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2012

# Another Additional to National Space Legislation: The Austrian Outer Space Act, Adopted 6 December 2011

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## IAC-12, E7,5,15,x12809

### ANOTHER ADDITION TO NATIONAL SPACE LEGISLATION: THE AUSTRIAN OUTER SPACE ACT, ADOPTED 6 DECEMBER 2011

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#### Abstract

On December 6, 2011, the Austrian Parliament unanimously adopted the *Bundesgesetz über die Genehmigung von Weltraumaktivitäten und die Einrichtung eines Weltraumregisters (Weltraumgesetz)*, or Austrian Space Act. Thus, Austria became the sixth EU member state and one of more than a dozen states globally adopting a comprehensive national act focusing on national activities related to or in outer space, and more specifically the prospect of fundamental private participation therein.

Following the same analytical approach as with regard to the Swedish, UK, South African, Russian, Australian, Ukrainian, Norwegian, Brazilian, and Dutch national space acts,<sup>1</sup> the present paper will analyse this most recent national space law principally from the perspective of international space law, notably focusing on the domestic implementation via a licensing regime of international responsibilities and liabilities potentially incurred by Austria and the use by the latter of its jurisdictional tools to authorise and supervise them.

#### 1. Introduction

Recently Austria became the latest addition in a growing list of sovereign states having developed an overarching

national law dealing with space activities, in particular those conducted principally by private enterprise, by adopting the Austrian Space Act, on 6 December 2011.<sup>2</sup>

Austria, on the one hand, is a European state with a long-standing involvement in the international space arena first and foremost by hosting since a number of years the UN Office for Outer Space Affairs and the annual COPUOS meetings, and more recently also the European Space Policy Institute (ESPI). It is a member of the major European organisations involved in space activities, that is ESA<sup>3</sup>, EUMETSAT<sup>4</sup>, and EUTELSAT IGO<sup>5</sup>, as well as the European Union<sup>6</sup>. In addition, Austria is one of only a handful of states having ratified all five of the treaties developed in the bosom of the United Nations that are generally considered to constitute the core of the *corpus juris spatialis internationalis*: the Outer Space Treaty<sup>7</sup>, the Rescue Agreement<sup>8</sup>, the Liability Convention<sup>9</sup>, the Registration Convention<sup>10</sup> and even the generally none-too-successful Moon Agreement<sup>11</sup>.

On the other hand, in terms of that involvement, it is more comparable to other mid-size European states such as Sweden, Belgium and the Netherlands (all of which incidentally possess national space acts<sup>12</sup>) than to the leading Western European space-faring nations France, Germany, the United Kingdom, Italy and Spain (of which only two currently possess

comprehensive national space acts<sup>13</sup>). It does not host major space manufacturers or operators, but essentially smaller enterprises aiming for specialised niche markets<sup>14</sup>.

It is in this context, that the drafting of the Austria Space Act has to be analyzed and assessed, after first reiterating some of the key obligations resting upon Austria flowing from the *corpus juris spatialis internationalis*.

## 2. The international framework for national space law revisited

As argued elsewhere in greater detail,<sup>15</sup> the aforementioned *corpus* includes a number of provisions relevant for the establishment of national space acts, both in a substantive sense and in a more structural sense. Most fundamentally it does so by simply calling for key national legislative action once relevant private companies would start to undertake space activities.

These obligations more precisely derive from the key concepts of ‘international responsibility’ to ensure compliance of such activities with international space law in particular by exercising “authorization and continuing supervision”<sup>16</sup>, respectively ‘international liability’ of states for damage caused by space objects, including if manufactured, owned, launched and/or operated by private enterprise<sup>17</sup>.

As to international responsibility, whilst ‘authorization and continuing supervision’ did not *ipso facto* require establishment of a national space law and could in principle also be properly guaranteed by direct governmental involvement in any private space activity<sup>18</sup>, it did at least provide the core element, from this perspective, of such a comprehensive legislative solution.

