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Limitations On Liability As To Space Tourists

By Paul Alp[1]

"Space tourism has definitely arrived. . . . The market is established. The vehicles are flying. It's not a paper project."

— Stephen Attenborough, CEO of Virgin Galactic[2]

In 2001, the first private space tourist reportedly paid $20 million to travel to the International Space Station, orbit the earth, and return.[3] In October 2004, Scaled Composites won the $10 million Ansari X Prize for completing two suborbital human space flights in the span of two weeks with a vehicle named SpaceShipOne.[4] This milestone signaled the emergence of a class of entrepreneurs and startup companies developing vehicles for space tourism.[5] One such enterprise,

a joint venture formed by the people behind SpaceShipOne and billionaire Richard Branson, plans to provide suborbital tourist flights for around $200,000 per ride marketed under the Virgin Galactic brand.[6] It is not just start ups and entrepreneurs that are seeking to enter the market. In September 2010, aerospace giant Boeing announced a joint venture in which it would provide rides to private individuals on a Boeing-designed capsule to and from the International Space Station.[7] The parties aim to begin operations by the end of 2015.[8]

A study of the market for space tourism concluded that almost 16,500 people could be making suborbital flights by 2021, paying operators a total of $800 million for the opportunity to do so.[9] With the space tourism industry poised to launch, how liability issues will play out represents a new frontier for lawyers. One issue involves the transfer of risk between operators of space vehicles and their paying passengers, so-called "space flight participants."[10] Today, a great deal of uncertainty exists about how an operator's tort liability to space tourists will be defined and how it may be limited. This article presents an overview of the current state of US law applicable to an operator's liability and the limitations to it.

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[2] Quoted in Frances Perraudin, *Space Tourism: Will It Be Worth the Money?* Time Magazine, Oct. 31, 2010, www.time.com/time/business/article/0,8599,2027613,00.html.

[3] British Broad. Co., *Space Tourist Hails 'Trip To Paradise,'* May 6, 2001, http://news.bbc.co.uk/2/hi/science/nature/1315214.stm.

[4] Federal Aviation Administration, Fact Sheet, *Commercial Space Transportation,* (June 28, 2010), *available at* www.faa.gov/news/fact_sheets/news_story.cfm?newsId=11559FSS.

[5] *See* Federal Aviation Administration, *Suborbital Reusable Launch Vehicles and Emerging Markets,* at 7 (Feb 2005), *available at* www.faa.gov/about/office_org/headquarters_offices/ast/media/Suborbital_Report.pdf.

[6] *See* Heather Timmons, *Virgin to Offer Space Flights (Even, Sort of, at Discount),* N.Y. Times, Sept. 28, 2004, www.nytimes.com/2004/09/28/business/worldbusiness/28space.html?scp=9&sq=virgin%20galactic&st=nyt. Other companies developing systems for offering flights into space for private passengers include Rocketplane, Xcor Aerospace, Star Chaser, Blue Origin, and Excalibur Almaz.

[7] Mark Kaufman, *Boeing, Partner Plan Space Taxi for Tourists by 2016,* Wash. Post, Sept, 16, 2010, at A4, www.washingtonpost.com/wp-dyn/content/article/2010/09/15/AR2010091506375.html.

[8] *Id*. Boeing has stated that one of its goals is to "become the Boeing commercial aircraft of human space commerce." Eric Berger, *Boeing Says It's Entering Space Tourism Business,* Houston Chronicle, Sept. 15, 2010, www.chron.com/disp/story.mpl/metropolitan/7203076.html.

[9] Federal Aviation Administration, *Suborbital Reusable Launch Vehicles and Emerging Markets,* at 9 (Feb. 2005), *available at* www.faa.gov/about/office_org/headquarters_offices/ast/media/Suborbital_Report.pdf.

[10] The term "space flight participant" is defined by statute as "an individual, who is not crew, carried within a launch vehicle or reentry vehicle." 49 U.S.C. § 70102(17).

