

# Federal *versus* State: Private Commercial Spaceflight Operator Immunity Regulation in the United States

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## Abstract

The 2004 Commercial Space Launch Amendments Act provided the first national statute dedicated to private commercial spaceflight, further elaborated by a Chapter in the Code of Federal Regulations. A major element of that regulation concerns the ‘informed consent’ requirement, which constitutes the main condition upon which a private commercial spaceflight operator is allowed to fly paying passengers into the edge of outer space and back.

The requirement as such does not automatically equate with a statutory waiver of passenger liability, which was a major reason for a handful of individual US states to add by way of statutes such immunity from liability in order to attract private commercial spaceflight operators. Notably, this concerns so far Virginia, Florida, New Mexico, Texas, Colorado and California.

The present paper summarizes and compares the key provisions of the federal and state statutes on this key issue of (lack of) contractual liability, and addresses some of the issues possibly following from the divergences which inevitably exist between these statutes.

## 1. Introduction

When, with the winning of the X-Prize in 2004, private commercial spaceflight seemed around the corner, US legislators swung into action even as they were clear that legislation and regulation addressing this impending new activity should remain confined to a minimum level required to protect key

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public interests so as not to stifle this infant – better, about-to-be-born – industry.<sup>1</sup>

As unmanned private commercial launches had been regulated by the US government since 1984 precisely for reasons of such public interests (notably safety-, liability- and national security-related), it was a logical step to use this Commercial Space Launch Act<sup>2</sup> as the baseline statute, and adapt it as far as considered necessary for the purpose of addressing private *manned* spaceflight. The result was the 2004 Commercial Space Launch Amendments Act<sup>3</sup>, so far constituting the latest major amendment of the Commercial Space Launch Act, soon to be followed by detailed regulations as part of the Code of Federal Regulations<sup>4</sup>.

As, however, the 2004 amendments indeed amounted to a very limited regulatory regime, for reasons of their own at this point six states within the United States have promulgated their own state-level statutes (with more states likely to follow), in particular addressing the issue of liabilities.

## 2. The 2004 Amendments and Liability

The Commercial Space Launch Act post-2004 applies the pre-existing liability regime now also to private manned spaceflight, requiring a license just like for unmanned space launches.<sup>5</sup> This however meant that only third-party liability and a particular version of inter-party liability – namely where the US government was involved – were actually dealt with.

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1 Cf. Sec. 50901(b), 51 U.S.C.; see also M.J. Kleiman, J.K. Lamie & M.V. Carminati, *The Laws of Spaceflight* (2012), 83-4, 107; F.G. von der Dunk, Passing the Buck to Rogers: International Liability Issues in Private Spaceflight, 86 *Nebraska Law Review* (2007), 417-9; M. Gerhard, Space Tourism – The Authorisation of Suborbital Space Transportation, in F.G. von der Dunk (Ed.), *National Space Legislation in Europe* (2011), 295-6; S. Hobe, Legal Aspects of Space Tourism, 86 *Nebraska Law Review* (2007), 445.

2 The Commercial Space Launch Act, originally enunciated in 1984 and amended several times since, has more recently been codified as 51 U.S.C. Ch. 509 – Commercial Space Launch Activities. See on the Commercial Space Launch Act in general e.g. A.K. Kerrest de Rozavel & F.G. von der Dunk, Liability and Insurance in the Context of National Authorisation, in F.G. von der Dunk (Ed.), *National Space Legislation in Europe* (2011), 141-8; P. Vorwig, Regulation of Private Launch Services in the United States, in R.S. Jakhu (Ed.), *National Regulation of Space Activities* (2010), 405-15.

3 Commercial Space Launch Amendments Act, Public Law 108-492, 108th Congress, H.R. 3752, 23 December 2004, 49 U.S.C.; 118 Stat. 3974; *Space Law – Basic Legal Documents*, E.III.3.