A major problem in implementing this clause by means of national space law, however, concerned the prevailing uncertainty of what exactly the phrase “*national activities (in outer space)*” referred to – activities of nationals, activities with space objects launched from national territory, activities conducted either by nationals or from national territory, or yet different systems of attribution? This in practice already has given rise to quite varied interpretations by states actually implementing national space laws.<sup>19</sup>

As to international liability, the key concept of the “launching State” was defined by way of four alternative criteria, that is as “(i) A State which launches or procures the launching of a space object; (ii) A State from whose territory or facility a space object is launched”.<sup>20</sup>

Upon closer view, also this concept, triggering liability for damage caused by such a space object under the Liability Convention, raised a few further issues of implementation. Firstly, how would it apply to cases where it was not a state organ but a private company which would ‘launch’ or ‘procure’ the launch, or the launch would take place from a private facility as opposed to a state-owned one? Some states understood this to mean they might be held liable still under those headings, hence calling for authorisation before allowing them to take place; more often, however, implicitly or explicitly they largely ignored them in their national legislative efforts.<sup>21</sup>

Secondly, in particular the phrase ‘procuring’ gave rise to widely varying interpretations, from the application by states of their relevant authorisation requirements (thereby allowing the private space activities to go ahead) to financing the launches concerned. Also here, consequently, states differed

considerably in their actual approach as evident in their respective national space legislation.<sup>22</sup>

Finally, the inherent complexity created by having *two* principles of international accountability ('responsibility' and 'liability', the one attributing private enterprise by means of the concept of 'national activities', the other through the concept of the 'launching state') presented by the international space treaties continues to cause additional confusion. It is the international *responsibility* of Article VI of the Outer Space Treaty which calls for authorization and continuing supervision, of which national space laws form the most comprehensive and transparent representation. Yet it would be the international *liability* following Article VII of the Outer Space Treaty and the Liability Convention which would most directly be of concern to states, since they would have to foot the bill also of any relevant damage privately caused, and thus provide a principal stimulus for the establishment of national space laws regulating *inter alia* reimbursement of the state in case of such international claims.

### 3. 'National' implementation in the case of Austria

#### *3.1. International responsibility*

Handling at the national level international responsibility of Austria as per Article VI of the Outer Space Treaty for national activities in outer space essentially has three major elements to it that should be addressed by the present summary overview.

The first of these concerns the scope *ratione materiae* of the Austrian Space Act. The Act principally applies to "space activities", defined as "the launch, operation or control of a space

object, as well as the operation of a launch facility".<sup>23</sup>

Compared to Article VI, which refers to "activities *in outer space*", the scope of the Austrian Space Act is thus considerably broader. Whilst operation and control of a space object even as conducted from the earth have their main intended effect *in* outer space, and the same could be said for launching operations even if they never reach outer space, the "operation of a launch facility" obviously concerns a completely terrestrial operation.

Apart from the logic inherent in subsuming activities *in* space and activities *targeting* (the area of) outer space including spaceport operations under the same regime, no doubt a major reason for this 'extended' scope relates to the liability issue to be dealt with further below, where "launch facility" constitutes a key concept.

Also, while the operation of a launch facility by definition does not fall within the scope of Article VI's international responsibility, it *does* fall under Austria's international responsibility as per general public international law. The only possible issue here is that under the latter regime Austria as a state can only be held indirectly ('vicariously') responsible in case the launch facility is operated by a private operator,<sup>24</sup> whereas the responsibility of the state for such a private operator would have been on a par with responsibility for its own acts were Article VI of the Outer Space Treaty to apply.<sup>25</sup>

Avoiding any direct reference to outer space as an area finally of course has the benefit of averting the necessity to try and define 'outer space', like the South African and Australian national acts have purported to do.<sup>26</sup>

Secondly, in terms of scope *ratione personae* the Austrian Space Act is applicable to any "space activities

carried out 1. on Austrian territory, 2. on board of vessels or airplanes, registered in Austria or 3. by a natural person with Austrian citizenship or legal persons seated in Austria”.<sup>27</sup>

In other words, Austria applies its territorial jurisdiction, quasi-territorial jurisdiction and active personal jurisdiction for the purpose of controlling private activities in order to live up to its responsibility under Article VI. It may be concluded therefore, that ‘national activities’, as the set of activities for which state responsibility is incurred under Article VI, are viewed by Austria as the combination of activities falling within its territorial, quasi-territorial and/or active personal jurisdiction.

