The Convention makes no relevant reference to *Outer Space*. On the contrary, it links liability to the “object” and not an occurrence in outer space. This is reinforced by the distinction drawn between “damage caused ... on the surface of the earth or to aircraft in flight,”<sup>3</sup> and that “caused *elsewhere* than on the surface of the earth ...”<sup>4</sup>

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<sup>1</sup> Convention on International Liability for Damage Caused by Space Objects, 1972.

<sup>2</sup> Liability Convention, Articles II and III.

<sup>3</sup> Liability Convention, Articles II.

<sup>4</sup> Liability Convention, Articles III; emphasis added.

## DEFINITION OF SPACE OBJECT AND AIRCRAFT

In terms of liability therefore, the relevant definitions are those of “space object”<sup>5</sup> and “aircraft” and not of “outer space” and “airspace.”

It may be said that a *space object* is one that is launched into *outer space*, as articulated in the Outer Space Treaty.<sup>6</sup> However, the discussion about whether to adopt a spatial or functional division between sovereign airspace and outer space goes back many decades and cannot be resolved here.<sup>7</sup> Whatever the resolution of that debate, its application to the current issue is of marginal relevance.

It can be strongly argued that the Liability Convention implicitly defines a *space object* as one that is *launched*.<sup>8</sup> In other words it attains altitude by means of thrust and not lift. Thus introducing an element of functionality to its definition.

But, *aircraft* has been defined more formally as “*any machine that can derive support in the atmosphere from the reactions of the air other than the reactions of the air against the earth’s surface*”.<sup>9</sup>

Thus, Sub-orbital Aeroplanes generating aerodynamic lift during the atmospheric part of the flight could be considered to be aircraft. However, the ICAO Conventions may not apply to suborbital flights, because the regime applies only to *international flights*,<sup>10</sup> although States can extend its application to domestic flights.<sup>11</sup> More particularly, any damage giving rise to liability will need to have occurred within the jurisdiction of a State party to the Montréal Convention.<sup>12</sup>

## OUTER SPACE LIABILITY REGIME

Any manned spaceflight will involve the crew of the space object, those engaged in its operation. It can also have other participants who are passive passengers. The outer space liability regime applies differently to each of these groups. The Liability Convention excludes application to:<sup>13</sup>

- (a) Nationals of the launching State; and

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<sup>5</sup> There is no definition of “space objects,” other than that it includes its component parts, launch vehicle and its parts; Liability Convention, Article I.

<sup>6</sup> Compare Outer Space Treaty, Article VII.

<sup>7</sup> See Carl Q Christol, *The Modern International Law of Outer Space*, 1982, at 502 *et seq.*; UN Doc. A/AC 105/C 2/7/Add 1, 21 Jan 1977.

<sup>8</sup> Liability Conventions, Article I (c).

<sup>9</sup> Annex 8 of the International Civil Aviation Organisation (ICAO); Chicago Convention on International Civil Aviation, 1944, as amended 2006 (ICAO Doc 7300/9). It should be noted that rockets also derive support from the reaction with the atmosphere.

<sup>10</sup> An *international flight* is a flight that contains one or more *international flight stages*; and an *international flight stage* is a flight stage with one or both terminals in the territory of a State, other than the State in which the airline is registered (technical stops are not considered in classifying flight stages).

<sup>11</sup> *Convention on Compensation for Damage Caused by Aircraft to Third Parties*, done at Montréal on 2 May 2009 (Doc 9919). Montréal Convention, Article 2, paragraph 2.

<sup>12</sup> Actions for compensation may be brought in a single forum only, namely, before the courts of the State Party where the damage occurred, Montréal Convention, Article 16, paragraph 1.

<sup>13</sup> Article VII.

- (b) Foreign nationals while they participate in the operation of the space object between its launch and descent, or are in the immediate vicinity of a launch or recovery of the space object on the invitation of the launching State.

Therefore, the crew of the space object cannot recover any damages under the Liability Convention. Nor can any national of the *launching State*.<sup>14</sup> It does not exclude claims on behalf of passengers not participating in the operation of the space object who are foreign nationals. But the Liability Convention applies only to States and not to any claims that may be brought under national laws.

