

The legal problems of providing the space activity of space objects launching by aerospace launch systems with the participation of several States (Polyot Air Launch Project as an example).¹

Dr. Bernhard Schmidt-Tedd,
German Aerospace Center DLR
Bernhard.Schmidt-Tedd@dlr.de

Dr. Gulnaz Khalimova,
PhD, Moscow, Russia
khalimova@list.ru

Dr. Sergey Teselkin,
Air Launch Aerospace Cooperation, Russia
teselkin@poletairlines.com

Abstract

Aerospace launch systems with the participation of several States such as the Polyot Air Launch Project challenge the existing regulatory legal regime governing activities in Outer Space. On the one hand the launch takes place outside national launch facilities on ground. On the other hand several countries and/or private entities are participating in those projects. Does this lead to the conclusion that the current regulatory regime, which was adopted at a time when only a few States were concerned with the exploration and use of Outer Space and when launches regularly took place on facilities within a State's territory, is not capable to address those new and innovative projects? The answer is clearly no. We rather simply need to interpret the existing regulatory framework in a meaningful way in order to regulate aerospace launch systems with the participation of several States effectively.

Firstly, it is submitted that both (national) Air and Space Law can be applicable to a launch activity that takes place in (national) Air Space. Secondly, the authors bring forward that the separation of the carrier aircraft should be considered as the launch in terms of the space treaties. Thirdly, the authors make it clear that the mere preparatory work on the ground such as the integration of the payload does neither establish responsibility in terms of Art. VI OST nor liability in terms of Art. VII OST. Fourthly, it is pointed out that the payload remains under the jurisdiction and control of the launch service provider, which registered the launch vehicle, as long as it is not registered separately. Finally, the authors underline the need for adequate project arrangements between the partners involved.

¹ The opinions expressed in this article are entirely those of the authors and do not engage organisations with which they are affiliated.

I) Introduction

During recent decades the exploration and use of Outer Space has been growing significantly and is undergoing serious structural changes. The existing regulatory framework, however, is still determined by treaties adopted in the 1960-1970's² - a time when space activities used to be carried out by a few States. These activities were directly linked to governmental interests in space research, scientific cooperation, national security and defense. Whereas, commercial activities were less significant.

Since the 90's of the last century the commercialization of Outer Space began in the telecommunication and remote sensing sector. Once the benefits of space systems and technologies were marked, the private business has grown extensively. At the same time, the public sector started to pay more attention to the commercialization of space activities. Taking this and the increasing complexity of space projects into account, several countries and/or private entities are participating in modern space activities.

² The core of space law consists of the five UN-treaties: 1. Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space of 19 December 1966, the Outer Space Treaty (OST), 610 UNTS 205; 2. Agreement on the Rescue of Astronauts, the Return of Astronauts and the Return of Objects Launched into Outer Space of 19 December 1967, the Rescue Agreement (ARRA), 672 UNTS 119; 3. Convention on International Liability for damage Caused by Space Objects of 29 November 1971, the Liability Convention (LIAB), 961 UNTS 187; 4. Convention on Registration of Objects Launched into Outer Space of 12 November 1974, the Registration Convention (REG), 1023 UNTS 15; and 5. Agreement Governing the Activities of States on the Moon and Other Celestial Bodies of 5 September 1979, Moon Agreement (MOON), 1363 UNTS 3.

A special category of space activities are those projects, where the launch takes place outside national launch facilities on ground. In the past the Sea Launch case has been discussed intensively.³ For the future there might be a similar complex situation in cases of Air Launch by cross border cooperation, which serve as an example to look for adequate answers for a complex project with international partners under a meaningful interpretation of the existing space law.

II) The Air Launch Example

There are different Air Launch examples, such as the U.S. aerospace system Pegasus,⁴ which started from the carrier aircraft Lockheed TriStar L-1001. Recently also Israel took under consideration an Air Launch Project in order to avoid a risky area for launching.⁵ The motivations can be quite different. An economical reflection can be to launch near to the equator, independently of the geographical location of the mother country. These limited Air Launch cases under strict national projects did not raise questions of responsibility, liability and jurisdiction and control *in extenso*.