It may be pointed out here, that other states hitherto having enunciated national space laws have sometimes taken different views. For example, the UK Outer Space Act only applies its active personal jurisdiction, in requiring a license from “United Kingdom nationals, Scottish firms, and bodies incorporated under the law of any part of the United Kingdom”.<sup>28</sup> The Netherlands, by contrast, basically apply territorial and quasi-territorial jurisdiction to scope the licensing requirement; only in exceptional circumstance can Dutch nationals be made subject to that requirement when operating outside of Dutch territory, ships or aircraft.<sup>29</sup> The fourfold authorization scheme under Australian law even exclusively refers to the exercise of territorial jurisdiction.<sup>30</sup>

Thirdly, Article VI requires “authorization and continuous supervision” of the private national activities in outer space for which Austria thus will become responsible. As said, Austria takes a rather broad sweep in using its territorial jurisdiction, quasi-territorial jurisdiction and active personal

jurisdiction to fulfil this obligation, by requiring in all three applicable cases an ‘authorisation’ to be granted by the Minister for Transport, Innovation and Technology.<sup>31</sup>

The authorization, which further to Article VI of the Outer Space Treaty should ensure that private national activities in outer space are “carried out in conformity with the provisions set forth in the present Treaty” (and by inference all of space law as based upon that Treaty), is made subject to a number of general conditions, which are spelled out as follows: that

- “1. the operator possesses the necessary reliability, capability and expertise to carry out the space activity,
2. the space activity does not pose any immediate threat to the public order, to the safety of persons and property and to public health,
3. the space activity does not run counter to national security, Austria’s obligations under international law or Austrian foreign policy interests,
4. appropriate provision has been made for the mitigation of space debris according to § 5,
5. the space activity does not cause harmful contamination of outer space or celestial bodies or adverse changes in the environment,
6. the operator fulfils the requirements of the ITU concerning orbital positions and frequency assignments,
7. the operator has taken out an insurance according to subparagraph 4, and
8. the operator has made provision for the orderly termination of the space activity.”<sup>32</sup>

The ‘middle part’ of condition #3 in referring to Austria’s international obligations from the above perspective essentially covers the responsibility that might be incurred one-on-one, so that the rest of the clauses merely provide for some further elaboration with a view to the most important current elements of the regime

developed under the Outer Space Treaty and further elements of outer space law.

Condition #2 for instance broadly covers requirements following from Articles I and II of the Outer Space Treaty, that outer space should be free for all states, its exploitation the province of all mankind, and space activities generally being conducted for the benefits of and in the interests of all nations. Condition #1 serves as a more practical tool to actually ensure that space activities could be kept within such 'boundaries', as well as for example minimizing the possibility of harm ensuing to other states and their space operations, in conformity with Article IX of the Outer Space Treaty.

Apart from the abovementioned 'middle part', condition #3 is obviously focused on the national security and foreign policy interests of Austria, although in doing so it indirectly contributes also to *international* peace and security as called for by Article III of the Outer Space Treaty.

Conditions #4 and #8 address space debris, one of the most difficult and threatening problems in the space arena, the former generically, the latter by calling for specific measures at end-of-life.<sup>33</sup> In a sense condition #5 broadens these provisions to cover *all* possible harmful contamination, also if no space debris is involved.

Condition #6 obviously focuses once again on a specific regime established to allow the use of outer space for the benefit of all mankind and in conformity with general international law calling for international cooperation (with reference to Articles II and III of the Outer Space Treaty as well as explicitly to the ITU regime<sup>34</sup>), whereas condition #7 finally relates to the liability issues addressed below.