4 As per 14 C.F.R. Ch. III.

5 See Secs. 50904, 50905, 51 U.S.C., for the general licensing requirements.

Third-party liability was made subject to a determination of Maximum Probable Loss (MPL) with respect to the launch at issue, an amount to then be lowered (if applicable) to the lowest of either the maximum insurance coverage available at reasonable rates or a fixed limitation of US\$ 500 million.<sup>6</sup> The licensee was to insure against a possible claim (or show proof of ‘financial responsibility’) up to that level; whilst the US government would guarantee a second tier of third-party liability claims as far as US\$ 1.5 billion (in 1988 dollars; currently some 2.98 billion<sup>7</sup>) per accident over that amount.<sup>8</sup>

Inter-party liability was, if applicable, made subject to a similar set of provisions, with the maximum compensation for loss suffered by the US government in the course of the use of its launch facilities for a particular launch set at the MPL, the maximum insurance reasonably available or US\$ 100 million, whichever was the lowest of the three; above the amount to be obligatorily insured following these provisions a cross-waiver was applied.<sup>9</sup>

Both sets of provisions continue to be applicable also to private manned spaceflight following the 2004 Amendments, where it is interesting to note that for the SpaceShipOne flights in 2004, MPLs of US\$ 3.1 million for third-party liability respectively US\$ 0 for liability towards the US government were included in the launch license.<sup>10</sup> The latter amount is the direct consequence of those flights being launched from the private Mojave spaceport as opposed to any federal or state launch facility.

As the pre-existing versions of the Commercial Space Launch Act addressed satellite launches, there was no need for any passenger liability to be regulated; and the 2004 Amendments did not really fill that gap. Notably, they maintained the arrangement that on inter-party liability *vis-à-vis* other contractual parties than the US government a reciprocal cross-waiver of liability was imposed, which did *not* extend to spaceflight participants, although an argument could well be made that they should, as such, qualify as ‘contractors’ or ‘customers’.<sup>11</sup>

6 Cf. Sec. 50914(a)(3), 51 U.S.C.

7 See <[www.in2013dollars.com/1988-dollars-in-2013?amount=1.5](http://www.in2013dollars.com/1988-dollars-in-2013?amount=1.5)>.

8 Cf. Sec. 50915(a)(1), 51 U.S.C. These provisions were geared to national third-party liability, but meant for international liability claims under the Liability Convention (Convention on International Liability for Damage Caused by Space Objects, 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)) that the US government would at least be reimbursed up to the insured amount by the relevant licensee. See further Hobe 453-4; Vorwig, 412-3; F. Lyall & P.B. Larsen, *Space Law – A Treatise* (2009), 492-3.

9 Cf. Sec. 50914(a)(3), (b), 51 U.S.C.

10 See FAA-OCST, Financial Responsibility Requirements as Determined by the Maximum Probable Loss (MPL) Process as of January 9, 2012, slide 7, at <[www.faa.gov/about/office\\_org/headquarters\\_offices/ast/launch\\_license/mpl\\_values/media/MPL\\_Values\\_2012.pdf](http://www.faa.gov/about/office_org/headquarters_offices/ast/launch_license/mpl_values/media/MPL_Values_2012.pdf)>.

11 See Sec. 50914(b), 51 U.S.C.; also discussion at Hobe, 451; R. Sadowski, *Insuring Commercial Space Travel*, 61 *Zeitschrift für Luft- und Weltraumrecht* (2012), 85-6.

Actually, an earlier version of the proposed legislation did include spaceflight participants in this waiver,<sup>12</sup> but this provision did not make it into the final legislation.