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R. None of this would be possible without the support of the Task Force I appointed to help me with this initiative. Those members are: Kathleen Strickland, Chair, Janet Davis, Ken Roberts, Allan Kanner, Larry Schiffer, Cindy Antonucci, Kevin McCormack and, of course, you Jill. And I would also like to acknowledge the support of TIPS staff including Janet Hummons, Debbie Dotson, Ninah Moore, and Erin Ruehrwein in this significant and ambitious undertaking.

Space Tourists…

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I. A Federal Space Tourism Tort?

Federal authorities require, for licensing purposes, that operators inform space flight participants of the risks of space travel and obtain their "informed consent" to launch and reentry. Some commentators have suggested that the federal statutory scheme governing commercial human space flight, as implemented through FAA regulations, has resulted in a new tort for injuries to space tourists founded in an operator's statutory duty to warn participants of the hazards of flight.[11] An examination of the applicable statutes and regulations suggests that this is not the case.[12]

Today, a great deal of uncertainty exists about how an operator's tort liability to space tourists will be defined and how it may be limited.

The Commercial Space Launch Amendments Act of 2004, codified at 49 U.S.C. § 7-1-1 *et seq*., ("CSLAA" or "Act"), sets forth requirements governing the licensing and regulation of commercial human space flight, which is the responsibility of the FAA. The Act makes clear Congress' intention to promote the embryonic commercial human space flight industry. It states that the US "should encourage private sector launches, reentries, and associated services and, only to the extent necessary, regulate those launches, reentries, and services. . . ."[13]

The CSLAA includes provisions that address issues of liability and risk sharing. It continues the regime introduced in the 1988 amendments to the original Commercial Space Launch Act in which private launch companies receive indemnification from the US government against successful claims by uninvolved third parties in excess of the limits of mandatory insurance that operators must carry.[14] The CSLAA does not, however, require operators to obtain insurance for, or for the government to provide indemnification of, third party claims brought against space flight participants.[15]

The Act's licensing requirements for operators engaging in launches or reentries mandate that they enter into reciprocal waivers of claims with their contractors and customers—but not space flight participants.[16] Instead of requiring that space flight participants sign liability waivers as to operators, the Act requires operators to furnish participants with written information about risks[17] and obtain "written informed consent to participate in the launch and reentry."[18] The Act's generally worded provisions leave open what specific information an operator must provide and what constitutes "informed consent" under the statute. The Act is also silent on whether these provisions, if complied with, are intended to immunize a compliant operator from tort liability.[19]

11 *See, e.g.,* Tracey Knutson, *What is 'Informed Consent' For Space-Flight Participants In The Soon-To-Launch Space Tourism Industry?* 33 J. Space L. 105, 110 (2007).

12 Whether compliance with the requirements in the federal scheme for licensing operators would suffice as a defense to tort claims brought by the representatives of a space flight participant after a mishap is another open question.

13 49 U.S.C. § 70101(a)(7). The purposes of the Act include promotion of "economic growth and entrepreneurial activity" and encouragement of US private sector space activity by "promoting the continuous improvement of the safety of launch vehicles designed to carry humans." *Id*. §§ 70101(b)(1), 70101(b)(2)(C).

14 *See id*. § 70112(a). License and permit and applicants must demonstrate financial responsibility, through insurance or otherwise, to guaranty payment to third parties up to a "maximum probable loss" determined by the FAA. The US government agrees to pay third party claims in excess of the maximum probable loss up to a cap that is adjusted for inflation. *Id*. "By setting insurance requirements based on maximum probable loss, the Government is essentially making a risk estimate that its potential liability will be covered by the insurance purchased." H.R. Rep. No. 108-429 at 3 (Mar. 1, 2004) ("House Report"). *See generally,* Federal Aviation Administration, *Liability Risk-Sharing Regime for U.S. Commercial Space Transportation: Study and Analysis* (Apr. 2002), *available at* www.faa.gov/about/office_org/headquarters_offices/ast/media/FAALiabilityRiskSharing4-02.pdf.

15 In the words of the authors of the Act, "space flight participants wishing to ride on board a launch vehicle have chosen to undertake a risky venture of their own accord. As such, they do not merit the financial security provided by the promise of indemnification." House Report at 12.