³ Cf. van Fenema, Peter H., Launch Services, in: Proceedings of the 43rd (2000) Colloquium on the Law of Outer Space, p. 419; Frankle, Edward / Steptoe, Jason E., Legal Considerations Affecting Commercial Space Launches from International Territory, in: Proceedings of the 42nd (1999) Colloquium on the Law of Outer Space, p. 297; Kerrest, Armel, Launching Spacecraft from the Sea and the Outer Space Treaty: The Sea Launch Project, in: Proceedings of the 40th (1997) Colloquium on the Law of Outer Space, p. 264.

⁴ <http://www.orbital.com/spacelaunch/pegasus/> (last visited: 14.09.2011).

⁵ Opall, Barbara, Israel Studies Airborne Launch Scheme for Shavit Rocket, Space News 25th July 2011, p.24.

Polet, a Russian Company, developed an Air Launch Project which might be realized with Indonesia.⁶ In this case satellites would be launched with a two-stage system in the way of a combination of an aircraft and a rocket – the so called Polyot Space Launch Vehicle. An Antonov heavy lift aircraft, registered in Russia, would transport the fueled rocket – a complete system of launcher and payload – to a certain altitude, approximately 10 km, in Air Space. From there the rocket would launch the payload to an earth orbit. The launch of the rocket could be in national Air Space, e.g. Indonesia, or over the High Seas. The control center might be in Indonesia or elsewhere. The preparatory work for the upper stage and the payload might be in an integration facility in Germany.

In legal terms the relevant questions are, if the airport of the last ground contact of the airplane is of any relevance or if the airplane is the relevant launching facility and if any preparatory or accompanying work on ground is of relevance for responsibility and liability in terms of the space treaties?

III) Legal Questions of Responsibility, Liability and Jurisdiction and Control

Space law has established a clear link between international responsibility and national activities (Art. VI OST), launching State and liability (Art. VII OST) and jurisdiction and control for the State of registry (Art. VIII OST).⁷ In international projects such as the Polyot Air Launch Project we find, as shown above, a complexity which leads to some questions of interpretation. Firstly, it needs to

be determined whether and if yes at which stage space law is applicable to such an activity that combines an airplane and a launch vehicle. Secondly, it seems to remain ambiguous which States are liable for damages caused in relation to an Air Launch. Thirdly, projects with more than one State involved raise the question, which State is responsible. Finally, only one State is entitled to exercise jurisdiction and control over the space object launched.

1. Applicable Legal Regime

The delimitation of Air Space and Outer Space is not a strict border line and in legal concepts still under discussion. More relevant for the Air Launch concept is the field of application of air law and space law for the various operations. More precisely it is of practical relevance which activities could lead to responsibility and liability under space law. The applicability of space law is under legal perspectives the critical question. Space law is related to State liability also for relevant private activities under the concept of launching State and responsibility for national activities, including those of non-governmental activities. The freedom to explore and use Outer Space is combined with a strict State to State liability regime for the ultra-hazardous activities of launching States.⁸

State responsibility under air law is more limited as far as private activities are concerned. In cases where national air law foresees special rules for the transit of rockets and reusable launch vehicles and aerospace objects through national Air Space⁹, there

⁶ <http://www.airlaunch.ru/> (last visited: 14.09.2011)

⁷ Gerhard, Michael, Art. VI OST, in: Hobe / Schmidt-Tedd / Schrogl (Eds.), Cologne Commentary on Space Law, Cologne 2009, para. 50.

⁸ Kerrest, Armel /Smith, Lesley Jane, Art. VII OST, in: Hobe / Schmidt-Tedd / Schrogl (Eds.), Cologne Commentary on Space Law, Cologne 2009, para. 6.

⁹ § 1 II Luftverkehrsgesetz (German Air Traffic Act).

seems to be no additional legal problem in Air Launch cases. So far as the combined vehicle of carrier aircraft and its fixed payload, the rocket and space craft is concerned air law applies, as the whole system falls under the definition of aircraft under international air law, which means a machine “which can derive support in the atmosphere from the reactions of the air” .¹⁰ As codified e.g. in the German Air Traffic Act,¹¹ air law applies even after the separation as long as the payload is in Air Space, although it does not fall under the definition of an aircraft. The qualification of the carrier aircraft as an aircraft and the application of air law to the payload respectively does, however, not necessarily exclude the application of the Law of Outer Space. On the one hand the respective space activity as a whole might be considered as a national activity in terms of Art. VI OST for which the State under whose jurisdiction and control these activities are taken out bears responsibility. On the other the liability regime under Art. VII OST applies after the separation from the carrier aircraft as long as it is the nature and function of the object to enter Outer Space.

