



# The Aviation & Space Journal

ISSN 2281-9134

The Aviation & Space Journal  
[online]Website: [www.aviationspacejournal.com](http://www.aviationspacejournal.com)

## Editor

Anna Masutti

## Board of Editors

Donatella Catapano  
Vincent Correia  
Massimo Deiana  
Nikolai P. Ehlers  
Liu Hao  
Stephan Hobe  
Pietro Manzini  
Sergio Marchisio  
Sofia M. Mateou  
Pablo Mendes de Leon  
Wolf Müller-Rostin  
Sorana Pop  
Alessio Quaranta  
Alfredo Roma  
Raffaella Romagnoli  
Giovanni Sartor  
Kai-Uwe Schroggl  
Francis Schubert  
Neil Smith  
Greta Tellarini  
Filippo Tomasello  
Leopoldo Tullio  
Stefano Zunarelli  
Alexander von Ziegler

## The Issue's

### Contributors:

Ridha Aditya Nugraha  
Paola Tomasello  
Alfredo Roma  
Anna Masutti  
Pietro Nisi  
Virginia Ichim  
Alessandro Perrone  
Basima Kachni

## CONTENTS

### Aviation

The Revisited Indonesian Aviation Law: From Warsaw to Montréal  
By Ridha Aditya Nugraha p.2

Psychopathology of Aviation Front-line Staff and Safety: Guidelines  
for the Prevention of Adverse Events

By Paola Tomasello p.9

### Space

Questions of Liability Regarding the Malfunctioning of GNSS  
By Anna Masutti, Pietro Nisi, Virginia Ichim, Alessandro Perrone p.16

### Miscellaneous material of interest

Outer Space Law: Legal Policy and Practice

Book review by Alfredo Roma p.20

The Right to Compensation Under Regulation (EC) No 261/2004 and  
Courts Jurisdiction in Case of Connecting Flights

By Anna Masutti, Basima Kachni p.25

### Forthcoming Events

2° CONGRESSO NAZIONALE DI SPACE RENAISSANCE  
ITALIA 18-19 Maggio 2018 – INAF IRA Bologna – p.27

EBACE2018 - The European Business Aviation Convention &  
Exhibition (EBACE2018) - Geneva's magnificent Palexpo from  
Tuesday 29 May to Thursday 31 May p.28

EALA's 7th Copenhagen Air Finance Legal Seminar, 1 June 2018 p.29

## The Revisited Indonesian Aviation Law: From Warsaw to Montréal

Ridha Aditya Nugraha\*

### Abstract

*Indonesia has just ratified the Montreal Convention of 1999. This step ensures greater protection for airline passengers' rights through a higher liability limit for international carriage. However, the issue of conflict of laws arose after the AirAsia QZ8501 compensation scheme. Although it was an international flight, en route from Surabaya to Singapore, the national law prevailed over the 1929 Warsaw Convention. At that time, the inadequate compensation of the Warsaw regime was the ground on which to exclude its applicability. This article shall examine the Indonesian laws with regard to the liability of air carriers for international carriage, then analyzing their compatibility with the 1999 Montreal Convention. Last but not least, the issue of the rule of law shall also be discussed.*

### The Enactment of the 1999 Montreal Convention

Before the ratification the 1999 Montreal Convention, three consecutive accidents, namely Malaysia Airlines MH17, MH370, and AirAsia QZ8501, caused many Indonesian casualties. These accidents, all of which occurred in 2014, took the lives of a total of 168 Indonesian passengers and six crew members. These accidents triggered greater protection for passengers and their heirs' rights after an accident. Regarding liability limits for international carriage of passengers and cargo to and from Indonesia, unfortunately there is valid ground to postulate the passengers or his/her heirs were not so protected until 2017.

Indonesia finally ratified the Montreal Convention of 1999<sup>1</sup> on 20 March 2017,<sup>2</sup> to increase the protection of Indonesian citizens. The Montreal Convention went into force on 19 May 2017. The Indonesian Presidential Regulation No. 95/2016 was the ground for such ratification. The regulation implementing the Montreal Convention, however, is still being drafted.<sup>3</sup>

The International Air Transport Association (IATA), which aims for global ratification and adoption of the 1999 *Montreal* Convention, played a significant role in lobbying the country to adopt the convention.<sup>4</sup> Previously, Indonesia had only ratified the Warsaw Convention of 1929<sup>5</sup> and signed its amendment, the Guadalajara Convention of 1961,<sup>6</sup> but failed to ratify the latter. Furthermore, the country did not ratify the 1955 The "Hague Protocol"<sup>7</sup>, or any of the Montreal Protocols, which placed liability limits for international carriage of passengers and cargo to and from Indonesia at the minimum level for more than half-century.

\*Air and Space Law Studies, Universitas Prasetiya Mulya. The views expressed are purely those of the author. Comments should be addressed to ridha.nugraha@pmbs.ac.id.

## AVIATION

The ratification and enactment of the Montreal Convention means the conversion of Poincare Franc liability limits, which were already outdated, into Special Drawing Right (SDR). The use of the International Monetary Fund (IMF) standards will ensure an effective compensation scheme.

From the IATA's perspective, the enactment of the Montreal Convention will pave the way to achieve 100% e-air waybill and e-freight;<sup>8</sup> which will speed up the processing of air freight. In other words, ratifying the Montreal Convention will improve the competitiveness of the Indonesian air-freight markets. This is an essential step considering the country's significant contribution in the region, the Association of South East Asian Nations (ASEAN), with a significant amount of airspace and population.

Furthermore, the enactment of ASEAN Open Skies or ASEAN Single Aviation Market, which went into effect on 1 January 2015, will have a positive impact by increasing regional connectivity and international carriage. Currently, only up to the Fifth Freedom of the Air is allowed for member States' airlines, leaving the Eighth and Ninth Freedom of the Air or cabotage untouched. The enactment of the Montreal Convention is a significant move to promote airline passengers' rights and realize growth in international carriage within the region.

### Conflict of Laws between National Laws and the Warsaw-Montreal Regime for International Carriage

At the moment, two national laws, namely the 2011 Indonesian Minister of Transportation Regulation No. 77<sup>9</sup> (the "Minister Regulation No. 77") and the 2015 Indonesian Minister Regulation No. 89<sup>10</sup> (the "Minister Regulation No. 89"), regulate air carrier liability in Indonesia. These regulations implement the Indonesian Aviation Law.<sup>11</sup> In regard to the scope of the Montreal Convention, Minister Regulation No. 77 deals with liability for loss of life, injury, and third-party damage, while Minister Regulation No. 89 regulates explicitly liability for delays.

No regulations of the Ministry clearly mention their scope, whether they only serve domestic carriage or international carriage as well. The Indonesian Aviation Law, as their parent, states that it applies to every carrier, nationals or foreigners, flying from or to Indonesia.<sup>12</sup> Meanwhile, the Montreal Convention applies to passengers only if their journey is between two contracting States, or within a contracting State if there is an agreed stopping place within the territory of another State.<sup>13</sup> The Warsaw Convention, as its predecessor, has a similar provision.<sup>14</sup> This leaves the liability for delays or passengers' loss of life in international carriage uncertain, or in other words, potentially infringing the rule of law.