### 3.2. *International liability*

The Liability Convention, as an elaboration of Article VII of the Outer Space Treaty, in particular deals with the harmful consequences of space activities, through linking liability to the 'space object' causing such damage, and beyond that to the states involved in the launch – as opposed to the operation – of that space object under any of the four headings applicable.<sup>35</sup>

Generically, several main elements of the liability regime thus established have simply been transferred to the national level by way of the provision that "[i]n the case that the Republic of Austria has compensated damage caused by a space activity in accordance with international law, the Federal Government has the right of recourse against the operator".<sup>36</sup> This generally incorporates such key elements as the distinction between absolute and fault liability<sup>37</sup> and the definition of compensable damage<sup>38</sup>.

Two important issues however remain, one being a matter of scope, the other of substance.

Firstly, the Liability Convention through its definition of the 'launching State' also determines how to allocate liability in the context of private launches, through its famous fourfold definition of the 'launching State'.<sup>39</sup> The (nominally) third of those criteria, concerning the launch 'from the territory' of a state, is unequivocally covered by the territorial jurisdiction exercised by Austria through its Act, as space activities including launching conducted from Austrian soil require an authorization with related provisions handling the liability aspects thereof (to be further addressed below).

As for the other three criteria, however, the analysis would not be so simple, largely as a consequence of prevailing inconsistencies in the regime at the international level. If read in a narrow

sense, these criteria would only apply if Austria *as a state* launches or procures the launch, or allows its *state* launch facility to be used therefore. In that case, there would be no need for authorizing *private* entities launching, procuring a launch or having their launch facility used therefore, with the possible exception of Austrian-registered ships or aircraft qualifying as facilities/quasi-territory of Austria.

However, as indicated the Austrian Space Act not only requires an authorization of persons or companies that launch a space object or operate a launch facility<sup>40</sup> (which would already be required for the purpose of Article VI) but also imposes specific relevant liability-related obligations upon them<sup>41</sup>. Apparently, Austria considers the definition of a “State which launches” under Article I(c) of the Liability Convention, and the resulting liability, to also apply to cases where an Austrian national actually launches; and *mutatis mutandis* the same applies to the state whose facility is used as including a private facility owned by nationals of (in this case) Austria.

On the other hand, the act of ‘procuring’ a launch, the last criterion to be discussed here, is not referred to in the Austrian Space Act, and certainly not as requiring a license. Is the consequence that private procurement of the launch should *not* be read as equating with state procurement; or is the reference to an operator ‘operating or controlling a space object’ – which *does* require an authorization under the Act – to be seen as the interpretation by Austria of the disputed phrase ‘procure(ment)’?

Secondly, it is interesting to see how Austria on the national level has dealt with the unlimited liability that the international regime imposes.<sup>42</sup> The Austrian Space Act starts by pointing out that the Austrian government in

applicable cases “has the right of recourse against the operator”<sup>43</sup>.

Then, but *only* for “damage caused on the surface of the Earth or to aircraft in flight”, that right of recourse is limited to the sum of the obligatory insurance cover.<sup>44</sup> Thus, for liability for on-orbit collisions the Austrian government would be entitled to full compensation, although it obviously has the discretion in a given case to not (fully) make use of such a right.