2. Liability

Article VII OST, as further elaborated by the LIAB, imposes international liability for damage caused by space objects only on those States which qualify as launching State. The qualification as launching State is a precondition for liability under space law. There might be other applicable reasons for a

claim,¹² but this is not the present question. Reflecting the operational procedure of an Air Launch case the question of being a launching State must be raised for the different States involved in line with the definition of Article VII OST.

Launching State is a State which (1.) launches or (2.) procures the launching of a space object; and a State (3.) from whose territory or (4.) facility a space object is launched.

a) State which ‘launches or procures the launch’ of a Space Object

The first and second alternative of the definition of a launching State refer to launching States, which are actively involved in the launch of a space object by either launching the space object itself or procuring the launch of a space object.

As far as the Polyot Air Launch Project is concerned the flag of the carrier aircraft is decisive in order to determine which State launched the space object in case that the captain of the carrier aircraft decides and executes the launch. If the launch would be executed by a ground facility, which is not planned in case of the Polyot Air Launch Project, the nationality of this State, where the ground center is located is decisive.

There is a deliberate difference between ‘a State which launches’ and ‘a State which procures the launching of a space object’. The first criterion is fulfilled by a concrete activity, while the second criterion is based on a relationship between the State, respectively its national legal entities and the space object. It’s the State without whose explicit authorization,

¹⁰ Annex 7, Convention on International Civil Aviation of 7 December 1944 (Chicago Convention), 15 UNTS 295.

¹¹ § 1 II Luftverkehrsgesetz (German Air Traffic Act).

¹² Kerrest, Armel /Smith, Lesley Jane, Art. VII OST, in: Hobe / Schmidt-Tedd / Schrogl (Eds.), Cologne Commentary on Space Law, Cologne 2009, para. 31.

contribution or omission the space object would not have been placed in orbit.¹³ For this second criterion it does not matter whether a State is acting by its governmental agencies or by non-governmental entities under its responsibility. The omission might be fulfilled by a missing licensing or authorization procedure for a national space activity in the meaning of Article VI OST. Under the four criteria for defining a launching State this one is the only open formulated criterion, which includes the intended responsibility of the relevant State behind the space object. Therefore, a restrictive interpretation in the direction of assimilation of procurement and the factual launching would not be adequate.¹⁴ But does this lead to the conclusion that all kinds of participation in the launch of a space object should be considered as procurement in terms of Art. VII OST? Art. VII OST is silent on this issue. Nevertheless, according to the rules of treaty interpretation codified in the Vienna Convention on the Law of Treaties¹⁵ and acknowledged under customary international law¹⁶ one might have recourse to the preparatory work of a treaty when the

meaning of a term remains ambiguous. At the final stage of the drafting negotiations the Japanese delegation came up with a statement, which was intended to memorialize the content of the debate on the meaning of the term procurement.¹⁷ According to this statement procurement consists of two requirements, namely an active and substantial participation in the launch. Consequently, the preparation of the launch through e.g. the manufacture of a space object or technical assistance is not by itself a procurement of the launch.

The practical relevance of this criterion is evident in the case of a launch service contracts. The State behind the customer and its payload, e.g. a satellite, is a launching State.¹⁸ This responsible State cannot escape the liability regime of Article VII OST by using the launch service of a third State. Both States will become according to Article V LIAB jointly and severally liable. It is up to the bilateral contractual relationship to find an adequate risk sharing according to the launch price, the insurance conditions and other individual circumstances. For the launch service provider this public international law regime supports its interests to reach a balanced risk sharing.

The same conclusions are valid for civil law concepts of in orbit delivery. The order of a satellite under the condition of a positive result of the commissioning phase does in case of failure not neutralize the original qualification of the State behind the customer as launching State. The functional or non-

¹³ Schmidt-Tedd / Mick, Art. VIII OST, in: Hobe / Schmidt-Tedd / Schrogl (Eds.), Cologne Commentary on Space Law, Cologne 2009, para.29.

¹⁴ See Schmidt-Tedd, Bernhard / Gerhard Michael, Registration of Space Objects: Which are the Advantages for States Resulting from Registration?, in: Benkö (Ed.), Space law: current problems and perspectives for future regulation, Utrecht 2005, p. 121 (132f).

¹⁵ Art. 31 et seq. Vienna Convention on the Law of Treaties of 23 May 1969, 1155 UNTS 331.