### Delay

Minister Regulation No. 89 defines a delay as "time difference between the scheduled departure or arrival time with its actual realization".<sup>15</sup> If a delay, of at least five hours, is the air carrier's fault, an amount of IDR 300,000 (approximately 18 SDR or USD 25) must be compensated to the passengers. When it concerns international flights departing from an Indonesian airport, the presence of an international convention - the Montreal Convention (the Warsaw Convention prior 19 May 2017) - means there is more than one legal framework regulating delays.<sup>16</sup>

This situation leads to the possibility of an overlap, which in turn raises a debate as to whether a passenger has the right to receive compensation from more than

*AVIATION*

one delay-compensation scheme: one in Indonesia based on Minister Regulation No. 89, and another at the destination point under the Montreal Convention. The latter provides better protection for the consumer, with a maximum amount of 4,694 SDR or approximately USD 6,781 for any damage caused by a delay.

Both regulations are measures to protect passengers pre-flight or during delayed departures, while the Montreal Convention provides remedies post-flight or for delays on arrival. The nature of the regulations are also different; Minister Regulation No. 89 offers direct compensation, while the Montreal Convention (usually) relies on a court decision for compensation. Several air law scholars have affirmed that the Montreal Convention precludes consumer protection measures because of its exclusivity clause.<sup>17</sup>

So far, there is no consensus regarding the definition of a flight delay. Neither the Warsaw Convention nor the Montreal Convention defines delay, as it was the drafters' intention not to do so.<sup>18</sup> Finally, Indonesia has just ratified the Montreal Convention, and since 19 May 2017 there has not been any court decisions interpreting the Montreal Convention in regards to a flight delay.

**Passenger's Loss of Life: Lessons from AirAsia QZ8501 Compensation Scheme**

In 2011, the Indonesian Government set up a new standard for protecting air passengers' rights through Minister Regulation No. 77. The regulation evaluates a passenger's life at IDR 1.25 billion, which is equivalent to approximately 63,598 SDR or USD 92,000, for death that is a result of an accident or incident onboard an aircraft.<sup>19</sup> That amount is around 56% of the Montreal Convention's maximum value for a passenger life, which limit is 113,100 SDR. While a lower amount - IDR 500 million, is equivalent to approximately 24,203 SDR or USD 35,000 - is provided for the death of a passenger boarding or disembarking an aircraft at an airport.<sup>20</sup>

As mentioned earlier, Minister Regulation No. 77 fails to mention its scope whether it applies only to domestic or also international carriage. Furthermore, there is also an issue as to which law shall prevail when national law faces off against an international convention that has been ratified by national laws. When AirAsia QZ8501 crashed into the sea, there were two legal frameworks, namely the Warsaw Convention and Minister Regulation No. 77. It must be highlighted that there is a significant difference concerning the evaluation of a passenger's life between the legal frameworks. The Warsaw regime values each life at maximum 13,711 SDR, or USD 20,000. The amount was considered very low and outdated, and thus failed to protect the passengers in the 21<sup>st</sup> century.

The premise of conflict of laws could be further analyzed in the AirAsia QZ8501 tragedy, which caused 162 fatalities in December 2014. The international flight was en route from Surabaya Juanda International Airport (SUB) to Singapore Changi Airport (SIN). Indonesia had not yet ratified the Montreal Convention; so, theoretically, the Warsaw Convention should have prevailed in regard to international carriage. However, noticing the crash had become a national issue bringing attention to Indonesian aviation and its world low-safety score and efforts to promote better protection for passengers, the Indonesian Ministry of Transportation instructed AirAsia Indonesia to compensate passengers' relatives based on Minister Regulation No. 77, as enacted in domestic law, instead of the Warsaw Convention.<sup>21</sup>

*AVIATION*

There is a valid ground to mention Article 5 of the Indonesian Aviation Law to support the Ministry of Transportation's decision. The article provides that "Indonesia has full and exclusive sovereignty over its airspace" to some extent being interpreted that Indonesian laws apply to incidents occurring in the airspace above the territory of Indonesia,<sup>22</sup> although such interpretation is not explicitly stated. The fact that AirAsia QZ8501 crashed within Indonesian territory was a valid reason.

Responding to the Ministry of Transportation's decision, AirAsia Indonesia obeyed and provided a settlement according to Minister Regulation No. 77. The settlement itself was made without any Indonesian court decision or a challenge from the passengers' relatives, or even AirAsia Indonesia to an Indonesian court. From the passengers' relatives' perspective, this was relieving news, especially where the loss of breadwinner(s) was appropriately compensated. On the other hand, it makes sense to postulate that the Ministry of Transportation's decision surprised AirAsia Indonesia's insurer(s) and re-insurer(s) considering they rely on the rule of law and expected the Warsaw Convention to apply to any liability from an international carriage.

Noting the low compensation amount in the Warsaw regime, the Indonesian Aviation Law facilitated the carrier and the passenger in entering into a specific agreement to determine a greater amount of compensation.<sup>23</sup> However, there was no such declaration before the AirAsia QZ8501 crash. The rule of law would not be infringed if the carrier and the passenger had made such an agreement before.

Another relevant provision of Minister Regulation No. 77 is its breakable limits, which stood at IDR 1.25 billion if the passenger or a relative can prove the accident was due to the negligence or fault of the air carrier.<sup>24</sup> This article encourages the protection of passengers' rights and is in line with the concept of liability established by the Montreal Convention.

Finally, the world could learn from the AirAsia Flight QZ8501 compensation payment, where the carrier was instructed to comply with Minister Regulation No. 77. The reason behind this decision was the much less amount offered by the Warsaw Convention; at one point, it triggered a question of whether Indonesian legal chauvinism was imposed on international flights. As Indonesia has just ratified the Montreal Convention, there have not been any court decisions interpreting the Montreal Convention with a view to passengers' loss of life.

**Cargo**

Minister Regulation No. 77 classifies carrier liability for cargo into two types: one, missing or destroyed cargo, and two, partly or wholly damaged cargo.<sup>25</sup> In the first scenario, the carrier is liable for IDR 100,000 (approximately 5 SDR) per-kilogram. A lower sum of IDR 50,000 (approximately 2.6 SDR) per-kilogram applies if the cargo is partly or wholly damaged. Cargo is considered lost if it has not arrived after more than 14 days.

Those amounts are far less than those provided by the Montreal Convention, which provides 19 SDR per-kilogram. Learning from AirAsia QZ8501's compensation for passengers' loss of life, the future of carrier liability in regard to cargo for international flights to or from Indonesia where damage occurs in the country's territory is still uncertain. Will national laws or the Montreal Convention prevail?



## AVIATION

Unfortunately, there is no public information in regard to AirAsia QZ8501’s compensation for the loss of cargo. Should there be any data, the fact of whether Minister Regulation No. 77 or the Warsaw Convention would have applied will help in predicting liability in the future. So far, there have not been any court decisions interpreting the Montreal Convention in regard to cargo.

### Time Limit to Claim Compensation

The Indonesian Aviation Law provides that the maximum time limit for filing a claim shall be two years from the date on which the baggage or cargo is supposed to have arrived at destination.<sup>26</sup> However, there is no such detailed provision regarding a time limit for passengers’ loss of life. As of today, the time limit for the baggage claim limit includes the loss of passenger’s life.<sup>27</sup>

There was an exception regarding time limits in *Singapore Airlines vs Sigit Sucipto*.<sup>28</sup> Even though the accident took place in Taiwan in 2000, the claim was submitted and accepted by the Indonesian court in 2007. The court ruled that the claim could still go forward because the plaintiff had previously filed the claim in a United States District Court and the High Court of the Republic of Singapore. Thus, it extended the two-year time limit provided by national law.<sup>29</sup>

As the Montreal Convention’s time limit for filing a claim is set at two years,<sup>30</sup> it will ensure the rule of law for international carriage to or from Indonesia.