16 49 U.S.C. § 70112 (b)(1). The Act also requires operators, crew members, and space flight participants to execute waivers of claims against the US government. *Id*. § 70112 (b)(2).

17 In particular, the Act provides that an operator, "may launch or reenter a space flight participant only if" the operator:

"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

"informed any space flight participant in writing, prior to receiving any compensation from that space flight participant or (in the case of a space flight participant not providing compensation) otherwise concluding any agreement to fly that space flight participant, that the United States Government has not certified the launch vehicle as safe . . . ."49 U.S.C. § 70105(b)(5)(A) and (B).

The statute also requires the FAA to inform "the space flight participant in writing of any relevant information related to risk or probable loss during each phase of flight." *Id*. § 70105(b)(5)(A).

18 *Id*. § 70105(b)(5)(C).

19 The draft House bill with language that did not make it into the Act was intended to immunize operators from negligence claims brought by space flight participants through reciprocal waiver requirements. *See* House Report at 14.

It has been suggested that Congress' choice of the term "informed consent" in the Act created an independent tort arising from a statutory duty to warn space flight participants of risks similar to the duty of physicians to provide "informed consent" to their patients.[20] In the medical malpractice context, failure of a treating physician to disclose material risk can result in liability for injury even where the treatment is performed without negligence.

In the absence of legislative history suggesting that Congress intended to create a new tort, this conclusion seems far-fetched, especially given that: (i) the Act was expressly intended to promote the development of commercial human space flight; (ii) the Act's notice and consent provisions are found in the parts of the statute governing the licensing of operators; and (iii) unlike a medical patient who needs treatment, a space tourist voluntarily decides whether to participate in a flight.

Most significant is the fact that Congress removed language from an early draft of the legislation that would have required liability waivers between operators and participants.[21] As a result, Congress appears to have declined to issue a determinative statement of how the transfer of risk between operators and space flight participants is to be handled. A plain reading of the Act in the context of its history suggests that, rather than creating a new tort, it "essentially legislates personal responsibility on the part of the space tourist" and makes space flight participants "informed consumers."[22] This conclusion is underscored by the FAA's observation that "the CSLAA does not explicitly preclude licensee or permittee liability to space flight participants."[23]

Indeed, the authority given to the FAA to regulate human space flight operations must be understood in the context of the Act's stated goal of promoting the development of the industry. Congress did not intend that the safety of commercial space flight participants be protected through regulation to the same extent as passengers on commercial airlines. As the FAA observed:

> The CSLAA is structured to allow the same kind of risk that mountain climbers and other adventurers seek in the context of space flight.[24]

The FAA considers the Act's definition of "space flight participant" as signifying that "someone on board a launch vehicle or reentry vehicle is not a typical passenger with typical expectations of transport, but someone going on an adventure ride."[25] Accordingly, in issuing its final rule to implement the "informed consent" provisions of the Act, the FAA rejected suggestions it received in comments to issue more robust safety regulations to protect space flight participants:

> [T]he CSLAA does not provide the authority to protect space flight participants except in certain circumstances . . . . Congress requires that space flight participants be informed of the risks. To that end, the FAA is establishing notification requirements.[26]

The informed-consent requirement was not intended to result in a contractual waiver of claims against the operator, as explained by the FAA in its rulemaking documents[27] and demonstrated by the fact that, in contrast, the regulations require participants to execute express waivers of claims against the US government.[28]

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20 *See* APT Research, Inc., *Study On Informed Consent for Spaceflight Participants,* Doc. No. APT-CFA-230-0001-02F (Sep. 26, 2008), *available at* www.faa.gov/about/office_org/headquarters_offices/ast/reports_studies ("APT Study"), at 7.

21 A preliminary version of the House bill that eventually became the Act provided that operators would also be required to make reciprocal waivers of claims with space flight participants and crew. *See* House Report at 14 and 25. The final bill that Congress passed removed this language. *See Commercial Space Launch Amendments Act of 2004,* H.R. 5382, 108th Cong. (2d Sess. 2004).