### 3. The 2004 Amendments and ‘Informed Consent’

What the 2004 Amendments did, instead of addressing passenger liability in a straightforward fashion, was to require an operator to obtain ‘informed consent’ of the passenger before he would be licensed to fly him or her: “The holder of a license or a permit under this chapter may launch or reenter a space flight participant only if (...) [he] has informed the space flight participant in writing about the risks of the launch and reentry, including the safety record of the launch or reentry vehicle type (...) [and] the holder of the license or permit has informed any space flight participant in writing, prior to receiving any compensation from that space flight participant (...) that the United States Government has not certified the launch vehicle as safe for carrying crew or space flight participants”.<sup>13</sup>

This requirement of ‘informed consent’, and notably what the safety records should at a minimum provide for compliance with the requirement of the ‘consent’ being ‘informed’, was further elaborated by the Code of Federal Regulations.<sup>14</sup>

In addition, an ‘informal consent-light’ was required for the licensed operator to launch or reenter crew in its craft; the information requirement here was limited to the lack of US- government safety certification of the vehicle.<sup>15</sup>

Whilst these clauses do not make any reference to the acceptance conversely waiver of liability towards the passenger in case the lack of safety certification translated into an actual accident, they were by many perceived to allow operators at least a strong defensive argument against any claims by passengers or their descendants for compensation of damage sustained on such flight.<sup>16</sup> Principally, however, it left courts or tribunals seized with a claim for damage the discretion to honour such defence or ignore it, partially or comprehensively.<sup>17</sup> It certainly did not equate with the rather straightforward passenger liabil-

12 Cf. H.R. 3752, Sec. 2 (2004).

13 Sec. 50905(b)(5), 51 U.S.C.

14 See § 460.45, 14 C.F.R. Ch. III. See for a thorough analysis and critique of the concept of ‘informed consent’ in this context T. Knutson, What is “Informed Consent” for Space-Flight Participants in the Soon-to-Launch Space Tourism Industry?, 33 *Journal of Space Law* (2007), 105 ff. See also R.A. Yates, State Law Limitations on the Liability of Spaceflight Operators, 9-1 *The SciTech Lawyer* (summer 2012), 15; Lyall & Larsen, 493-4; Hobe, 445-6.

15 Cf. Sec. 50905(b)(4), 51 U.S.C.

16 Cf. e.g. M. Chatzipanagiotis, *The legal status of space tourists in the framework of commercial suborbital flights* (2011), 106 ff., esp. 109-12.

17 Cf. also Yates, 15; Hobe, 451.

ity which for example airlines had to accept under national laws harmonized by international treaties ranging from the 1929 Warsaw Convention<sup>18</sup> to the 1999 Montreal Convention<sup>19</sup>. The latter for example provided for strict liability up to 100,000 SDR per passenger per accident, with a second tier of in principle unlimited liability applicable unless the carrier could fully exculpate himself.<sup>20</sup>

#### 4. The State Statutes

As the various companies gearing up to enter the business consequently still felt uncomfortable about possibilities to be sued successfully by passengers or their descendants, several individual US states took advantage of the resulting opportunity to make themselves more attractive as places of business by precisely filling that gap, in linking explicit statutory waivers of liability to detailed 'informed consent' provisions.<sup>21</sup>

##### 4.1. Virginia

Virginia, home to the MidAtlantic Regional Spaceport as well as to Space Adventures, the pioneers of orbital tourism,<sup>22</sup> was the first of those states, establishing its Space Flight Liability and Immunity Act in 2007.<sup>23</sup> Under its key provision, the federal informed consent requirement is specifically translated into a warning statement to be signed by the spaceflight participant which was directly coupled to a waiver of liability, phrased as follows: "I understand and acknowledge that, under Virginia law, *there is no civil liability* for bodily injury, including death, emotional injury, or property damage sustained by a participant in space flight activities provided by a space flight entity if such injury or damage results from the risks of the space flight activity. *I have given my informed consent to participate in space flight activities* after receiving a description of the risks of space flight activities as required by federal law pursuant to 49 U.S.C. § 70105 and 14 C.F.R. § 460.45. The consent that I have given acknowledges that the risks of space flight activities include, but are not lim-

18 Convention for the Unification of Certain Rules Relating to International Transportation by Air, Warsaw, done 12 October 1929, entered into force 13 February 1933; 137 LNTS 11; USTS 876; UKTS 1933 No. 11; ATS 1963 No. 18.