*Table 1 - Comparison of Carrier Liability for International Carriage in Indonesia According to International Conventions and National Laws*

	Montreal Convention (SDR)	Warsaw Convention (SDR) *until 18 May 2017	Regulation No. 77 and Regulation No. 89 (approximately in SDR)
Delay	4,694	in this context, see Cargo below	18
Passenger’s life	113,100	13,711	63,598 *on board of aircraft
			25,332 *boarding/ disembarking
Cargo	19 / kg	17 / kg	5 / kg *missing or destroyed
			2.6 / kg *partly/wholly damaged

## AVIATION

## Conclusion and the Way Forward

On 19 May 2017, Indonesia welcomed the Montreal Convention as the ultimate liability regime for international carriage. This is a step forward in protecting passengers' rights, especially as the compensation amount under its predecessor, the Warsaw Convention, was inadequate and outdated.

The AirAsia QZ8501 settlements and the airline's decision to follow the Ministry of Transportation instruction in regard to the settlement amount, which was conducted according to national law instead of the Warsaw Convention, triggered the conflict of laws issue. At that time, the low compensation amount for the passenger's loss of life became the ground on which to exclude the applicability of the Warsaw Convention.

With the Montreal Convention in force, which provides far greater compensation for passengers' loss of life and cargo than the national laws, the question is likely to arise as to whether the Montreal Convention shall prevail for every international flight to or from Indonesia, especially when the damage occurs within Indonesian territory.

To conclude, there is a ground to postulate the rule of law in regard to the international carriage, as it is still uncertain.

---

<sup>1</sup> *Convention for the Unification of Certain Rules for International Carriage by Air, done at Montreal on 28 May 1999.*

<sup>2</sup> *Date of the deposit of the instrument of ratification on 20 March 2017.*

<sup>3</sup> *Eri Hertawan and Yogi Sudrajat, "Chapter 19 - Indonesia" in Sean Gates (ed.), The Aviation Law Review, (London: Law Business Research Ltd, 2017), 213.*

<sup>4</sup> *James Jordan, "Indonesia Ratifies Montréal Convention 1999", <http://www.hfw.com/Indonesia-ratifies-Montreal-Convention-1999-March-2017> accessed 20 January 2018.*

<sup>5</sup> *Convention for the Unification of Certain Rules Relating to International Carriage by Air, signed in Warsaw on 12 October 1929.*

<sup>6</sup> *Convention Supplementary to the Warsaw Convention for the Unification of Certain Rules Relating to International Carriage by Air Performed by a Person Other than the Contracting Carrier, signed in Guadalajara on 18 September 1961.*

<sup>7</sup> *Protocol to Amend the Convention for the Unification of Certain Rules Relating to International Carriage by Air, signed in Warsaw on 12 October 1929, done at The Hague on 28 September 1955.*

<sup>8</sup> *James Jordan, op.cit.*

<sup>9</sup> *Minister of Transportation Regulation No. 77 Year 2011 regarding Liability of the Air Carriers.*

<sup>10</sup> *Minister of Transportation Regulation No. 89 Year 2015 regarding Delay Management on Scheduled Commercial Airline in Indonesia.*

<sup>11</sup> *The Indonesian Aviation Law No. 1 Year 2009 regarding Aviation.*



## AVIATION

- <sup>12</sup> *The Indonesian Aviation Law, Article 4.*
- <sup>13</sup> *The Montreal Convention, Article 1.*
- <sup>14</sup> *The Warsaw Convention, Article 1.*
- <sup>15</sup> *Regulation No. 89 Year 2015, Article 1(6).*
- <sup>16</sup> *Ridha Aditya Nugraha and Lalin Kovudhikulrungsri, "Aviation Legal Issues in Indonesia and Thailand: Towards Better Passengers' Rights in ASEAN", Indonesia Law Review, Vol. 7(1), 30.*
- <sup>17</sup> *Paul Stephen Dempsey and Svante O. Johansson, "Montreal v. Brussels: The Conflict of Laws on the Issue of Delay in International Air Carriage", Air and Space Law, Vol. 35(3), 219-220.*
- <sup>18</sup> *Jae Woon Lee and Joseph Charles Wheeler, "Air Carrier Liability for Delay: A Plea to Return to International Uniformity", Journal of Air Law and Commerce, Vol. 77, 50.*
- <sup>19</sup> *Minister of Transportation Regulation No. 77 Year 2011, Article. 3.*
- <sup>20</sup> *Ibid.*
- <sup>21</sup> *Srihandriatmo Malau, "Menhub: AirAsia Wajib Bayar Ganti Rugi 1,2 M ke Ahli Waris Korban QZ 8501", <http://www.tribunnews.com/bisnis/2015/01/08/menhub-airasia-wajib-bayar-ganti-rugi-rp12-m-ke-ahli-waris-korban-qz8501> accessed 11 February 2018.*
- <sup>22</sup> *Eri Hertiawan and Yogi Sudrajat, op.cit., 212.*
- <sup>23</sup> *The Indonesian Aviation Law, Article 166.*
- <sup>24</sup> *The Indonesian Aviation Law, Article 180. See the elucidation part, which becomes the basis of interpretation.*
- <sup>25</sup> *Regulation No. 77 Year 2011, Article 7.*
- <sup>26</sup> *The Indonesian Aviation Law, Article 177.*
- <sup>27</sup> *Eri Hertiawan and Yogi Sudrajat, op.cit., 218.*
- <sup>28</sup> *The Indonesian Supreme Court, Case 1517 K/Pdt/2009.*
- <sup>29</sup> *Eri Hertiawan and Yogi Sudrajat, op.cit., 218.*
- <sup>30</sup> *The Montreal Convention, Article 35.*

## Psychopathology of aviation front-line staff and safety: guidelines for the prevention of adverse events

Paola Tomasello\*

Addressing such a delicate topic as psychopathology necessarily requires the integration between a third person perspective, dealing with the processes which an organisation can implement to prevent adverse events, and a first-person perspective, centered on the complexity of any psychopathological syndrome, as related to the unique history of a person suffering from that.

In line with this approach, this paper starts from history of Bryan Griffin, an airline pilot. Bryan had been suffering from **intrusive thoughts** in which he envisioned himself making the aircraft crash with all passengers onboard. What does losing personal stability mean for a pilot, who is professionally prone and keen to feel the sense of responsibility towards the life of many other people? Bryan Griffin gave a flavour of this during an interview (8): *"I had the instinct of deactivating the fuel feed controls. I was crying because I didn't understand what was happening to me, I couldn't give up thinking about that controls. The more I looked at them and the more they seemed to tell me: "touch me, I am challenging you!". It is something you feel being into your brain and completely out of your control. You know that this makes no sense but you cannot manage it. This situation has been lasting for eighteen months, and worsened to the extent that I was terrified when I was wearing my pilot uniform in the hotel. During my last flight I told myself: "Time to give up flying. I don't want to climb to any aircraft anymore", as I was aware that in the subsequent flight I would have made it and caused the plane crash"*.