#### **DAMAGES UNDER NATIONAL LAW**

For technical and regulatory reasons, most early manned spaceflight will be subject to the laws of the United States.<sup>15</sup> The cross-waiver requirements for launches of satellites do not apply to human spaceflight, thus leaving spaceflight operators exposed to claims by flight participants.<sup>16</sup>

Relevant State law will govern any contracts between passengers and operators and any tort liability.

The CSLA<sup>17</sup> requires the licensee operator to obtain adequate insurance and provides:

- (b) Reciprocal Waiver of Claims

.....

(2) The Secretary of Transportation shall make, *for the Government*, executive agencies of the Government involved in launch services or re-entry services, and contractors and subcontractors involved in launch services or re-entry services, a reciprocal waiver of claims with the licensee or transferee, contractors, subcontractors, crew, *spaceflight participants*, and *customers* of the licensee or transferee, and contractors and subcontractors of the customers, involved in launch services or re-entry services under which each party to the waiver agrees to be responsible for property damage or loss it sustains, or for personal injury to, death of, or property damage or loss sustained by its own *employees* or by *spaceflight participants*, resulting from an activity carried out under the applicable license. The waiver applies only to the extent that claims are more than the amount of insurance or demonstration of financial responsibility required under subsection (a)(1)(B) of this section. After consulting with the Administrator and the Secretary of the Air Force, the Secretary of Transportation may waive, for the Government and a department, agency, and instrumentality of the Government, the right to recover damages for damage or loss to Government property to the extent insurance is not available because of a policy exclusion the Secretary of Transportation decides is usual for the type of insurance involved.

The CSLA further provides:<sup>18</sup>

- (5) The holder of a license or a permit under this chapter may launch or re-enter

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<sup>14</sup> Liability Convention, Article I (c).

<sup>15</sup> Michael C. Mineiro, *An Intersection of Air and Space Law: Licensing and Regulating Suborbital Commercial Human Space Flight Operations*, Air & Space, Volume 22, Number 4, 2010.

<sup>16</sup> Pamela L Meredith, *Commercial Space Transportation: Liability and Insurance*, Air Transport, Air & Space Law and Regulation, Abu Dhabi, April 2009.

<sup>17</sup> Commercial Space Launch Act 1984, Sec. 70112, as amended by the Commercial Space Launch Amendment Act 2004; 49 USC §70112; now National and Commercial Program, 51 USC § 50914.

<sup>18</sup> Section 70105; 49 USC §70105; now National and Commercial Program, 51 USC § 50905.

a *spaceflight participant* only if –

(A) in accordance with regulations promulgated by the Secretary, the holder of the license or permit has *informed* the spaceflight participant *in writing* about the *risks* of the launch and re-entry, including the safety record of the launch or re-entry vehicle type, and the Secretary has informed the spaceflight participant in writing of any relevant information related to risk or probable loss during each phase of flight gathered by the Secretary in making the determination required by section 70112(a)(2) and (c);

.....

(C) in accordance with regulations promulgated by the Secretary, the *spaceflight participant* has provided written *informed consent* to participate in the launch and re-entry and written certification of compliance with any regulations promulgated under paragraph (6)(A) ...

#### INFORMED CONSENT

The two requirements of being *informed* and of *consent* to satisfy the CSLA provisions can both be problematic. For a participant to be fully informed of risks associated with spaceflight information it is submitted that the same or very similar information will need to be disclosed as to an insurer. Such information includes technical details about the spacecraft and its systems.

Disclosure of such information may be an export,<sup>19</sup> regulated under arms trade regulations.<sup>20</sup> These regulations apply to launch vehicles, spacecraft systems and associated equipment, controlled under the US Munitions List.<sup>21</sup> ITAR defines *export* as:<sup>22</sup>

- (a) Sending or taking defence articles out of the United States in any manner; or
- (c) Sending or taking technical data outside of the United States in any manner except by mere travel outside of the United States by a person whose personal knowledge includes technical data; or
- (d) Disclosing or transferring technical data to a foreign person, whether in the United States or abroad; or
- (e) The performance of a defence service on behalf of, or for the benefit of, a foreign person, whether in the United States or abroad.

Whether in the United States or abroad, the full disclosure of information to a foreign national is subject to a licensing procedure by the US and may be restricted. This is the case not only with spacecraft operated by a US provider of spaceflight services, but can affect any spacecraft containing relevant US technology.

In the event that relevant information is withheld from a spaceflight participant, any consent given can arguably not be fully *informed*. Under the provisions of the CSLA the participant is required to provide his or her written informed consent, which may affect the approval of the

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<sup>19</sup> International Traffic in Arms Regulations, ITAR, Sec 120.10 (d).