22 Rebekah Davis Reed, Ph.D., *Ad Astra Per Aspera: Shaping A Liability Regime For The Future Of Space Tourism,* 46 Hous. L. Rev. 585, 599-600 (Spring 2009). *See also* Laura Montgomery, *Space Tourism and Informed Consent: To Knowingly Go,* 51 Fed. Law. 26, 27 (July 2004) (act "would enable space tourists to be informed consumers"). Based on this record it does not appear accurate to conclude, as at least one commentator has done, that "Congress intended to impose on operators a statutory or codified 'duty to warn' when it used the phrase 'informed consent.'" *See* Tracey Knutson, *What is 'Informed Consent' For Space-Flight Participants In The Soon-To-Launch Space Tourism Industry?* 33 J. Space L. 105, 110 (2007).

23 Special Report at SR-4.

24 *Human Space Flight Requirements for Crew and Space Flight Participants,* 70 Fed. Reg. 77,262, 77,269 (proposed Dec. 29, 2005). The Act provided the FAA with authority to promulgate regulations to protect the safety of space flight participants, *see* 49 U.S.C. § 70103(c), but limited this authority substantially. For eight years after enactment of the Act, the FAA is only permitted to issue regulations that protect the safety of space flight participants by restricting design features or operating practices that already have resulted in a serious injury, fatality, or close call. *Id*. § 70105(c).

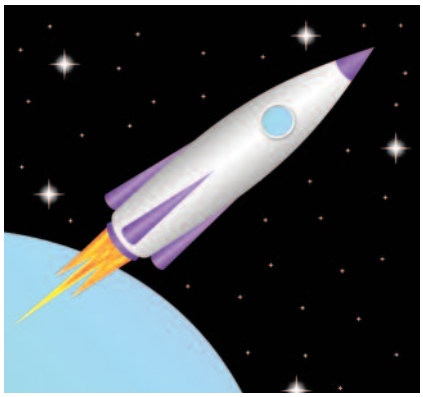
25 70 Fed. Reg. at 77,269.

26 Final Rule, *Human Space Flight Requirements for Crew and Space Flight Participants,* 71 Fed. Reg. 75,616, 75,624 (Dec. 15, 2006). The FAA also rejected the idea that a space flight participant should have detailed technical knowledge in order to recognize design features or operating practices that elevate risk: "Congress requires that a space flight participant be informed of the risks, not that he or she acquire an understanding of basic engineering principles in order to understand that risk." *Id*.

27 *See, e.g.,* 71 Fed. Reg. at 75627 ("Neither Congress nor the FAA mandated waivers of claims against an operator"); 70 Fed. Reg. at 77269 (space flight participant not required to waive claims against licensee but the CSLAA does not "prevent an operator from making a waiver of liability a condition of an agreement between it and a space flight participant or crew").

28 *See* 14 C.F.R. § 460.49 ("Space flight participant waiver of claims against U.S. Government").

Instead, written consent and oral questioning of the operator are "clearly intended to achieve some type of 'cognizance test' or '. . . affirmation that the space flight participant understands what he or she is getting into before embarking on a mission.'"[29]



Thus, the Act leaves open the issue of how risk is transferred between operators and space tourists to the parties themselves and applicable state authorities. An operator that provides information pursuant to the Act about risks may be relieved from liability for negligence under the doctrine of assumption of risk, and obtaining informed consent could conceivably result in a waiver of liability.[30] However, mere compliance with the Act and the FAA's regulations will not be determinative of how future liability issues will play out.