Bryan Griffin boldly managed to get in touch with his discomfort, recognized it as a symptom and was able to assess the concerned risk for flight safety. On his own initiative, he decided to give up commanding flights and sought help from competent staff.

Things went differently for Andreas Lubitz, First Officer of the Germanwings flight 9525, who is the protagonist of a different story. On the 24 March 2015, the Germanwings flight 9525, carrying 150 people on board, crashed in the foothills of the French Alps. The plane, carrying young people, vacationers and others, was flying from Barcelona to Düsseldorf. It crashed after an eight-minute descent from 38,000 feet. Everyone on-board sadly died. Safety investigation results (3) show that Lubitz deliberately caused the plane crash by inputting into the Flight Management system the collision course towards the hills. The readout of the Cockpit Voice Recorder (CVR) provided evidence that Andreas Lubitz locked himself into the cockpit alone taking advantage of the temporary absence of the Pilot-in-Command (PiC), Patrick Sonderheimer, due to physiological needs.

\*Psychotherapist; Lecturer in Human Factors in Aviation at Giustino Fortunato University; Human Factors specialist at Deep Blue srl

## AVIATION

From that moment on, Lubitz stopped speaking and no longer allowed the PiC enter the cockpit. The co-pilot deliberately set the autopilot to automatically descend to an altitude of 100 feet (about 30 metres) and thereafter, on several occasions during the descent, modified the autopilot setting to increase the speed of the airplane along the track, as confirmed by findings obtained from the Flight Data Recorder. Lubitz was still alive until impact with the ground, so any temporary incapacitation due to physical causes is excluded.

So, Lubitz's actions on the flight controls can only have been deliberate. In this light, the Germanwings accident could be seen as a result of an intentional violation of rules and procedures conceived to cause damage, where the planned action (violation) achieves the outcome (damage) desired by the author. Hence, this type of behaviour does not constitute human error (7) and, following safety investigation, can be considered as an act of sabotage associated to the presence of a psychopathological disease. Anti-depression medication was found in Lubitz's home; furthermore, there was evidence that Lubitz had undergone psychiatric treatment in specialised centres in the past. In line with confidentiality and professional secrecy rules (2), no report was issued by the competent specialized staff.

In recent aviation history, there are at least four cases where the suicidal intention of one of the two pilots has led to the crash of an airliner and the death of everyone on-board. The oldest case dates back to 21 August 1994, when an ATR42 of Royal Air Maroc crashed on the ground in the vicinity of Agadir and 44 people died. Moroccan authorities ascertained, based on CVR listening, that the accident was due to the suicidal intention of the 35 year-old pilot. In fact, the audio of the last 30 minutes of the flight revealed that he screamed he wanted to die. On 19 December 1997, in Indonesia, a Boeing 737-300 operated by Silk-Air crashed on the Sumatra Island and 104 people died. The Indonesian investigation authority concluded that the accident was deliberately caused by the PiC, who wanted to commit suicide. Also in this case, the CVR provided sufficient evidence, revealing also the struggle by the co-pilot in trying to take control of the aircraft. Again, on 31 October 1999, a Boeing 747 operated by EgyptAir crashed into the sea near the American coast of New England. All 217 people on-board died. The USA National Transport Safety Board (NTSB), competent as State of Occurrence per ICAO Annex 13, established that no technical failure was among the causal factors of the accident, which instead originated from a deliberate action by the pilot. More recently, on 29 October 2013, flight TM470 with 27 passengers and 6 crew members on-board crashed while flying over Botswana. The investigation, even in this case, revealed that the pilot had deliberately led the plane to crash. There are several other recorded events, albeit of lesser severity. Cases of air disasters due to pilots' or passengers' suicide are collected in the database of the Aviation safety network <http://aviation-safety.net/database/dblist.php?Event=SES>.

Despite these cases and although some recommendations to address these topics were issued even before the tragic Germanwings accident (1), very few actions were taken to address the question on how safety against the hazard related to psychopathological issues can be ensured, on how fit for duty of crew is assessed also from this perspective, and whether current rules are sufficient. This had an impact on several levels, as follows:

## AVIATION

- Cultural level: actions are still required to modify the trivialization attitudes and stigma towards psychopathology within the aviation community;
- Scientific level: few research applications to collect relevant data on the topic are available;
- Educational level: the topics related to psychological health and psychopathology are not included in the curricula for aviation professionals;
- Training level: target training courses concerning psychological health and safety are missing in the standard programmes of Human Factors and Safety courses for aviation organizations;
- Care level: the psychological assessment is just considered as a go/no go for maintaining the license, whilst it should be given a broader scope, including care and career guidance;
- Deontological level: standard procedures for the professional secrecy and the report obligation are missing (this may reveal critical, especially when social danger is concerned, as happened in the case of the Germanwings accident);
- Safety level: no standards for the assessment of the psychological fitness for duty are available; reinstatement and reorientation career paths to be followed after loss of license due to psychopathological issues are missing as well;
- Regulatory level: the international regulation concerning cockpit access, required number of cabin crew personnel, front-line staff recruitment and license monitoring should be updated.

Let's now try to address the relationship between psychopathology and aviation safety. To achieve it, let's come back to the Germanwings accident and analyze the case in this perspective.

Few days after that accident, the official press spread the news that Lubitz committed suicide. Based on this, it has been surmised that Lubitz had been suffering from depression. Indeed, the event appears to be a case of murder-suicide, which is very different from a "simple" suicide from the psychopathological perspective and extremely rare, especially outside domestic contexts. In fact, in these sad situations, one person wishing to end her/his life takes the lives of others - in this case, complete strangers - at the same time (10). Moreover, from a terminological point of view, the term depression is pretty generic. In fact, in psychopathology it is possible to find the term "depression" in different nosographical clusters, ranging from **Depressive Episode** to **Major Depression**, until **Bipolar Depression** and **Depressive Personality Disorder**. Each cluster presents a specific symptomatology, including related levels of social danger. The history of Andreas Lubitz, as emerged after Safety Investigation, seems to suggest a proneness to Bipolar Depression, or rather to a Paranoid or Narcissistic Personality Disorder (10).

It is out of the scope of this paper to attribute a psychopathological diagnosis to Andreas; nevertheless it could be worthwhile taking this history as a starting point to understand which is the trade-off between mental health and psychopathology, which psychopathological syndromes can represent a hazard for aviation safety and how it could be possible to mitigate the risk of incidents or accidents associated to the presence of a psychopathological disease in the front line staff.

## AVIATION

Two questions are prominent in this light: **how was it possible for Lubitz to get and keep the pilot license despite a certified psychopathological condition? Is it possible to predict the social danger level of a person on the basis of a certified psychopathological condition?**

To provide an answer to the **first question** it is necessary to focus on the European Regulation concerning the selection and the monitoring of psychological health of the cabin crew. From reading the Regulation content, it emerges that standard psychodiagnostic protocols, establishing structured procedures and means, including guidelines on administration frequency, are missing. The current EASA part-MED (4) addresses the requirements for class 1 pilot's medical certificates. In particular, AMC1 MED.B.055 "Psychiatry" includes psychotic disorders, organic mental disorders, use or abuse of psychotropic substances, schizophrenia and mood disorders as totally or partially disqualifying. Regarding personality or behavioural disorders, the regulation states "where there is suspicion or established evidence that an applicant has a personality or behavioural disorder, the applicant should be referred for psychiatric opinion and advice". But no guideline is given on how and when assessment has to be performed. AMC1 MED.B.060 "Psychology" is also included in the medical conditions to assess the fitness for duty of cabin crew, and states that pilots should undergo psychological assessment only when specific indicators are detected in their anamnesis. However, even when psychological assessment is deemed necessary, currently no rule exists which establishes repeating it on a periodic basis. Thus, these tests are not repeated according to a standard consolidated praxis, but are only used ad hoc on a case-by-case basis, when a particular need is detected.