19 Convention for the Unification of Certain Rules for International Carriage by Air, Montreal, done 28 May 1999, entered into force 4 November 2003; 2242 UNTS 350; ICAO Doc. 9740; 48 *Zeitschrift für Luft- und Weltraumrecht* 326 (1999).

20 Cf. Art. 21, 1999 Montreal Convention; further e.g. Von der Dunk, 430-1, 434-5.

21 Cf. also e.g. Kleiman, Lamie & Carminati, 107; Chatzipanagiotis, 114-5; A. Greene Apking, A Step in the Right Direction: Colorado's First Space Legislation, 91 *Denver University Law Review Online* (2013), 201-2.

22 Cf. also Chatzipanagiotis, 115.

23 Space Flight Liability and Immunity Act; Art. 24, Code of Virginia; Va. Code Ann. §§ 8.01-227.8 to 8.01-227.10 (2007); <<http://leg1.state.va.us/cgi-bin/legp504.exe?071+ful+CHAP0893+pdf>>.

ited to, risks of bodily injury, including death, emotional injury, and property damage. I understand and acknowledge that I am participating in space flight activities at my own risk. I have been given the opportunity to consult with an attorney before signing this statement.”<sup>24</sup>

Such a waiver only ceases to be applicable in case the space operator “1. Commits an act or omission that constitutes gross negligence evidencing willful or wanton disregard for the safety of the participant, and that act or omission proximately causes a participant injury; or 2. Intentionally causes a participant injury.”<sup>25</sup>

Finally, whilst the space flight entity is defined in first instance with deference to an operator licensed by the FAA as per the Commercial Space Launch Act<sup>26</sup>, it is then added that “‘Space flight entity’ shall also include any manufacturer or supplier of components, services, or vehicles that have been reviewed by the United States Federal Aviation Administration as part of issuing such a license, permit, or authorization”<sup>27</sup> – read: essentially the contractors and subcontractors of the flight operator itself.

#### 4.2. Florida

Florida, the US state with the largest experience in manned launches as well as two commercial spaceports under development,<sup>28</sup> was second to the fray in adopting its Space Activities Statute in 2009.<sup>29</sup>

Handling liability in almost the same way as Virginia, under the Florida Statute the warning at issue runs as follows: “Under Florida law, *there is no liability* for an injury to or death of a participant in a spaceflight activity provided by a spaceflight entity if such injury or death results from the inherent risks of the spaceflight activity. Injuries caused by the inherent risks of spaceflight activities may include, among others, injury to land, equipment, persons, and animals, as well as the potential for you to act in a negligent manner that may contribute to your injury or death. You are assuming the risk of participating in this spaceflight activity.”<sup>30</sup>

Each spaceflight participant shall be made to sign this warning by the spaceflight entity intending to fly him or her, whereby all liability of the operator for injury or death of the spaceflight participant is waived,<sup>31</sup> except where the operator: “1. Commits an act or omission that constitutes gross negligence or willful or wanton disregard for the safety of the participant and that act or

24 § 8.01-227.10(B), Space Flight Liability and Immunity Act; emphasis added.

25 § 8.01-227.9(B), cf. also (A), Space Flight Liability and Immunity Act.

26 Notably with what are now Secc. 50905, 50906, 51 U.S.C.

27 § 8.01-227.8, Space Flight Liability and Immunity Act.

28 Cf. also Kleiman, Lamie & Carminati, 108.

29 Space Activities Statute; Ch. 331, Sec. 501, Florida Statutes; Fla. Stat. Ann. Sec. 331-501 (2009); <[www.flsenate.gov/Laws/Statutes/2011/331.501](http://www.flsenate.gov/Laws/Statutes/2011/331.501)>. See further e.g. Sadowski, 88.