<sup>20</sup> ITAR 2010; Arms Export Control Act, Sec 38; 22 USC 2778; [www.pmdtc.state.gov/regulations\\_laws/itar\\_official.html](http://www.pmdtc.state.gov/regulations_laws/itar_official.html).

<sup>21</sup> Categories IV and XV of the US Munitions List; [www.fas.org/spp/starwars/offdocs/itar/p121.htm#C-XV](http://www.fas.org/spp/starwars/offdocs/itar/p121.htm#C-XV).

<sup>22</sup> ITAR, Sec 120.10.

spaceflight.<sup>23</sup> That requirement and the likelihood of a standard consent clause may render *consent* questionable.

#### STATE LEGISLATION

Although it is open to the operator to obtain a waiver under its contract with the flight participant, these are generally not favoured by US courts in case of negligence.<sup>24</sup>

As observed elsewhere:<sup>25</sup>

At a minimum, such waivers must use precise, plain, and unequivocal language and must be unambiguous, specific, conspicuous, and explicit.<sup>26</sup> Waivers are generally defeated by gross negligence.<sup>27</sup> Furthermore, some U.S. states, e.g., New York, have laws that simply prohibit waivers of liability in contracts with recreational and similar establishments.<sup>28</sup>

A number of US States have already enacted immunity legislation, giving operators immunity from liability.<sup>29</sup> These aim to exempt spaceflight operators from liability in respect of injuries or damage resulting from spaceflight risks, except in cases of gross negligence or wilful misconduct.<sup>30</sup> All three statutes make immunity subject to the voluntary acknowledgment of the risk by the participant. However, the effectiveness of these laws is open to question, both because of the inherent “loop holes” in their provisions and the likelihood of forum shopping by participants making a claim.<sup>31</sup>

#### THE EUROPEAN DIMENSION

Whether a spaceflight operator is liable for damages in case of injury or death will depend in part on the nature of the flight. If it is regarded as subject to the Warsaw and Montréal Conventions, those will govern.<sup>32</sup> In the event that it is not so subject, the provider may have exposure to claims that cannot be restricted.

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<sup>23</sup> 49 U.S.C. § 70105(b)(5)(A)-(C), now 51 USC § 50914.

<sup>24</sup> *Applbaum v. Golden Acres Farm and Ranch*, 333 F. Supp. 2d 31, 35 (N.D.N.Y. 2004), where the court observed: “It is well established that the law frowns upon contracts intended to exculpate a party from the consequences of his own negligence . . . .”

<sup>25</sup> Pamela L Meredith, *Commercial Space Transportation: Liability and Insurance*, Air Transport, Air & Space Law and Regulation, Abu Dhabi, April 2009.

<sup>26</sup> *Commercial Union Ins. Co. v. Blue Water Yacht Club Assoc.*, 239 F. Supp. 2d 316, 322 (E.D.N.Y. 2003) (“plain language”); *Van Dyke*, 239 N.Y.S.2d at 340 (“unequivocal terms”); *Gross v. Sweet*, 49 N.Y.2d 102, 107 (N.Y. 1979) (“unmistakable language”); *Gross*, 49 N.Y.2d at 107. *Ash v. NYU Dental Center*, 564 N.Y.S.2d 308, 310 (N.Y. App. Div. 1990) (citations omitted) (requiring “sufficient specificity and clarity” for exculpatory clauses to be enforced). *Arce v. U-Pull-It Auto Parts, Inc.*, 2008 U.S. Dist. LEXIS 10202, \*27 (E.D.Pa. 2008).

<sup>27</sup> *Martin Marietta Corp*, 991 F.2d at 100 (4th Cir. 1992), *supra* note 3; *Gross*, 49 N.Y.2d at 106 (citations omitted) (“To the extent that agreements purport to grant exemption for liability for wilful or grossly negligent acts they have been viewed as wholly void.”).

<sup>28</sup> NY GEN. OBLIG. LAW § 5-326 (2009) (declaring “void and unenforceable” any “[a]greements exempting [recreation] and similar establishments from liability for negligence . . .”).