Finally, the maximum insurance cover referred to is determined, as far as the obligation under the Act goes, at € 60,000,000.<sup>45</sup> This happens to be also the sum which Arianespace, the French launch company operating under the new French Law on Space Operations is also required to insure for third-party liability purposes.<sup>46</sup>

#### 4. Concluding remarks

In general, the Austrian Space Act has implemented in consistent fashion the relevant international obligations directly related to responsibility and liability, generally applying a broad scope *ratione personae* and *ratione materiae* to the licensing regime in terms of attribution in order to cover all likely international accountabilities. This also applies for example to the registration obligations,<sup>47</sup> where most interestingly, in addition to the minimum set of requirements for purposes of the international register<sup>48</sup>, further details are requested which duly take into account fundamental recent developments in space activities: “6. the manufacturer of the space object; 7. the owner and operator of the space object; 8. further information, which the Minister for Transport, Innovation and Technology may determine, if necessary, in light of the technological state of the art, the international legal

obligations or relevant decisions of international organisations”<sup>49</sup>

Though certain questions regarding the definition of key concepts on the international level (‘outer space’, ‘procurement’) have not been tackled, this probably testifies more to the lack of general understanding of such terms at that level than to a failure of the Austrian authorities to address them. By and large, the Austrian Space Act thereby constitutes a valuable addition to the growing body of national space law properly implementing responsibility and liability for private activities.

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#### Endnotes

<sup>1</sup>. See the author’s The Swedish and British Space Acts and Private Commercial Enterprise under Public International Law, *Memoria, Conferencia Espacial de las Americas* (1991), 336-42; South Africa in Space: the New Space Affairs Act of 1993, 23 *Journal of Space Law* (1995), 195-7; Two New National Space Laws: Russia and South Africa, in *Proceedings of the Thirty-Eighth Colloquium on the Law of Outer Space* (1996), 251-61; Launching from “Down Under”: The New Australian Space Activities Act of 1998, in *Proceedings of the Forty-Third Colloquium on the Law of Outer Space* (2001), 132-41; Ukrainian national space law from an international perspective, 18 *Space Policy* (2002), 15-23, with S.A. Negoda; Vikings First in National Space Law: Other Europeans to Follow – The Continuing Story Of National Implementation Of International Responsibility And Liability, in *Proceedings of the Forty-*

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*Fourth Colloquium on the Law of Outer Space* (2002), 111-21, with A. Nikolaisen; Launching Alcantara into the global space economy – The 2001 Brazilian national space law, in *Proceedings of the Forty-Fifth Colloquium on the Law of Outer Space* (2003), 310-20; and Implementing the United Nations Outer Space Treaties – The Case of the Netherlands, in *Proceedings of the Forty-Seventh Colloquium on the Law of Outer Space* (2005), 139-45.

<sup>2</sup>. *Bundesgesetz über die Genehmigung von Weltraumaktivitäten und die Einrichtung eines Weltraumregisters (Weltraumgesetz)* or Austrian Federal Law on the Authorization of Space Activities and the Establishment of a National Space Registry (hereafter Austrian Space Act), as adopted by the Parliament on 6 December 2011; unofficial English text version courtesy of Professor Irmgard Marboe, on file with author.

<sup>3</sup>. The European Space Agency (ESA) was established by means of the Convention for the Establishment of a European Space Agency (hereafter ESA Convention), Paris, done 30 May 1975, entered into force 30 October 1980; UKTS 1981 No. 30; Cmnd. 8200; 14 ILM 864 (1975); *Space Law – Basic Legal Documents*, C.I.I. Austria became a member in 1987.

<sup>4</sup>. EUMETSAT was established by means of the Convention for the Establishment of a European Organization for the Exploitation of Meteorological Satellites (EUMETSAT)(hereafter EUMETSAT Convention), Geneva, done 24 May 1983, entered into force 19 June 1986; as amended 14 July 1994, entered into force 27 July 1994; UKTS 1999 No.

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32; Cm. 1067; Cmnd. 9483; *Space Law – Basic Legal Documents*, C.III.1; 44 ZLW 68 (1995). Austria became a member in 1993.

<sup>5</sup>. Since the privatisation of the satellite operations themselves a decade ago, the constitutive document of EUTELSAT IGO is the Convention Establishing the European Telecommunications Satellite Organization (EUTELSAT)(hereafter EUTELSAT Convention as amended), Paris, done 15 July 1982, entered into force 1 September 1985, as amended 20 May 1999, amended version applied provisionally 2 July 2001, entered into force 28 November 2002; *Space Law – Basic Legal Documents*, C.II.1. Austria was a founding member of the original EUTELSAT when the latter was established in 1982, and continues to be a member also after the transition to the current IGO.