30 Sec. 331.501(3)(b), Space Activities Statute; emphasis added.

31 See Sec. 331.501(2)(a), Space Activities Statute.

omission proximately causes injury, damage, or death to the participant; 2. Has actual knowledge or reasonably should have known of a dangerous condition on the land or in the facilities or equipment used in the spaceflight activities and the danger proximately causes injury, damage, or death to the participant; or 3. Intentionally injures the participant.”<sup>32</sup>

Thus, effectively a third condition is added to the two provided for in the Virginia Act of broader scope and lesser precision, but otherwise the Florida Statute is structured rather similarly. Notably, the ‘spaceflight entity’ is again defined firstly with reference to the Commercial Space Launch Act, then beyond that includes “any manufacturer or supplier of components, services, or vehicles that have been reviewed by the United States Federal Aviation Administration as part of issuing such a license, permit, or authorization”.<sup>33</sup>

#### 4.3. New Mexico

The extended definitions of the operators enjoying the benefit of the liability waiver in the Virginia and Florida statutes are especially noteworthy in connection with New Mexico, the planned venue for the first operational private spaceport Spaceport America,<sup>34</sup> enacting its Space Flight Informed Consent Act in 2010.<sup>35</sup> In first instance namely this Act did *not* include contractors and sub-contractors in the scope of the waiver.<sup>36</sup>

Following the realization that this would actually place the state at a relative disadvantage *vis-à-vis* such other states competing for the business of commercial spaceflight, a new Bill was introduced in the New Mexico Senate recently.<sup>37</sup> This Bill proposes to add to the definition of ‘space flight entity’, as the legal person entitled to the waiver, the by now familiar phrase “a manufacturer or supplier of components, services or vehicles used by the entity that has been reviewed by the United States federal aviation administration as part of issuing such a license, permit or authorization”.<sup>38</sup>

Whether the Bill will pass or not, in other respects as far as under scrutiny here the New Mexico Space Flight Informed Consent Act will be similar to the other state statutes quoted, as the text of a similar warning acknowledgement

32 Sec. 331.501(2)(b), Space Activities Statute.

33 Sec. 331.501(1)(c), Space Activities Statute.

34 See e.g. <[http://en.wikipedia.org/wiki/Spaceport\\_America](http://en.wikipedia.org/wiki/Spaceport_America)>.

35 Space Flight Informed Consent Act; S.B. 9, 49<sup>th</sup> Leg. Reg. Sess. (N.M. 2010); <<https://rescommunis.wordpress.com/2010/03/04/new-mexico-space-flight-informed-consent-act/>>. See further e.g. Sadowski, 87-8.

36 Cf. Sec. 2(C), Space Flight Informed Consent Act, stating that “‘space flight entity’ means a public or private entity holding a United States federal aviation administration launch, reentry, operator or launch site license for space flight activities”.

37 S.B. 240, 51<sup>st</sup> Leg.; Bill introduced by M.K. Papen; <[www.nmlegis.gov/Sessions/13%20Regular/bills/senate/SB0240.pdf](http://www.nmlegis.gov/Sessions/13%20Regular/bills/senate/SB0240.pdf)>.

38 Sec. 2(J)(renumbered from 2(C)) as proposed, S.B. 240.

is provided,<sup>39</sup> which if duly signed by the spaceflight participant takes away in almost identical terms the liability of the spaceflight operator unless identical conditions apply as provided by the Florida Space Activities Statute.<sup>40</sup> The proposed Bill would only replace gross negligence in this context with “reckless disregard”.<sup>41</sup>

#### 4.4. Texas

In 2011, Texas, housing a major part of the US space industry as well as Blue Origin planning to launch from there as a private operator,<sup>42</sup> followed suit with its Space Activities Statute.<sup>43</sup> The warning in this case reads: “I UNDERSTAND AND ACKNOWLEDGE THAT A SPACE FLIGHT ENTITY IS NOT LIABLE FOR ANY INJURY TO OR DEATH OF A SPACE FLIGHT PARTICIPANT RESULTING FROM SPACE FLIGHT ACTIVITIES. I UNDERSTAND THAT I HAVE ACCEPTED ALL RISK OF INJURY, DEATH, PROPERTY DAMAGE, AND OTHER LOSS THAT MAY RESULT FROM SPACE FLIGHT ACTIVITIES.”<sup>44</sup>