It seems that the certification of psychopathological disease is up to the individual initiative of the person suffering from it, or, potentially, to the reporting by the colleagues, with all the critical issues inherently associated.

The taxonomy that distinguishes between psychological health and psychopathology helps understanding why this kind of system generated a disaster like the Germanwings accident and why this system can't handle it and cannot be considered resilient towards the social danger related to psychopathology. First of all, it cannot be assumed that what is worst from a psychopathological point of view is also the most dangerous for safety. In fact, people suffering from serious psychopathology (*psychotic* spectrum) generally present discernible symptoms, as for instance hallucinations, delirium and extreme social withdrawn, that would hardly escape the attention of a professional certifying officer. On the other hand, all the syndromes belonging to the so-called *borderline* spectrum, namely at the borders between mental health and psychopathology, could result invisible to poor structured psychodiagnostic monitoring protocols, in terms of instruments and frequency. This happens because people suffering from this syndromes: *i)* keep maintaining unaffected one or more relevant areas of everyday life, as for instance the care of themselves and the working area; *ii)* either do not recognize their own disease as a symptom (and, as a consequence, do not communicate it as such) or consider it as acceptable, if not even just, and, as a consequence, keep hiding it until they have the possibility to publicly show its effects (this is probably the case of Andreas Lubitz).

Indeed a certain impulsiveness and the proneness to hazardous behaviours, as well as a kind of opposition, namely the pervasive tendency to hostility, are typically present in the syndromes belonging to the borderline spectrum.

## AVIATION

These syndromes are the most dangerous for safety: on one hand not immediately visible, on the other hand at high risk of damaging behaviours.

In the framework of the history of Andreas Lubitz, as emerged from Safety Investigation, it is possible to trace back the indicators of a kind of hostility towards Lufthansa, likely due to the concern that Lufthansa wouldn't promote him as long haul Captain. A first person perspective to Andreas and his history, based on psychotherapeutic frameworks and techniques, might have reconstructed the connection between such hostility and the planning of the act of murder-suicide in form of plane crash. In the opinion of who has written this article, the first person perspective is the only way to provide an answer to the **second question** presented above, namely if it could be possible to predict the social danger level of a person on the basis of a certified psychopathological condition.

To predict a social danger level of a person means to reconstruct his history and, hence, find out what personal meanings s/he is prone to attribute to her/his own experience and how this affects her/his wellbeing, in order to understand why s/he has ended up in limiting her/his range of possibilities to the extent that damaging her/himself and other people is considered as the only way to manage her/his discomfort.

Following the Germanwings accident example, the Andreas' anticipatory thinking about not achieving the promotion as long haul Captain should have emerged in a framework of a given interpersonal context, made of thoughts, feelings and actions of Andreas himself and of other relevant people. Describing such context, namely the one in which this anticipatory thinking emerged, and how it affected Andreas' personal experience, might have been of help in identifying the planning of the plane accident as the only possibility that he considered to manage his discomfort. Starting from that, it might have been possible to reconfigure new meanings of the personal experience and new possibilities to manage it safely.

This way is not viable if a target organizational culture on psychopathological issues and key competences are missing within the organization. So, the debate about the relationship between psychopathology and aviation safety should integrate: i) a first person perspective, based on psychotherapeutic frameworks and techniques, aimed at monitoring the psychological health of professionals who hold the responsibility of others' lives, that could be useful not only for the assessment of their potential social danger, but also for their psychological care and career reinstatement/reorientation; with ii) a third person perspective, providing target structured organizational processes, such as: creation of standard psychodiagnostic protocols; integration of key psychotherapeutic competences and staff; design of target training courses aimed at informing professionals and modifying the stigmatisation and trivialization attitudes towards psychopathological symptoms and syndromes; mitigation of the effects of loss of license for people suffering from psychopathology by means of the creation of reinstatement/reorientation career paths.

This is the object of a corpus of guidelines, proposed by the author of this paper to safety-critical organizations, for the mitigation of the hazards related to the presence of psychopathological conditions in the aviation frontline staff. The proposed guidelines are based on recent recommendations issued by relevant European avia-



## AVIATION

tion organizations following the Germanwings accident (5, 9). They reflect the aforementioned levels of organizational practices and are shortly presented below:

- Cultural level: create occasions, such as conferences, workshops, experts interviews, online press and so on, for spreading knowledge concerning mental health and psychopathology within the aviation community;
- Scientific level: define collaborative research applications and collect corpus of data to provide guidance and advice for procedures and practices;
- Educational level: include topics related to psychological health and psychopathology in the curricula for aviation professionals;
- Training level: design and implement target training courses so as to develop competences within the aviation organization for adequate identification and reporting of critical situations concerning psychological health and safety;
- Care level: create key competence profiles for the recruitment of psychotherapeutic staff, to be engaged for the psychological treatment of people suffering from psychopathological symptoms within the organization; create networks with other services, external to the aviation organization, dealing with diagnosis and treatment of psychopathological conditions;
- Deontological level: define procedures for the professional secrecy on one hand, and the report obligation on the other hand, especially when social danger is concerned, for healthcare professionals working both inside and outside the aviation organizations;
- Safety level: develop standards for the psychological fitness for duty as guidance and advice for the recruitment of front line staff and psychological health monitoring; define reinstatement and reorientation career paths to be followed after loss of license due to psychopathological issues;
- Regulatory level: adequate the international regulation concerning: cockpit access, required number of cabin crew personnel, front-line staff recruitment and license monitoring.

The proposed approach brings about a change of perspective, intended to hinder stigma and trivialization towards psychopathological disease, as well as to deliver a message in which the safety of aviation operations corresponds to the health of professionals in charge of generating it.

### Reference:

1. Aerospace Medical Association (2014), Mental health screening in aviators: the AsMA recommendations <https://www.asma.org/asma/media/AsMA/pdf-policy/2015/Mental-Health-Screening-in-Aviators.pdf>
2. American Psychiatric Association (2013), The Principles of Medical Ethics With Annotations Especially Applicable to Psychiatry [https://www.google.it/url?sa=t&rct=j&q=&esrc=s&source=web&cd=2&ved=0ahUKEwj\\_zeLEtebZAhUCiywKHVwxBEAQFggvMAE&url=https%3A%2F%2Fwww.psychiatry.org%2Ffile%2F2520Library%2FPsychiatrists%2FPractice%2FEthics%2Fprinciples-medical-ethics.pdf&usq=AOvVaw2LID9P-f9ubnInfVpRXCC](https://www.google.it/url?sa=t&rct=j&q=&esrc=s&source=web&cd=2&ved=0ahUKEwj_zeLEtebZAhUCiywKHVwxBEAQFggvMAE&url=https%3A%2F%2Fwww.psychiatry.org%2Ffile%2F2520Library%2FPsychiatrists%2FPractice%2FEthics%2Fprinciples-medical-ethics.pdf&usq=AOvVaw2LID9P-f9ubnInfVpRXCC)