¹⁶ *Case Concerning the Territorial Dispute* (Libyan Arab Jamahiriya v. Chad), ICJ Report 1994, 6 (15); *Maritime Delimitation and Territorial Questions between Qatar and Bahrain* (Qatar v. Bahrain), Jurisdiction and Admissibility, ICJ Reports 1995, 6 (18); *Case Concerning Sovereignty over Pulau Ligitan and Pulau Sipadan* (Indonesia v. Malaysia), ICJ Report 2002, 625 (645 et. seq.).

¹⁷ A/AC.105/C.2/L.19.

¹⁸ Schmidt-Tedd / Mick, Art. VIII OST, in: Hobe / Schmidt-Tedd / Schrogl (Eds.), Cologne Commentary on Space Law, Cologne 2009, para.29.

functional satellite would not be in orbit without the ‘procuring’ of the customer.

The client-relation under the criterion “procures the launch” is independent of the role of the partners of the Air Launch Project. The role as launching State according to the criteria ‘launching’ or ‘facility’ might overlap with the criterion ‘procures a launch’ as customer of a satellite positioning. Nevertheless, the general conclusion is a co-liability of the customer besides the launch service provider. This is in line with the rationale of responsibility and liability for national space activities to offer the victim multi gathering points in order to get prompt and adequate compensation.¹⁹

A completely different aspect is the production and integration chain working for the launch service provider and/or the customer. Even though a restrictive interpretation in the direction of the factual launching would not be adequate, as stated above not all preparatory acts which support the factual launch of a space object are necessarily a procurement of the launch in terms of Art. VII OST. Otherwise, a State might be held liable for an activity where it did not cause the delivery of the space object in orbit/Outer Space. Accordingly, the subcontractors, which are concerned with the integration of the payloads are not procuring the launch in their interest, they are just working for the agency/entity of the launching

State. The location of the fabrication of the launcher and of the payload integration is therefore without legal relevance for the determination of the launching State.

b) State from ‘whose territory or facility’ the Space Object is launched

In general the territorial criterion is the most evident one. A State cannot leave its territory to a foreign State without taking over the responsibility and liability as launching State. Even if Kazakhstan has a long-term lease agreement with Russia for the launch side in Baikonur, the territorial criterion remains fulfilled and qualifies Kazakhstan as launching State. Nevertheless, the bilateral risk allocation can be arranged different from the public international law situation, but this internal risk allocation will not abrogate the third party protection of space law. In case of an Air Launch the national Air Space above the territory is relevant for the qualification as launching State. The national Air Space forms part of a State’s territory over which it claims sovereignty.²⁰ Consequently, the territorial criterion is met in case of an Air Launch from the national Air Space of a State. It is a fundamental principle of public international law that in contrast to common spaces such as the High Seas and Outer Space, States are in general not free to use the Air Space of a sovereign State. This fundamental principle is valid with regard to Air Launches in the national Air Space of a State. It has been argued that a State, from whose Air Space a space object was launched, should not be considered as a launching State, given that it

¹⁹ Cf. Para. 4 of the Preamble of the LIAB which recognizes “the need to elaborate effective international rules and procedures concerning liability for damage caused by space objects and to ensure, in particular, the prompt payment under the terms of this Convention of a full and equitable measure of compensation to victims of such damage”.

²⁰ Hobe, Stephan, *Luftraum und Lufthoheit*, in: *Kölner Kompendium des Luftrechts*, Vol. 1, Cologne 2008, Part. II A, para. 6.

does not directly participate in the launch.²¹ But does Kazakhstan directly participate in all missions, which are launched from its territory? Or does France directly participate in all missions, which are launched from its territory? No they do not, but they are a launching State from whose territory a space object is launched. This is in line with the ratio of the liability regime to offer the victim an effective protection through a prompt and equitable compensation of damages caused by such ultrahazardous activities as space activities. Thus, a restrictive interpretation (or simply an interpretation totally contrary to the wording) of the term territory runs contrary to the victim orientated character of the liability regime. The Air Space over the High Seas, however, is a common space which cannot be allocated to a single State. Therefore, it matters for the territorial criterion if the separation of carrier airplane and rocket takes place in national Air Space or over the High Seas.