Signing this agreement and giving written informed consent in accordance with the Commercial Space Launch Act then results for the spaceflight participant in a bar to claiming any liability for damage suffered during or as a consequence of the flight, unless such damage would be “(1) proximately caused by the space flight entity’s gross negligence evidencing wilful or wanton disregard for the safety of the space flight participant; or (2) intentionally caused by the space flight entity”.<sup>45</sup>

Texas extends the scope of the immunity *ratione personae* even beyond the – by now standard – set of FAA licensees and manufacturers or suppliers part of the licensing process, so as to include any “employee, officer, director, owner, stockholder, member, manager, or partner of the entity”.<sup>46</sup>

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39 The warning reads: “I understand and acknowledge that under New Mexico law, there is no liability for injury to or death sustained by a participant in a space flight activity provided by a space flight entity if the injury or death results from the inherent risks of the space flight activity. Injuries caused by the inherent risks of space flight activities may include, among others, death, bodily injury, emotional injury or property damage. I assume all risk of participating in this space flight activity.” Sec. 4(A), Space Flight Informed Consent Act.

40 See, resp., Sec. 3(A) & (B), Space Flight Informed Consent Act.

41 Sec. 3(B)(1) as proposed, S.B. 240.

42 Cf. also Kleiman, Lamie & Carminati, 108.

43 Space Activities Statute; S.B. 115, 82d Leg. (Tex. 2011), Tex. Civ. Prac. & Rem. Code, Title 4, Ch. 100A; <[www.statutes.legis.state.tx.us/Docs/CP/htm/CP.100A.htm](http://www.statutes.legis.state.tx.us/Docs/CP/htm/CP.100A.htm)>.

44 Sec. 100A.003(a), Space Activities Statute.

45 Sec. 100A.002(b), Space Activities Statute, in conjunction with Sec. 100A.002(a).

46 Sec. 100A.001(4)(B), Space Activities Statute.



#### 4.5. Colorado

Colorado is the US state with the second-largest aerospace workforce, plus the availability of a small Front Range Airport, to be converted into a spaceport, close to the metropolitan area of Denver and indeed the latter's international airport.<sup>47</sup> Its Act Concerning Limited Liability for Spaceflight Activities was signed into law in April 2012.<sup>48</sup> Colorado's system of applying liability follows the same general approach as that of the others.

Firstly, a warning is dictated by the Act, providing: "Under Colorado law, there is no liability for any loss, damage, injury to, or death of a spaceflight participant in a spaceflight activity provided by a spaceflight entity if such loss, damage, injury, or death results from the inherent risks of the spaceflight activity to the spaceflight participant. Injuries caused by the inherent risks of spaceflight activities may include, among others, death or injury to person or property. I, the undersigned spaceflight participant, assume the inherent risk of participating in this spaceflight activity."<sup>49</sup>

Secondly, following signature by a spaceflight participant of this warning, the spaceflight entity carrying him or her "is not liable for injury to or death of [that] spaceflight participant resulting from the inherent risks of spaceflight activities"<sup>50</sup>

Thirdly, then, the same threefold exceptions as found in some of the other state statutes are inserted pertaining to respectively gross negligence, wilful or wanton disregard, knowledge of existence of dangerous conditions, respectively intentional injury, which would cause the liability immunity to collapse to that extent.<sup>51</sup>

Finally, as to the definition of those entitled to the immunity from liability, this includes the most common statement in this respect, as encompassing licensees and manufacturers and service providers involved in the licensing process.<sup>52</sup>

#### 4.6. California

With California having at least two prospective spaceports on its territory,<sup>53</sup> its Governor signed the Spaceflight Liability and Immunity Act into law in September 2012 as part of the California Civil Code,<sup>54</sup> as so far the last US state to thus address informed consent and passenger liability.

47 Cf. also Greene Apking, 202.

48 Act Concerning Limited Liability for Spaceflight Activities; Colo. Rev. Stat. Ann. Sec. 41-6-101; <[www.state.co.us/gov\\_dir/leg\\_dir/olls/sl2012a/sl\\_126.htm](http://www.state.co.us/gov_dir/leg_dir/olls/sl2012a/sl_126.htm)>. See further e.g. Greene Apking, 202 ff., incl. fn. 31, further esp. 205-6.