<sup>6</sup>. The current constitutive documents of the European Union are the Treaty on European Union as amended by the Treaty of Lisbon amending the Treaty on European Union and the Treaty establishing the European Community (hereafter Consolidated version of the Treaty on European Union), Lisbon, done 13 December 2007, entered into force 1 December 2009; OJ C 115/1 (2009) and the Treaty establishing the European Community as amended by the Treaty of Lisbon amending the Treaty on European Union and the Treaty establishing the European Community (hereafter Treaty on the Functioning of the European Union), Lisbon, done 13 December 2007, entered into force 1 December 2009; OJ C 115/47 (2009). See in particular Art. 189, Treaty on the Functioning of the European Union, for the current role of the Union in the space arena. Austria

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became a member of the Union in 1995.

<sup>7</sup>. Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies (hereafter Outer Space Treaty), London/Moscow/Washington, done 27 January 1967, entered into force 10 October 1967; 610 UNTS 205; TIAS 6347; 18 UST 2410; UKTS 1968 No. 10; Cmnd. 3198; ATS 1967 No. 24; 6 ILM 386 (1967).

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

<sup>9</sup>. Convention on International Liability for Damage Caused by Space Objects (hereafter Liability Convention), London/Moscow/Washington, done 29 March 1972, entered into force 1 September 1972; 961 UNTS 187; TIAS 7762; 24 UST 2389; UKTS 1974 No. 16; Cmnd. 5068; ATS 1975 No. 5; 10 ILM 965 (1971).

<sup>10</sup>. Convention on Registration of Objects Launched into Outer Space (hereafter Registration Convention), New York, done 14 January 1975, entered into force 15 September 1976; 1023 UNTS 15; TIAS 8480; 28 UST 695; UKTS 1978 No. 70; Cmnd. 6256; ATS 1986 No. 5; 14 ILM 43 (1975).

<sup>11</sup>. Agreement Governing the Activities of States on the Moon and Other

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Celestial Bodies (hereafter Moon Agreement), New York, done 18 December 1979, entered into force 11 July 1984; 1363 UNTS 3; ATS 1986 No. 14; 18 ILM 1434 (1979).

<sup>12</sup>. Respectively: for Sweden the Act on Space Activities, 1982: 963, 18 November 1982; *National Space Legislation of the World*, Vol. I (2001), at 398; *Space Law – Basic Legal Documents*, E.II.1; 36 *Zeitschrift für Luft- und Weltraumrecht* 11 (1987); for Belgium the Law on the Activities of Launching, Flight Operations or Guidance of Space Objects, 17 September 2005, adopted 28 June 2005; *Nationales Weltraumrecht / National Space Law* (2008), at 183; and for the Netherlands the Law Incorporating Rules Concerning Space Activities and the Establishment of a Registry of Space Objects, 24 January 2007; 80 *Staatsblad* (2007), at 1; *Nationales Weltraumrecht / National Space Law* (2008), at 201. See further e.g. I. Marboe & F. Hafner, Brief Overview over National Authorization Mechanisms in Implementation of the UN International Space Treaties, in F.G. von der Dunk (Ed.), *National Space Legislation in Europe* (2011), 34, 36-8; N. Hedman, Swedish Legislation on Space Activities, in C. Brünner & E. Walter (Eds.), *Nationales Weltraumrecht / National Space Law*, 73-80; J.F. Mayence, Granting Access to Outer Space: Rights and Responsibilities for States and their Citizens – An Alternative Approach to Article VI of the Outer Space Treaty, Notably Through the Belgian Space Legislation, in F.G. von der Dunk (Ed.), *National Space Legislation in Europe* (2011), 118-21; the author's Implementing the United Nations Outer Space Treaties – The Case of the Netherlands, in C. Brünner

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& E. Walter (Eds.), *Nationales Weltraumrecht / National Space Law*, 97-103.