II. State Tort Immunity Statutes

In order to encourage commercial space operations, some states have enacted statutes that immunize operators from liability for negligence that results in harm to space flight participants.[31] Virginia enacted a tort immunity statute for space flight operators in 2007.[32] It provides immunity from tort claims of a space flight participant or representative arising from injury resulting "from the risks of space flight activities."[33] It contains carve outs for potential claims for injury proximately caused by "gross negligence evidencing willful or wanton disregard for the safety of the participant" and injury intentionally caused.[34] A prerequisite for immunity is obtaining the signature of the space flight participant on a "warning and acknowledgement form" containing language specified by statute.[35]

Florida[36] and New Mexico[37] enacted similar immunity legislation in 2008 and 2010, respectively. Although they are generally similar to Virginia's statute, they depart from it in a couple of significant respects. First, the Virginia statute's definition of the entity entitled to claim immunity—the "space flight entity"— includes not only an operator holding a license or permit from the FAA pursuant to the CSLAA but also "any manufacturer or supplier of components, services, or vehicles that have been reviewed by" the FAA as part of issuing such a permit or license.[38] Based on this definition, a component manufacturer could obtain immunity from liability for negligence if it obtains written acknowledgment of the statutorily required warning from the space flight participant.[39] Neither Florida nor New Mexico extends immunity beyond permitted operators.[40]

Second, the Florida and New Mexico statutes each contain an exception from immunity where a space flight entity "has actual knowledge or reasonably should have known of a dangerous condition on the land or in the facilities or equipment used . . . and the danger proximately causes injury, damage, or death to the participant."[41] The Virginia statute does not contain such a such carve-out.

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29 APT Research, Inc., *Study On Informed Consent for Spaceflight Participants,* Doc. No. APT-CFA-230-0001-02F (Sep. 26, 2008), *available at* www.faa.gov/about/office_org/headquarters_offices/ast/reports_studies ("APT Study").

30 *See* Special Report at SR-1.

31 Whether the federal preemption of state law exists with respect to tort liability of operators to space flight participants is an unresolved question.

32 *Virginia Space Flight Liability and Immunity Act,* Va. Code. Ann. §§ 8.01-227.8 to 8.01-227.10 (West 2010).

33 *Id*. § 8.01-227.9.

34 *Id*.

35 The statute provides that the acknowledgement "shall contain, at a minimum and in addition to any language required by federal law, the following statement:

> 'WARNING AND ACKNOWLEDGEMENT: 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 limited 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.'"

Id. § 8.01-227.10.

36 *See Florida Informed Consent for Spaceflight Act, codified at* Fla. Stat. Ann. § 331.501 (West 2010).

37 *See Space Flight Informed Consent Act, codified at* N.M. Stat. Ann. §§ 41-14-1 to 41-14-4 (West 2010).

38 Va. Code. Ann. § 8.01-227.8 (West 2010).

39 *See id*. § 8.01-227.10C (requiring space flight entity to comply with requirement concerning warning statement in order invoke the "privileges of immunity" provided by the statute).

40 The Florida statute defines "spaceflight entity" as "any public or private entity holding a United States Federal Aviation Administration launch, reentry, operator, or launch site license for spaceflight activities." Fla. Stat. Ann. § 331.501(c) (West 2010). *See also* N.M. Stat. Ann. § 41-14-2C (West 2010) (same).

41 Fla. Stat. Ann. §331.501(b)(2) and N.M. Stat. Ann. §41-14-3B(2).

These states may soon be joined by Texas [42] and California. The effectiveness of these immunity statutes has not to date been tested in court.

III. Traditional Limitations on Liability

In the absence of an applicable statute, liability issues between operators and space tourists will likely be governed by state negligence law (assuming that US law is deemed to apply). Which state's law would apply in the event of a mishap presents an intriguing question that will depend on a variety of factors relating to the facts of the accident itself. Limitations on liability will likely be found in the doctrines of assumption of risk and waiver, informed by how these defenses have evolved in the context of high-risk activities such as adventure sports.