## AVIATION

3. BEA (2016) Final Report on Germanwings accident [https://www.bea.aero/uploads/tx\\_elydrapports/BEA2015-0125.en-LR.pdf](https://www.bea.aero/uploads/tx_elydrapports/BEA2015-0125.en-LR.pdf)
4. European Aviation Safety Agency (EASA), Acceptable Means of Compliance and Guidance Material to part-MED,15 December 2011 <https://www.easa.europa.eu/document-library/acceptable-means-of-compliance-and-guidance-materials/group/part-med---medical-requirements-for-aircrew#group-table>
5. European Commission - Press release (2015) European Aviation: Commission releases Task Force's report on Germanwings incident [http://europa.eu/rapid/press-release\\_IP-15-5392\\_en.htm](http://europa.eu/rapid/press-release_IP-15-5392_en.htm)
6. Falabella M. (2007), ABC della psicopatologia, Edizioni Magi
7. Reason J. (1990), Human error. New York: Cambridge University Press
8. Strage del volo Germanwings - documentario (in italian) <https://www.youtube.com/watch?v=R3m3qcA8ho4>
9. Swiss abandons the rule of two-people in the cockpit, Airliner Pulse online press, 28 April 2017 <http://www.airlinerpulse.com/blog/2017/04/swiss-abandons-the-rule-of-two-people-in-the-cockpit.html>
10. Tomasello Paola (2015), Psychopathology: an underestimated hazard for aviation safety?, The Aviation and Space Journal, Year XIV n.2, April-June 2015, p.14 <http://www.aviationspacejournal.com/wp-content/uploads/2015/06/The-Aviation-Space-Journal-Year-XIV-no-2-April-June-20151.pdf>

## Questions of Liability Regarding the Malfunctioning of GNSS

Anna Masutti\*  
Pietro Nisi\*\*  
Virginia Ichim\*\*\*  
Alessandro Perrone\*\*\*\*

The concept of what developments around the new area of Global Satellite Navigation System law constitute, is playing a growing role within all raising issues regarding which specific body of law might rule the operation of such satellite systems. It is worth mentioning, in a very short but essential sense, what Global Navigation Satellite System (herein after GNSS) refers to. GNSS refers to a constellation of satellites providing signals from space that transmit positioning and timing data to GNSS receivers. Providing global coverage, GNSS includes Europe's Galileo, the USA's GPS, Russia's GLONASS and China's BeiDou Navigation Satellite System.

First and foremost, we witness the lack of a specific international legal framework concerning GNSS activities. In this perspective, it is advisable to delve into national laws and judicial decisions issued that may be potentially applicable in case of damage or malfunctioning arising from the use of the signal. Though the content and level of detail of national regulations regarding liabilities differ, the analysis of liability sources, the extent of the obligation to compensate, the nature of the damages claimed and the assessment criteria shall be integrated in the actual coverage that could provide the conceptual framework of a possible international regulation. These elements can vary considerably depending on the country in which the claim is brought. As far as the European Union is concerned, there is a number of Member States that identify, analyse and define damage arising from space operations, but, in essence, they do not consent to clearly address liability risks connected to the provision of navigational data.

For instance, France issued in 2008 *the Loi relative aux operations spatiales* governing space activities such as launching activities and liability for damage caused by space object, but this regulation envisages the material scope of application of the law strictly limited to space operations, as it can be clearly noticed in Art. 1 of the Law, under the paragraph "Dommage":

\*Professor of Air Law at the University of Bologna, Partner LS LexJus Sinacta Italy

\*\*Partner LS LexJus Sinacta Italy

\*\*\*Student at Faculty of Law, Nicolae Titulescu University, Bucharest, Romania

\*\*\*\*Legal Graduate Trainee at Ryanair. Law Master's Degree, Alma Mater Studiorum, University of Bologna. This article was written in the author's personal capacity

## SPACE

*Pour l'application de la présente loi, on entend par:*

*« Dommage » : toute atteinte aux personnes, aux biens, et notamment à la santé publique ou à l'environnement directement causée par un objet spatial dans le cadre d'une opération spatiale, à l'exclusion des conséquences de l'utilisation du signal émis par cet objet pour les utilisateurs.<sup>1</sup>*

For the above mentioned, it can be clearly noted that the Law excludes the consequences of the use of the signal emitted by space object sustained by the users. In this framework, the Law foresees three key types of liability for damage caused by space objects. On the one hand, an absolute liability of the operator for damage on ground and in air space caused by a space object linked to an authorized activity and on the other hand, liability on a fault basis for damage caused in outer space, liability that cannot be avoided or reduced unless the victim's contributory negligence is proved. Moreover, it also enshrines that except in the case of a wilful misconduct, liability ends when all the obligations set out in the authorization or the license are fulfilled or at the latest one year after the date on which these obligations should have been fulfilled. Hence, the Government shall be held liable in the operator's place for damages occurring after this period.

In light of the above, with respect to liability towards third parties, an operator is absolutely liable for the damages caused on the surface of the earth or in the air-space by a space object. This liability cannot be mitigated unless the victim's negligence is proved.

Other Member States such as Italy, Spain or Germany have never adopted any specific national legislation regarding space and satellite activities. Despite the fact that Italy is a world's space power or that it takes part in key space programs, it develops all its space activities, both public and private, within a legal and regulatory framework that is extremely empirical. In the absence of specific provisions, the existing national regulations ratifying UN treaties regarding space activities are also limited and underline the lacuna existing in space regulations. Significantly enough, due to both the quite recent development of GNSS system and the long lasting Italian proceedings, it cannot be noticed any case law regarding GNSS application domain. Up to the present date, the Italian jurisprudence has dealt with GNSS's issues mostly regarding the use of GPS as a legitimate approach to control employees in Employment Law and especially throughout Criminal Law as a legitimate evidence in the criminal trial. For instance, the Supreme Court, in Cass. civ. Sez. lavoro, 20/09/2016, n. 18419 ruled as illegitimate the use of the data tracked by the GPS installed in the company's cars, used by the employee to visit customers, in order for the employer to prove the breach of the work's contract. Furthermore, in Cass. Pen. Sez. V, 25/11/2015, n.3555, the Supreme Court states that the current legal framework for inspection, search and interception does not apply to satellite navigation, since GPS, under the Italian Law is to be considered as electronic stalking.

In Germany, due to the lack of legal certainty regarding the use of GNSS, the solution to overcome this absence, is to refer to the existing set of rules. The operation of space satellites, as well as the dissemination of data have been regulated by implementing the German Act on protection against threats to the security of the Federal Republic of Germany via the dissemination of high-quality data regarding remote sensing of the earth (Satellite Data Security Act - SatDSiG). Liability issues, however, are not governed by this law. Germany ratified the Outer Space Treaty of 1967 and the Space Liability Convention of 1972.

## SPACE

According to these conventions unlimited strict liability applies to damages caused by space objects on earth and in the air. For damages being caused in the orbit, a fault-based liability applies.

Leaving the European side, the situation in United States is characterized by the concern of the U.S Government that, as long as the service is offered free of charge, the provider should not have to bear the additional burden of international liability for faulty service. More in detail, the United States consider that:

*“Nothing about the implementation of satellite navigation, communication, and surveillance – including advent of additional participants in provision of air traffic control service – raises legal or factual issues that cannot be handled by current claim mechanisms<sup>2</sup>.”*

Of particular importance is that, in the US, liability claims may stem under the US Federal Tort Claims Act (FTCA) since under this act United States of America waives immunity.