A more complex question is the relevance, if any, of the location of the take-off of the carrier aircraft. In this regard it is decisive whether the take-off of the carrier aircraft should be considered as the 'launch' in terms of Art. VII OST. According to the first alternative the State where the carrier aircraft started could be considered as the State from whose territory the launch took place. It might be preferable to link a space activity to a state's territory. But is the location of the take-off of the carrier aircraft really the place where the actual launch is done? The mere transport of a space object and of its launch vehicle

respectively to the height where it starts is strictly speaking no launch in the literal sense, which is according to the Oxford Dictionary to "send (a missile, satellite, or spacecraft) on its course". By the take-off of the carrier aircraft the payload is not sent on its course into Outer Space. It is sent on its way to the launch site. In line with this in case of a sea launch on the High Seas, the home port is not considered as the place where the launch is done.²² Therefore, the launching site such as the carrier-aircraft or a sea launch platform should be decisive in order to determine the launching state from whose facility a space object was launched into Outer Space. Moreover, such a wide interpretation of the text qualifying the take-off of the carrier aircraft as the launch is difficult to support, considering its consequences on the issue of liability.²³ This might lead to the obscure result that the State of nationality of the launch service provider is no launching State, as the launch neither took place from its territory nor from its facility. In order to avoid that the carrier aircraft flies under a flag of convenience and according to the ordinary meaning of the term launch the separation of the space object from the carrier aircraft is therefore rather decisive in order to determine the launching State.²⁴ Accordingly, the State of registry of the carrier aircraft is a launching

²¹ Longo, Marialetizia, Legal Aspects of Launching Space Objects from Non-Terrestrial Sites, in: Proceedings of the 42nd (1999) Colloquium on the Law of Outer Space, p. 323 (329).

²² Kerrest, Armel, Launching Spacecraft from the Sea and the Outer Space Treaty: The Sea Launch Project, in: Proceedings of the 40th (1997) Colloquium on the Law of Outer Space, p. 264 (268).

²³ Kerrest, Armel, Launching Spacecraft from the Sea and the Outer Space Treaty: The Sea Launch Project, in: Proceedings of the 40th (1997) Colloquium on the Law of Outer Space, p. 264 (268).

²⁴ Hobe, Stephan, Legal Aspects of Space Tourism, in: 86 Nebraska Law Review 439 (2007), p. 447.

State in terms of Art. VII OST, as the ‘launch’ took place from its facility.²⁵

3. Responsibility in General

According to Art. VI OST responsibility arises from national activities in Outer Space. Via the notion national activity the activities of private entities are assimilated to the State, this includes activities of the State itself, as well as activities of its nationals.²⁶ Hence, responsibility for space activities constitutes an exception to the principle that States generally are not responsible for the conduct of private persons.²⁷ The concepts of responsibility in terms of Art. VI OST and liability in terms of Art. VII OST are strongly linked to each other.²⁸ Does this necessarily lead to the conclusion that the State responsible is in any case one of the launching States? The answer is clearly no, which is underlined by the practical example of the selling of a ‘second hand’ satellite by a launching State to a non-launching State. By virtue of the possession / operation of the satellite the non-launching State is responsible

in terms of Art. VI OST, as it is the State which exercises the factual control over the space object, even if the launching State which registered the space object formally retains jurisdiction and control in legal terms. Nevertheless, through the ownership of a satellite a State neither launched a space object or procured its launch nor was the space object launched from its territory or facility. Accordingly, a State might be responsible for an activity, irrespective whether or not it is a launching State. Applying this to the Polyot Air Launch Project one might come to the conclusion that the State concerned with the integration of the payload or preparatory work of the launch in general, which is as stated above no launching State procuring the launch, bears responsibility in terms of Art. VI OST. The wording of Art. VI OST, however, referring to activities in Outer Space makes it clear, that responsibility does not derive from mere preparatory work on the ground. In other words, in addition to the mere preparatory work on the ground a factual participation in the launch of a space object into Outer Space is required to be held responsible under Art. VI OST.

4. Jurisdiction and Control

According to Article VIII OST the State of registry retains jurisdiction and control over the space object. This general provision is further elaborated by the Registration Convention which States in its Art. II (2) that “[w]here there are two or more launching States [...] they shall jointly determine which of them shall register the object” bearing in mind Art. VIII OST. The Law of Outer Space leaves it thereby up to the parties concerned to allocate jurisdictional authority. Regularly the launch service provider registers the launch vehicle/rocket, whereas the customer registers

²⁵ Cheng, *Studies in International Space Law*, Oxford 1997, p. 638; Kerrest, *Armel, Launching Spacecraft from the Sea and the Outer Space Treaty: The Sea Launch Project*, in: *Proceedings of the 40th (1997) Colloquium on the Law of Outer Space*, p. 264 (268); Knittlmayer, *Norbert, Der kommerzielle Startdienstleistungsvertrag (Launch Service Agreement)*, Baden-Baden 1998, p. 75.