Assumption of Risk

Although the doctrine of assumption of risk has been criticized and may be of reduced importance in the era of comparative fault,[43] it still has vitality in the context of sports and other active pursuits that put participants at an elevated risk of injury.[44] As Congress and the FAA have likened space tourists to people participating in an adventure ride,[45] the body of law on assumption of risk developed in the context of active sports is instructive. In these cases, assumption of risk can operate as a complete bar to recovery where plaintiff "is held to agree to relieve defendant of an obligation of reasonable conduct toward him."[46]

Under the doctrine of assumption of risk, a plaintiff provides express consent "to relieve the defendant of an obligation to exercise care for his protection, and agrees to take his chances as to injury from a known or possible risk." [47] As a result, the defendant is held to no longer have a duty to protect the plaintiff from harm. Instead, a defendant's duty is "to exercise care to make the conditions as safe as they appear to be. If the risks of the activity are fully comprehended or perfectly obvious, plaintiff has consented to them and defendant has performed its duty."[48]

The doctrine relieves a defendant of its duty of care to protect from risks inherent in the activity.[49] Whether the defendant owes a duty turns on "the nature of the activity or sport in which the defendant is engaged and the relationship of the defendant and the plaintiff to that activity or sport."[50] For the plaintiff to assume risk, the "necessary ingredient" is actual knowledge of the risk involved or knowledge implied because the risk should reasonably have been known to the plaintiff.[51]

In the contest of space tourism, the federal statute discussed above requires that operators inform participants about the risks of flight. An operator's compliance with the Act could, therefore, potentially lay the groundwork for an assumption-of-risk defense under state law.

Express Waiver

Another way that an operator may attempt to avoid liability to a space flight participant is through obtaining a waiver such as the sort used in other recreational activities.[52] The extent to which an operator could rely on waiver is in this context is uncertain, given that waivers are strictly construed and subject to avoidance on public policy grounds.[53] Law on the effectiveness of waivers "varies greatly among states and . . . the enforceability of waivers between participants and

42 In November 2010, an immunity bill was introduced in the Texas Senate. *See* S.B. No. 115, 82d Leg., (Tex. 2011) www.capitol.state.tx.us-/tlodocs/82R/billtext/html/SB00115I.htm. *See also* Press Release, Office of Senator Carlos Uresti, Nov. 8, 2010 ("This bill will make sure that courts enforce waivers of liability . . . . The space tourism industry holds a lot of promise for the West Texas economy, and this bill should give it a big boost."), www.uresti.senate.state.tx.us/pr10/p110810b.htm.

43 *See* Stephen D. Sugarman, *Assumption of Risk,* 31 Val. U. L. Rev. 833, 834 (Summer 1997) (doctrine is "confusing, unnecessary, and if we are not careful, it will lead us to the wrong outcome."). *See also* RESTATEMENT (THIRD) OF TORTS § 2 (2000).

44 *See Kindrich v. Long Beach Yacht Club,* 84 Cal. Rptr. 3d 824, 828 (Cal. Ct. App. 2008) (doctrine comes into play in connection with "certain types of activities, such as an 'active sport'"). *See also Moser v. Ratinoff,* 130 Cal. Rptr. 2d 198, 204 (Cal. Ct. App. 2003) (collecting cases where courts found the doctrine applies to various activities, including water skiing, baseball, off-roading, cheerleading, tubing, judo, rafting, and sailing).

45 *See, e.g.,* 70 Fed. Reg. at 77,269 (space flight participant is "someone going on an adventure ride" that can be compared to "mountain climbing, skydiving, not wearing a helmet while riding a motorcycle, and other risky endeavors").

46 *Knight v. Jewett,* 834 P.2d 696, 829 (Ca. 1992).

47 RESTATEMENT (SECOND) OF TORTS § 496A cmt. c(1) (1965). *See also id*. § 496B.

48 *Turcotte v. Fell,* 502 N.E.2d 964, 968 (N.Y. App. 1986).

49 Assumption of risk "is merely another way of saying no duty of care is owed for risks inherent in a given sport or activity." *Ferrari v. Grand Canyon Dories,* 38 Cal. Rptr. 2d 65, 67 (Cal. Ct. App. 1995) (plaintiff assumed risk of injury inherent in white water rafting).

50 *Knight,* 834 P.2d at 704 (Ca. 1992). "The overriding consideration in the application of primary assumption of risk is to avoid imposing a duty which might chill vigorous participation in the implicated activity and thereby alter its fundamental nature." *Ferrari,* 38 Cal. Rptr. 2d at 67.