Nowadays, the Federal Tort Claims Act, represents the primary means of asserting tort liability against the United States also applying to suits regarding every tort that could arise from the malfunctioning of the GPS. According to the above mentioned law, it is provided judicial recourse and waives governmental immunity in claims for damages arising from a loss of property, personal injury, or death:

*“... caused by the negligent or wrongful act or omission of any employee of the Government while acting in the scope of his office or employment under circumstances where the United States, if a private person will be liable to the claimant in accordance with the law of the place where the act or omission occurred<sup>3</sup>.”*

Another law applicable to claims arising from malfunctioning of signal in GPS applications under which the United States has waived immunity is represented by the Admiralty Act. Similar to the FTCA, the Admiralty Act waives the sovereign immunity of the United States of America, but it is limited only to injuries caused on the high seas or the navigable water of US.

Up to the present date, the U.S. third party liability regime for space activities is divided in 3 different tiers. As for the first one, the U.S. regulations provide that one requirement for obtaining a launch license is that operators must obtain third party liability insurance according to the MPL<sup>4</sup> criteria. The insurance that is supposed to last thirty days from the launch, cannot exceed 500\$ million neither can be exceed the amount of insurance available on world markets at a proper price<sup>5</sup>. With respect to the second tier, if third party liability claims go beyond the MPL insured sum, the US Government (if the Congress approve the appropriation law) has to pay up to 2.8 \$ billion dollars in any third-party liability claims experienced by a space operator. In the third and last tier, if third-party claims overcome the MPL and the amount of promised government compensation, liability reverts back to the operator. It is important to point out that the government compensation of the second tier is to be considered solely a promise of future action since the U.S. Congress has to pass the so called “appropriation law”.

## SPACE

Furthermore, another key aspect is that no third party liability claims have been made in over 230 licensed U.S. commercial launches since 1989 and up to the present date the U.S. Congress has been reluctant to grant the U.S. space industry the same level of protection that other countries have given their commercial launch industry. Unless a claim is made under one of these statutes mentioned above, it will likely be dismissed for lack of jurisdiction.

However, it is important to note that the GNSS user may have more success in claiming compensation from the manufacturer of the GNSS satellite. For instance, in a hypothetical situation, it could be that the manufacturer may have built the satellite negligently and thereby caused an aircraft accident. However, in the United States, the GNSS manufacturer in that situation may still manage to come within the government's immunity umbrella.

In light of the above, the absence of a clear and common legal framework regarding liability and GNSS is of particular importance for identifying the liable party in case of malfunctioning of a signal and assessing the recoverable damage both in European Union and United States. It is very clear that designing a proper regime applicable requires not only ratifying UN Treaties or referring to the existing national regulations, but to make substantive efforts in order to solve the issues regarding which specific body of law might rule on the subject matter.

---

<sup>1</sup> *Damage means any trespass to persons or property, and in particular any public health hazard or damage to the environment caused directly by a space object as part of a space operation, to the exclusion of the consequences of using the signal emitted by said object for users.*

<sup>2</sup> *Icao Doc. SSG-CSN/2-WP/6, 10.*

<sup>3</sup> *Federal Tort Claims Act ( 28 U.S.C. 2672).*

<sup>4</sup> *Operators need to provide insurance in the amount of the maximum probable loss according to a calculation performed by the Federal Aviation Administration (FAA).*

<sup>5</sup> *51 U.S.C. § 50914 (3) (2012) states: For the total claims related to one launch or re-entry, a licensee or transferee is not required to obtain insurance or demonstrate financial responsibility of more than— (A) (i) \$500,000,000 under paragraph (1)(A) of this subsection; or (ii) \$100,000,000 under paragraph (1)(B) of this subsection; or (B) the maximum liability insurance available on the world market at reasonable cost if the amount is less than the applicable amount in clause (A)(i) or (ii) of this paragraph.*



## Outer Space Law: Legal Policy And Practice

*Book review by Alfredo Roma*

Consulting Editors: Yanal Abul Failat and Anél Ferreira-Snyman

Publication Year: 2017 Globe Law and Business Ltd

Although States still have a leading role in outer space activities, in the last ten years, private enterprises have been more and more involved in outer space activities. International space law has not been updated accordingly, leaving to national authorities the task to adopt in their domestic law system its relevant provisions. These activities comprise, *inter alia*, the use of satellites for telecommunications, the transportation of supplies to the International Space Station (ISS) and recently the planned tourist suborbital flights. In a not too far future even space mining will be an activity performed by private enterprises. Since the first Sputnik flight in 1957 for many years the outer space activities have been driven by USSR and USA for political or military purposes. In the last twenty years many countries have developed their outer space activities that seem to be driven now by economic purposes.

This was the starting point for the idea of writing a book on the outer space law that provides an overview of the existing *corpus juris spatialis* in relation to the different activities that have arisen in recent years, in order to arrive at an assessment of the adequacy or inadequacy of the existing law system.

The book is a collection of academic works written by 21 eminent space and international law scholars from all over the world.

Initially, Christopher Daniel Johnson presents an overview of the existing binding and soft space law, starting from the UN Treaties, the Liability Convention, the Registration Convention and the Moon Agreement, concluding a bit hastily that the existing set of rules needs revision and amendment for the next generation of space activity.



The following chapter, written by Yun Zjao, examines the national law systems governing the space activities, national law systems developed thanks to the promoting action of UNCOPUOS. Till now a limited number of countries have developed their national space law, which however lacks some matters such as the environment, relating especially to space debris.

A deep analysis is offered by Ntorina Antoni on the European Space law, which includes the different roles of ESA and the European Commission, especially in relation to the European projects: Galileo, Egnos and Copernicus. The Framework Agreement signed in October 2003 between ESA and the European Commission was an important achievement for a concrete collaboration between the two European institutions.

Olavo de Oliveira Bittencourt Neto dedicates ten pages to the never-ending discussion on the separation between airspace and outer space. In 1957 the Hungarian physicist Theodor Von Karman proposed an equation to establish a specific altitude at which aerodynamic pressure is overcome by ascension pressure, i.e. the point where ascension depends on speed and trajectory of the object (the so-called *Karman line*). Since then such a separation has been identified in 80 or 100 km from the Earth's surface but a precise level has never been legally established, except in the Australian and Danish domestic law systems, which have fixed that separation at 100 km. The matter is very important as such separation would decide when liability for damage caused by spacecraft (moving in airspace and outer space) would be regulated by air law or space law.

There is no doubt that the industrialisation of space has already started and will continue at a regular pace. Therefore, in such a context the chapter on Property and Ownership of Wian Erland appears very appropriate, especially in relation to space mining or to the construction of space stations. The chapter is very vast and provides a complete analysis of the different situations that can occur in the exploitation of outer space. Since the space treaties establish that outer space is *res nullius* we should probably replace the concept of property with licence and concession.

Rarely, books or document on space law face the aspect of military activities, although by definition space infrastructures are "dual use", civil and military, despite Article IV of the Outer Space Treaty stipulates that "*Outer space shall be used for peaceful purposes exclusively*". Actually, Article III of the same treaty provides that space exploration has to be carried out in accordance with international law and the Charter of the UN (1945), which by article 51 recognizes the right to resort to force in two instances for self-defensive actions. In effect, since the beginning the space exploration has been guided by the political and military powers. Today, there is a concrete danger for the weaponisation of space and the United Nations should take concrete actions in order to prevent such a scenario. This matter is analysed by Anél Ferreira-Snyman who gives a complete view of the problem.