49 Sec. 41-6-101(3)(b), Act Concerning Limited Liability for Spaceflight Activities.

50 Sec. 41-6-101(2)(a), Act Concerning Limited Liability for Spaceflight Activities.

51 See Sec. 41-6-101(2)(b), Act Concerning Limited Liability for Spaceflight Activities.

52 See Sec. 41-6-101(1)(b), Act Concerning Limited Liability for Spaceflight Activities.

53 Cf. also Kleiman, Lamie & Carminati, 108.

54 Spaceflight Liability and Immunity Act; AB 2243, Cal. Civ. Code, Div. 3, Pt. 4, Title 7, Ch. 5, Art. 5; <[www.leginfo.ca.gov/cgi-bin/displaycode?section=civ&group=02001-03000&file=2210-2212](http://www.leginfo.ca.gov/cgi-bin/displaycode?section=civ&group=02001-03000&file=2210-2212)>; see also <[www.commercialspaceflight.org/2012/09/california-governor-signs-the-spaceflight-liability-and-immunity-act/](http://www.commercialspaceflight.org/2012/09/california-governor-signs-the-spaceflight-liability-and-immunity-act/)>.

California's Act has the most extended warning clause, running as follows: "I understand and acknowledge that, under California law, there is *limited civil liability* for bodily injury, including death, emotional injury, or property damage, sustained by a participant as a result of the inherent risks associated with space flight activities provided by a space flight entity. I have given my informed consent to participate in space flight activities after receiving a description of the inherent risks associated with space flight activities, as required by federal law pursuant to Section 50905 of Title 51 of the United States Code and Section 460.45 of Title 14 of the Code of Federal Regulations. The consent that I have given acknowledges that the inherent risks associated with space flight activities include, but are not limited to, risk of bodily injury, including death, emotional injury, and property damage. I understand and acknowledge that I am participating in space flight activities at my own risk. I have been given the opportunity to consult with an attorney before signing this statement."<sup>55</sup>

Apart from the length of the statement, the California Act would stand out by its reference to *limited civil liability*, although this seems to be largely a matter of phrasing – the clause actually providing for the immunity still states that "a space flight entity shall *not* be liable for participant injury arising out of space flight activities" if the 'informed consent' provisions have been complied with.<sup>56</sup> Conversely, the heading of the clause in the Texas Statute, while providing for the same black-and-white phrase of 'not being liable' in the text itself, and indeed the title of the whole Texas Statute make reference to "Limited liability".<sup>57</sup> So the 'limitations' are essentially those found in all the other statutes as well, namely as lying in the categories taking away the protection of the waiver – the exceptions also under the California Act to applicability of the liability immunity are once again the triad of gross negligence, wilful or wanton disregard, knowledge of existence of dangerous conditions, respectively intentional injury (albeit that the order is changed here).<sup>58</sup>

Finally, the spaceflight entity entitled to the liability immunity is shortly defined as "any public or private entity that holds, either directly or through a corporate subsidiary or parent, a license, permit, or other authorization issued by the United States Federal Aviation Administration pursuant to the federal Commercial Space Launch Amendments Act of 2004 (51 U.S.C. Sec. 50905 et seq.), including, but not limited to, a safety approval and a payload determination".<sup>59</sup>

Thus, the California Act contrary to the other five state statutes – the New Mexico one as still being proposed to be amended – does *not* extend to contractors and subcontractors, except if responsible for the payload.

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55 Sec. 2211(a), Spaceflight and Liability Immunity Act; emphasis added.

56 Sec. 2212(a), Spaceflight and Liability Immunity Act; emphasis added.

57 See Sec. 100A.002 & Chapter 100A, Space Activities Statute.

58 See Sec. 2212(c), Spaceflight and Liability Immunity Act.

59 Sec. 2210(d), Spaceflight and Liability Immunity Act.

## 5. Concluding Remarks

From a first superficial analysis, the six statutes so far adopted seem remarkably similar, although not entirely identical.