<sup>29</sup> *Space Flight Liability and Immunity Act*, Code of Virginia, Chapter 3 of Title 8.01, Article 24, Sections 8.01-227.8, 8.01-227.9, and 8.01-227.10; VA. CODE ANN. § 8.01-227.8–.10 (2007). *Florida Aviation and Aerospace Facilities and Commerce Act*, Part III, Spaceflight, Sec 331.501 (2); FLA. STAT. § 331.501 (2009). New Mexico *Spaceflight Informed Consent Act*, 2010. Texas has two bills in progress; the Senate Bill 115 is scheduled for public hearing in March 2011.

<sup>30</sup> See for example VA. CODE ANN. § 8.01-227.9(B)(1); FLA. STAT. § 33.501(2)(b)(1).

<sup>31</sup> Pamela L Meredith, *Commercial Space Transportation: Liability and Insurance*, Air Transport, Air & Space Law and Regulation, Abu Dhabi, April 2009.

<sup>32</sup> Directive 93/13/EEC, Article 2(1).

The reluctance of US courts to permit waiver of liability for injury or death noted above<sup>33</sup> is taken a step further within the European Union.<sup>34</sup> To harmonise laws within the Union, a 1993 Directive provides:<sup>35</sup>

#### Article 1

1. The purpose of this Directive is to approximate the laws, regulations and administrative provisions of the Member States relating to unfair terms in contracts concluded between a seller or supplier and a consumer.
2. The contractual terms which reflect mandatory statutory or regulatory provisions and the provisions or principles of international conventions to which the Member States or the Community are party, particularly in the transport area, shall not be subject to the provisions of this Directive.<sup>36</sup>

#### Article 2

For the purposes of this Directive:

- (a) 'unfair terms' means the contractual terms defined in Article 3;
- (b) 'consumer' means any natural person who, in contracts covered by this Directive, is acting for purposes which are outside his trade, business or profession;
- (c) 'seller or supplier' means any natural or legal person who, in contracts covered by this Directive, is acting for purposes relating to his trade, business or profession, whether publicly owned or privately owned.

#### Article 3

1. A contractual term which has not been individually negotiated shall be regarded as unfair if, contrary to the requirement of good faith, it causes a significant imbalance in the parties' rights and obligations arising under the contract, to the detriment of the consumer.
2. A term shall always be regarded as not individually negotiated where it has been drafted in advance and the consumer has therefore not been able to influence the substance of the term, particularly in the context of a pre-formulated standard contract.

The fact that certain aspects of a term or one specific term have been individually negotiated shall not exclude the application of this Article to the rest of a contract if an overall assessment of the contract indicates that it is nevertheless a pre-formulated standard contract.

Where any seller or supplier claims that a standard term has been individually negotiated, the burden of proof in this respect shall be incumbent on him.

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<sup>33</sup> *Applbaum v. Golden Acres Farm and Ranch*, 333 F. Supp. 2d 31, 35 (N.D.N.Y. 2004), where the court observed: "It is well established that the law frowns upon contracts intended to exculpate a party from the consequences of his own negligence . . . ."

<sup>34</sup> See Directive 93/13/EEC, 5 April 1993 (OJ 1993 L 95, p. 29).

<sup>35</sup> Directive 93/13/EEC.

<sup>36</sup> To the extent that the flight may be subject to the Warsaw and Montréal Conventions, limits within them may apply. This provision is implemented by the UK *Unfair Terms in Consumer Contracts Regulations 1999*, Regulation 4.

3. The Annex shall contain an indicative and non-exhaustive list of the terms [that] may be regarded as unfair.<sup>37</sup>

These provisions have been implemented in the UK<sup>38</sup> and elsewhere in the EU. The UK regulations provide guidance for determining the unfairness of a contract term. These cover, *inter alia*, the nature of the services being provided, and all the circumstances prevailing at the time when the contract is concluded.<sup>39</sup>

#### CONCLUSION

The nature and extent of any liability of a spaceflight provider will ultimately depend on a number of factors. These include the characterization of the craft as between aircraft or spacecraft, the extent of the applicability of US law, in particular the provisions of CSLA and ITAR, of the rules of ICAO and the relevance of European consumer laws.

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<sup>37</sup> Terms which have the object or effect of: (a) excluding or limiting the legal liability of a seller or supplier in the event of the death of a consumer or personal injury to the latter resulting from an act or omission of that seller or supplier;

<sup>38</sup> The Unfair Terms in Consumer Contracts Regulations 1999.

<sup>39</sup> Regulation 6.