²⁶ Cheng, Bin, *Art. VI of the 1967 Space Treaty revisited: ‘International Responsibility’, ‘National Activity’ and ‘the Appropriate State’*, in: *26 Journal of Space Law* 7 (1998), 7.

²⁷ Bittlinger, Horst, *Private Space Activities – questions of international responsibility*, in: *Proceedings of the 30th (1987) Colloquium on the Law of Outer Space*, p. 191 (191).

²⁸ Gerhard, Michael, *Art. VI OST*, in: *Hobe / Schmidt-Tedd / Schrogl (Eds.), Cologne Commentary on Space Law*, Cologne 2009, para. 50.

the payload. In absence of a registration of the payload, however, it is the launch service provider which retains jurisdiction and control over it, given that it fulfilled its obligation to register the launch vehicle, considering that according to Art. I lit. d) LIAB a space object includes the object itself as well as its launch vehicle and parts thereof. In other words the payload of a launch vehicle/rocket is under the jurisdiction and control of the launch service provider as long as it is not registered separately. Thus, the State of nationality of the operator of the payload is in absence of a registration not entitled to enjoy its benefits, i.e. inter alia the right to exercise jurisdiction and control. That the State does not enjoy the benefits of a registration does not lead to the conclusion that by virtue of its lack of registration it abdicates its responsibility for its national activities in Outer Space taken out by the operator of the payload. Otherwise there would be no incentive to register the payload. Accordingly, the State is in absence of a registration of the payload faced with a situation, where it bears responsibility for activities, for which in legal terms it has no jurisdiction and control. Taking this into account, it should be in the interest of the State of nationality of the operator to register the payload in order to be entitled to exercise jurisdiction and control over its national activities in Outer Space.

III) Decisive Project Options

Some Scholars came up with a proposal for an amendment or at least for a flexible interpretation of the Law of Outer Space in order to cope with the commercialization, privatization and international co-operation in complex space activities.²⁹ But is the Law of

²⁹ Longo, Marialetizia, Legal Aspects of Launching Space Objects from Non-Terrestrial Sites, in:

Outer Space a stumbling block for international projects such as the Polyot Air Launch Project? As shown above the Law of Outer Space does *de lege lata* establish a precise regulatory framework for projects such as the Air Launch Projects. Thus, it is not up to the law, but rather up to the parties to find an agreement within this regulatory framework. There exists a clear borderline between the launching States on the one hand and subcontractors on the other.

Firstly, the State under whose flag the launching facility flies is a launching State. As far as the actual launch is concerned it is decisive whether the pilot itself or the ground station had the authority to start the launch vehicle/rocket. The first alternative gives rise to the assumption that the flag State of the carrier airplane should be considered as the State that 'launches' the space object and according to the second alternative the State of nationality of the ground station 'launched' the object. So it is up to the parties involved to determine by the allocation of the authority to launch the space object the State which 'launched' the space object. Moreover, the customer who availed the services of the launch provider procured the launch through its active involvement and its vital interest in the launch of the space object. It is up to these States to establish an appropriate organizational structure and to find a mutual agreement on the liability for damages.

The allocation of jurisdiction and control to the launch service provider in case where the customer did not register the payload is another example, which highlights that not the existing law, but rather the lack of its precise interpretation and application leads to

Proceedings of the 42nd (1999) Colloquium on the Law of Outer Space, p. 323 (330).

practical problems. Of course it might be at the first glance an surprising result that a State which solely offered the launching capacity and does not exercise any control over the space object after the separation of the payload should be considered as the State exercising jurisdiction and control. Nevertheless, the existing regulatory framework explicitly calls upon the launching States to find a mutual agreement. The launch service provider therefore simply needs to insist on such an agreement prior to the launch and needs to enforce it after the separation of the payload.