All dictate the warning which should make the spaceflight entity compliance with the ‘informed consent’ requirements of the Commercial Space Launch Act and the Code of Federal Regulations – but here, the slight differences in formulation should already be noted.<sup>60</sup> All furthermore provide for a statutory waiver for spaceflight entities *vis-à-vis* spaceflight participants having signed such warnings.

Then, however, (more important) divergences arise. While all statutes provide for a limited set of exceptional circumstances under which the waiver can not be upheld, Virginia and Texas address this differently from the other four. The latter add a third condition referring to knowledge of existence of dangerous conditions. This might turn out to be a rather tricky clause: “The intended scope of this additional exception can only be made clear when viewed in the overall context of the statutory schemes *and the pre-existing statutory and judicial precedent*. Of course, all spaceflight operators are aware of dangers in the use of their facilities and equipment: it is the reason warnings must be given to the spaceflight participant and an informed consent secured. If that knowledge alone could nullify the limitations on liability, then the entire statutory scheme would be rendered meaningless.”<sup>61</sup>

While all statutes, also, provide for the applicability of such a waiver not only to the spaceflight entity (assuming the New Mexico Bill amending the original Space Flight Informed Consent Act will pass) but also to others, states then again start to diverge, with California being most restricted (including, apart from the spaceflight operator, only the entity responsible for the payload) and Texas being most extended (including a range of individuals involved).

Apart from such differences, the importance of which would perhaps be difficult to gauge until actual disputes would arise and have to be solved by courts seized of such disputes, differences in other areas could also present cause for concern from the perspective of a harmonized US-wide legal framework.<sup>62</sup>

To the extent the latter would be aimed for, however, two more fundamental points of concern arise.

Firstly, with six states now having accepted at least a general warning-plus-waiver regime with limited exceptions *ratione materiae* and broad application *ratione personae*, what with the forty-four other US states? Suppose a case would be brought before the courts of one of those states – for example, because a heir to a victim does not feel bound to the waivers? After all, the warning statements giving rise to those waivers, quoted above, are qualified by the

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60 See Yates, 15, expressing summary concern about the consequences of those differences.

61 Yates, 15, emphasis added; the author proceeds with briefly analysing such pre-existing statutory and judicial precedent.

62 Cf. again Yates, 15-6.

phrases ‘under Virginia law’, ‘under Florida law’, ‘under New Mexico law’, ‘under Colorado law’ respectively ‘under California law’ – only the Texas Statute does not make such a reference. What does it mean that, nevertheless, those statutes make reference to ‘participant’s representatives’, sometimes expressly including ‘heirs’, as being precluded from bringing liability claims?<sup>63</sup>

Secondly, and related to the foregoing, the variations in US state law – and the absence of any state law so far in the majority of US states – in an area already regulated, albeit lightly, at the federal level on a sector being perceived generally as being of national, if not indeed international character raise the issue of ‘federal pre-emption’: to what extent do individual US states have the constitutional right to draft their own laws in this field? While this issue has so far not been legally tested – partly because the first commercial flights are still in the future, partly because the FAA may not yet be clear itself on how to regulate further than it currently has – it will most likely sooner or later have to be addressed.

In view of the overwhelming focus so far of the impending spaceflight industry on the United States, this finally might spill over also into the international arena, to the extent private commercial spaceflights are being considered in that context for the near future.

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63 See § 8.01-227.9(A), Space Flight Liability and Immunity Act (Virginia); Sec. 331.501(2)(a), Space Activities Statute (Florida); Sec. 3(A), Space Flight Informed Consent Act (New Mexico); Sec. 41-6-101(2)(a), Act Concerning Limited Liability for Space Activities (Colorado); & Sec. 2212(b), Spaceflight and Liability Immunity Act (California). The Texas Statute simply posits a lack of liability “to any person”; Sec. 100.A.002(a), Space Activities Statute.