<sup>13</sup>. This concerns France, with the Law on Space Operations (*Loi relative aux opérations spatiales*); Loi n° 2008-518 du 3 juin 2008; 34 JSL 453 (2008); unofficial translation 34 JSL 453 (2008); and the United Kingdom, with the Outer Space Act, 18 July 1986, 1986 Chapter 38; *National Space Legislation of the World*, Vol. I (2001), at 293; *Space Law – Basic Legal Documents*, E.I; 36 *Zeitschrift für Luft- und Weltraumrecht* 12 (1987). See further e.g. Marboe & Hafner, 35-6, 39-40; S. Mosteshar, Regulation of Space Activities in the United Kingdom, in R.S. Jakhu (Ed.), *National Regulation of Space Activities* (2010), 357-62; P. Achilleas, Regulation of Space Activities in France, in *id.*, 111-2, 119-20.

<sup>14</sup>. See e.g. L. Summerer, Changes on the horizon, in C. Brünner & A. Soucek (Eds.), *Outer Space in Society, Politics and Law* (2011), 800-9; also B.P. Besser, History, in *id.*, 754-7.

<sup>15</sup>. See e.g. the author's *Private Enterprise and Public Interest in the European 'Spacescape'* (1998), Chh. II, III.

<sup>16</sup>. Art. VI, Outer Space Treaty. See further e.g. I. Marboe, National space legislation, in C. Brünner & A. Soucek (Eds.), *Outer Space in Society, Politics and Law* (2011), 440-1; E. Back Impallomeni, Necessities for the Development of National Space Law, in *id.*, 28-30; the author's The Origins of Authorisation: Article VI of the Outer Space Treaty and International Space Law, in F.G. von der Dunk

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(Ed.), *National Space Legislation in Europe* (2011), 7-18.

<sup>17</sup>. See Art. VII, Outer Space Treaty, and (in particular) Artt. I-V, Liability Convention. See further e.g. Marboe, National space legislation, 443-4; also the author's The Origins of Authorisation: Article VI of the Outer Space Treaty and International Space Law, 19-24.

<sup>18</sup>. Until the enunciation of the French Law on Space Operations in 2008, the French governmental space agency CNES was the largest single shareholder in the two major private space companies in France, Arianespace and SpotImage; see further A. 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), 150-4.

<sup>19</sup>. See on this issue e.g. Marboe & Hafner, 57-61; earlier already the author's *Private Enterprise and Public Interest in the European 'Spacescape'*, 112-3, 119, 124-6, 130-1, 134-7, 141-4, 149-51.

<sup>20</sup>. Art. I(c), Liability Convention.

<sup>21</sup>. See further e.g. Marboe & Hafner, 51-7.

<sup>22</sup>. See further e.g. Marboe & Hafner, 53-4.

<sup>23</sup>. Sec. 2(1), Austrian Space Act.

<sup>24</sup>. Cf. for the international law-doctrine on state responsibility e.g. G. Sperduti, Responsibility of States for Activities of Private Law Persons, in R. Bernhardt (Ed.), *Encyclopedia of*

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*Public International Law*, Vol. IV (2000), 216-8; K. Zemanek, Responsibility of States: General Principles, in *id.*, 224-5; J.R. Crawford, State Responsibility, in R. Wolfrum (Ed.), *The Max Planck Encyclopedia of Public International Law*, Vol. IX (2012), 520-1.

<sup>25</sup>. Art. VI, Outer Space Treaty, principally equates activities of governmental agencies with those of non-governmental entities for this purpose.

<sup>26</sup>. For South Africa, Sec. 1, 17<sup>th</sup> bullet, Space Affairs Act, 6 September 1993, assented to on 23 June 1993, No. 84 of 1993; Statutes of the Republic of South Africa – Trade and Industry, Issue No. 27, 21-44; *National Space Legislation of the World*, Vol. I (2001), at 413, defines 'outer space' as "the space above the surface of the earth from a height at which it is in practice possible to operate an object in an orbit around the earth".