51 Walter T. Champion, Jr., Fundamentals of Sports Law 2d, § 8:1 at 2-3 (West. ed. 2010).

52 *See* Special Report at SR-1, SR-4. The FAA observed that, although the CSLAA does not require a space flight participant to waive claims against the licensee, it does not "prevent an operator from making a waiver of liability a condition of an agreement between it and a space flight participant or crew." 70 Fed. Reg. at 77269.

53 *See* Special Report at SR-2. *See also* Champion, Jr., *Fundamentals of Sports Law 2d,* § 8:3 at 2-3.

operators is by no means certain."[54] An exculpatory agreement "must meet higher standards for clarity than other agreements,"[55] and "must be expressed in clear, definite, and unambiguous language. . . ."[56] To be valid, a waiver must not be against public policy, not absolve a party from gross negligence, and "not allow results that would indicate a large disparity in bargaining power."[57] In addition, the states have established, through statute or common law, limitations on waivers that vary substantially by jurisdiction.[58] For these reasons, whether or to what extent waivers executed by space flight participants would be enforced in state court is not clear.[59]

Conclusion

The current period of robust development of commercial space travel can be compared to the period following the Wright Brothers' first flight in 1903, which was followed eleven years later by the first scheduled airline passenger flight in the US.[60] How issues of liability in the space tourism context will play out is an open question. Choice-of-law is likely to be a critical issue in the event of any mishap in space, or on the way to or from it, as potentially applicable law could come from a wide-variety of sources.

It can be argued that a federal statutory framework governing liability for commercial human space flight could provide the benefits of certainty and uniformity. The existing federal scheme, however, is largely directed at promoting the nascent industry. As discussed above, a reading of the CSLAA as creating a new tort is not supported by the language of the Act, its legislative history, or the FAA's interpretation of it. Further Congressional action would be required to create a federal liability scheme governing an operator's liability to space tourists.

Some commentators have proposed approaches to liability in human space flight operations informed by, and modeled on, the regimes in place for aviation[61] or maritime law.[62] The FAA's solution to the liability issue appears to be to promote the use of liability waivers and additional state legislation:

> Properly constructed waivers are now used successfully by other recreational activity industries and can also be used by the personal space flight industry. Further, the opportunity to lobby for state legislative protection is still available.[63]

In the absence of explicit federal or state statutory authority, attorneys intending to practice in the embryonic field of space tourism will have to (i) stay on top of developments in federal and state statutory law, and (ii) remain mindful of how traditional state law concepts, such as assumption of risk and waiver, may apply to commercial human space flight.

54 Reed, *supra,* at 603.

55 *Provoncha v. Vermont Motocross Assoc., Inc.*, 974 A.2d 1261, 1264 (Vt. 2009).

56 Restatement (Third) of Torts § 2 cmt. d (2000).

57 Champion, Jr., *Fundamentals of Sports Law 2d,* § 8:3 at 3.

58 *See* Special Report at SR-2 ("Judicial tolerance of liability waivers for recreational activities varies by jurisdiction.") *See also id*. at SR-2-SR-4 (summarizing varying law of exculpatory agreements among the states).

59 Reed, *supra,* at 600 ("The result is a great deal of uncertainty concerning the extent of potential liability to which launch operators might be exposed—even when they are voluntarily released from liability by a space flight participant.")

60 *See* Timothy M. Ravich, *2010: Space Law In The Sunshine State,* 84 Fl. Bar. J. 24, 25 (Sept./Oct. 2010). *See also id*. at 30 ("The convergence of public, private, and commercial space initiatives, supported by a corresponding (albeit nascent) set of space tourism laws, evidences an inflexion point in human space activity and potentially greater accessibility to outer space for the global community.")

61 Reed, *supra,* at 610.

62 Van C. Ernest, *Third Party Liability of the Private Space Industry: To Pay What No One Has Paid Before,* 41 Case W. Res. L. Rev. 503 (1991).

63 Special Report at SR-4 ("Considering the strong public support enjoyed by the space industry, creating a system of waivers seems to be quite an achievable task.")