The existing structure of Space Law does not need to be amended or to be re-interpreted to regulate activities such as the Polyot Air Launch Project. It rather needs to be applied properly by the parties involved. As brought forward by the NASA Space Lawyers Frankle and Steptoe on the occasion of the IISL Colloquium on the Law of Outer Space the ambiguities of the existing legal framework on space launches from international territory need to be discussed “before any considerations could be given to changing the current regime”.³⁰ In this regard they finally concluded, that “more effective legal means currently exist for ensuring that launches are conducted safely and that compensation is readily available should third party claims arise. Our immediate task should be to see that these mechanisms are utilized”.

³⁰ Frankle, Edward A. / Steptoe, Jason E., Legal Considerations Affecting Commercial Space Launches from International Territory, in: Proceedings of the 42nd (1999) Colloquium on the Law of Outer Space, 297 (305).

IV) Conclusions

Air Launch activities seem to provoke at the first glance new challenges for the interpretation of the term ‘launching State’ in relation to Article VII OST and the LIAB. Looking in detail through the various cases it becomes clear that a precise interpretation of the different alternative criteria of the launching State definition is necessary, not only in the literal sense but also in the ratio of the responsibility and liability system of the OST and the subsequent treaties as a whole.

In cases of Air Launch above the High Seas one of the four elements of the launching State qualification – the one related to territory - is not applicable, but this is only one of four criteria, each of them equal valid and sufficient to identify a launching State.

All other questions of cooperation between different actors – private or public – in cross-border projects are not specific to the Air Launch situation. Also insofar adequate solutions can be found, keeping in mind the *telos* of the OST. One key element is the clear link between responsible and liable States for each space activity and space object. There is no need to open the Pandora box of a deregulated system with a flag of convenience solution.³¹

³¹ Kerrest, Armel, Launching Spacecraft from the Sea and the Outer Space Treaty: The Sea Launch Project, in: Proceedings of the 40th (1997) Colloquium on the Law of Outer Space, p. 264 (270).

EXTENDING THE OUTER SPACE TREATY TO PROTECT PLANETARY ENVIRONMENTS

John D. Rummel

East Carolina University, USA, rummelj@ecu.edu

Pascale Ehrenfreund

George Washington University, USA, pehren@gwu.edu

Due to the policies and investments made by spacefaring nations and international space agencies over the last five decades, one of the most pervasive trends in space flight and exploration is that non-State Parties are now developing significant capabilities in space exploration and use. This is both desirable, and if there is to be the development of a true space economy, essential. Nonetheless, the rise of other actors in outer space can only be successful if the legal and regulatory regimes associated with the use of other planetary environments anticipate that rise. While non-State Parties launching from a State signatory to the 1967 Outer Space Treaty are subject to the Treaty's articles, it is also clear that different launching venues differ greatly in their implementation and enforcement of the Treaty provisions, inviting abuses of those provisions if a State's enforcement is ineffective. Such disparities could lead to "venue-shopping" for launches by commercial firms. That is particularly likely if there are economic advantages to a "soft" interpretation of provisions where the concept of "harmful contamination" of other planetary environments is not well-defined. It is timely to consider steps by which it will be possible to clarify and complement the legal regime affecting the exploration of the Moon and other celestial bodies. In recent workshops (COSPAR) as well as recent reports (IAA's "Protecting the Environment of Celestial Bodies") there has been a call for specific measures to be taken to protect outer space environments needing protection (and by extension opening up other environments suitable for commercial use) and the development of management guidelines and regulations for environmental protection to supplement the accepted regulations for preventing harmful planetary contamination of a biological or organic-chemical nature. At this point, there appear to be several approaches for the development of an international framework to protect extraterrestrial environments in such a future era of exploration, commercialization, and human habitation by extending the provisions of Article IX of the 1967 UN Space Treaty. Initial models to be explored include the establishment of an intergovernmental technical panel or panels (like the Intergovernmental Panel on Climate Change [IPCC] or the Intergovernmental Panel on Biodiversity and Ecosystem Services [IPBES]), in concert with an elaboration of the principles and mechanisms of the 1967 Space Treaty, to be included in a subsidiary agreement that can provide a specific regulatory regime in this area (e.g., a 'Convention on Space Environmental Protection').

I. INTRODUCTION

This paper will discuss the prioritization and focus of a system to expand and standardize the implementation of the 1967 Outer Space treaty. In particular the safeguarding of sensitive planetary environments and the regulated use of the non-sensitive areas.

A full version of the paper will be available by the time of the congress.