For Australia, after the 2002 amendment, for example a space object was defined with reference to the intention to carry it beyond a "distance of 100 km above mean sea level"; Sec. 8, 235<sup>th</sup> bullet, An act about space activities, and for related purposes, No. 123 of 1998, assented to 21 December 1998; *National Space Legislation of the World*, Vol. I (2001), at 197, as amended by the Space Activities Amendment Act, An Act to amend the Space Activities Act 1998, No. 100 of 2002, assented to 10 November 2002; [http://www.austlii.edu.au/au/legis/cth/nun\\_act/saaa2002247/](http://www.austlii.edu.au/au/legis/cth/nun_act/saaa2002247/).

<sup>27</sup>. Sec. 1(1), Austrian Space Act.

<sup>28</sup>. Sec. 2(1), Outer Space Act.

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<sup>29</sup>. See Secc. 2(1), 3; resp. 2(2.a), Law Incorporating Rules Concerning Space Activities and the Establishment of a Registry of Space Objects.

<sup>30</sup>. See Secc. 11-15, An act about space activities, and for related purposes.

<sup>31</sup>. See Sec. 3, Austrian Space Act.

<sup>32</sup>. Sec. 4(1), Austrian Space Act.

<sup>33</sup>. Cf. further Sec. 5, Austrian Space Act, referring once more specifically to obligations of space operators with respect to space debris. It may also be pointed out that the IADC Space Debris Mitigation Guidelines already in 2002 provided for Post Mission Disposal parameters; IADC-02-01, of 15 October 2002; para. 5.3.

<sup>34</sup>. At the highest level this concerns the ITU Constitution (Constitution of the International Telecommunication Union, Geneva, done 22 December 1992, entered into force 1 July 1994; 1825 UNTS 1; UKTS 1996 No. 24; Cm. 2539; ATS 1994 No. 28; Final Acts of the Additional Plenipotentiary Conference, Geneva, 1992 (1993), at 1) and ITU Convention (Convention of the International Telecommunication Union, Geneva, done 22 December 1992, entered into force 1 July 1994; 1825 UNTS 1; UKTS 1996 No. 24; Cm. 2539; ATS 1994 No. 28; Final Acts of the Additional Plenipotentiary Conference, Geneva, 1992 (1993), at 71), to which Austria is also a party, upon the basis of which that ITU regime has been further developed.

<sup>35</sup>. See Art. I(c), Liability Convention.

<sup>36</sup>. Sec. 11(1), Austrian Space Act.

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<sup>37</sup>. See Artt. II, III, Liability Convention; cf. also Sec. 11(2), Austrian Space Act where reference is made only to the former, not to the latter.

<sup>38</sup>. See Art. I(a), Liability Convention.

<sup>39</sup>. See again Art. I(c), Liability Convention.

<sup>40</sup>. Cf. Secc. 2(1), 3, Austrian Space Act.

<sup>41</sup>. See Secc. 4(1) *sub* 7, (4), and 11, Austrian Space Act.

<sup>42</sup>. See Art. XII, Liability Convention, effectively calling for *restitutio ad integrum* no matter what it costs.

<sup>43</sup>. Sec. 11(1), Austrian Space Act.

<sup>44</sup>. Sec. 11(2), Austrian Space Act.

<sup>45</sup>. Sec. 4(4), Austrian Space Act.

<sup>46</sup>. See further C. Gaubert, Insurance in the context of national authorisation, in F.G. von der Dunk (Ed.), *National Space Legislation in Europe* (2011), 167-8; Kerrest de Rozavel & von der Dunk, 160.

<sup>47</sup>. See Secc. 9, 10, Austrian Space Act.

<sup>48</sup>. See Art. IV(1), Registration Convention.

<sup>49</sup>. Sec. 10(1), Austrian Space Act.