The following chapter of Yanal Abul Failat offers a useful prospect of 32 licensing regimes, in force in the space faring countries, for private outer space activities, examining pros and cons of such regimes. This matter is appropriately completed by the chapter on insurance of outer space activities written by Miguel Calvete. This part of the book provides a clear analysis of the existing insurance coverage for launch risk, satellite operations, astronauts insurance and space tourism insurance. The analysis comprises the different kind of liability, especially third-party liability and product liability.

Christopher Newman examines the legal and governance framework regulating the operations of artificial satellites that orbit the Earth, recalling the history of inter-governmental organisations like INTELSAT, INMARSAT and EUTELSAT, the creation of IGO and ISO. The chapter also mentions the space debris and environmental problems that are examined at large in another chapter of the book.

Quite original appears the chapter “Regulation of remote sensing activities”, written by Carlo Golda and Maria Elena De Maestri. Remote sensing was developed originally by the use of planes. Now, besides planes we can deploy satellites and drones. These flying objects can collect a huge number of information: images, videos, TLC, telephone conversations, positioning of persons and vehicles, etc. Such data may be processed and stored in places out of any control, infringing in many cases the right to privacy. This is now possible thanks to a vast kind of sensors containing sophisticated technology. The use of this technology is mainly in the hands of governmental entities for security purposes, but now even private entities or individuals can have access to these technologies, including satellites. This chapter examines the international legal framework, including the space treaties, the 1986 UN Principles on remote sensing, the national legislation of some countries and the EU regulations. Concluding remarks recognise that there are many gaps in the present system of regulation of both remote sensing and dissemination of data collected by such a technology. In addition, disputes on remote sensing collection of data before national courts suffer from non-homogeneous procedure rules in the different countries.

Yanal Failat and Anél Ferreira-Snyman offer a detailed analysis of a very fashionable subject: the space tourism. Virgin Galactic and other companies have developed prototypes of spacecraft able to navigate in the airspace and outer space for pleasure or recreation. Tourist activities may also include long-term stay in orbital facilities or parabolic intercontinental flights for transportation. Hence, again it would be useful to establish the level of separation between airspace and outer space for the application of air law and space law to the two phases of the flight, for liability reason (e.g. damage suffered by tourists) or navigation purposes. Air law already contains these cases, the outer space law doesn't. Another tricky aspect concerns the status of the tourist: should he be considered an astronaut and subject to the provisions of the Space Treaties?

Another current matter concerns the space mining. A thick book has already been published on all legal aspect of space mining. Here, Philip De Man provides a short description of In situ Resource Utilisation (ISRU) and other forms of exploitation, mainly on asteroids. Even for this activity the existing norms appear updated and insufficient to regulate the exploitation of natural resources in outer space.



Outer space, like the Earth, presents environmental problems, mainly caused by space debris. Anél Ferreira-Snyman recalls that since the beginning of the human space adventure in 1957, thousands of satellites have been launched. Many of them have come to their life end and are no more under a ground control. In addition, there are old rockets and abandoned spacecraft. Abandoned material and satellite collisions have produced approximately 170 million debris. Such debris, even of small size, move at a very high speed and represent a concrete danger for the operating satellites. Some of these debris contain radioactivity material and toxic fuel. Only in 2011 6000 tons of space debris re-entered the Earth atmosphere normally burning in the air. Again, it has to be stressed that the current UN space treaties are outdated and insufficient to deal with the serious problem of space debris. Soft law may help, but a binding legal instrument must be negotiated between States like the Convention on the law of the Sea for the protection of space and Earth environment.

Jasper Helder, Clara C.Kloui, Thomas McCarthy and Brad Powell examine how national regulations may be an obstacle for the outer space activities. They mainly refer to the export control on technologies adopted by the space faring countries. Reference is made to the Wassenaar Arrangement, the various USA Acts and EU Regulations. Sanctions against some countries have further limited the movement of goods and information across international boundaries. The authors have an optimistic view regarding the evolution of the future trade law and international collaboration.

Sarah K.Germann and Anja Pecujlic consider the intellectual property law in respect of the climate change, coming again to the transfer of technology and the international intellectual property right. Reference is made to the 1995 TRIPS Agreement and the Intergovernmental agreement (IGA) model. The authors sadly find that the international space community has failed in finding a global solution for technology transfer with regard to climate change. Solutions should be found among countries that share common interests and are willing to co-operate through small scale projects.

“Cyber operation in outer space” is a very interesting chapter written by Heather A. Harrison Dinniss. Cyber operations carried out by State entities have certainly the power to create great disruption to a modern society that have a wide reliance on space technologies for navigation, communication and economic transactions. Through space infrastructures a State may produce a space blockade to another country. A number of cyber operations against space infrastructures have already been witnessed like, for example, the Terra AM-1 satellite and Landsat 7 compromised by Chinese hackers. The existing set of international rules prohibits such a harmful activity. Unfortunately, the space law does not contemplate the ability of malicious users to affect the space object of a launching State.

Damian M. Bielicki examines some space cases before international courts where images taken from space have been determinant for the solution of the dispute. Very impressive is the case of the International Criminal Court for the former Yugoslavia.

The last chapter, written by Nicholas Gould, analyses the disputes resolution. The matter is not of secondary importance as the global space industry is now estimated to worth more than 323 billion US dollars, while an increasing number of private enterprises of different countries are active in space operations. The author stresses once more that the outer space law is still in embryonic state and needs further development. In the meantime, space industries have increasingly resorted to international arbitration to solve their disputes.

This book certainly offers a complete view of the space activities in the present evolving scenario and of the existing international rules governing such activities. However, committing the work to a large number of authors inevitably leads to several repetitions that in this case concerns: the origin of space activities, the separation between airspace and outer space, the space debris, the inadequacy of the Space Treaties and the liability regimes. Finally, a very small font has been used making the reading a bit difficult, especially for foot-notes.

## The right to compensation under Regulation (EC) No 261/2004 and Courts jurisdiction in case of connecting flights

Anna Masutti\*  
Basima Kachni\*\*

The European Court of Justice was recently called upon to rule on a case concerning the booking of connecting flights, respectively operated by *Air Berlin* and *Iberia Airlines*, from Spain to Germany. Both these flights made stopovers in Spain where they were operated by the Spanish airline *Air Nostrum*.

Due to the delay of the first connection flight, the passengers lost their other flight to Germany and reached their final destination more than 3 hours late. Consequently, they brought actions before German Courts against Air Nostrum airline in order to obtain the compensation provided for in Regulation (EC) No 261/2004'.

The German Courts rose doubts about their jurisdiction in consideration of the fact that Air Nostrum airline has its seat in another Member State, operated only the first domestic flight in Spain and is not passengers' contracting partner.

The German courts decided to ask the European Court of Justice whether they have international jurisdiction over actions proposed by air passengers against an airline based in another Member State, which operated only the first leg of a connecting flight and which is not the direct contractual counterpart of the passengers. The Court of Justice has clarified that, according to Brussels I Regulation, and on the basis of Regulation (EC) No 261/2004, the "matters relating to a contract" include also actions aimed at obtaining compensation for the delay of flights in connection, toward an operating air carrier which is not the direct contractual counterpart. More specifically, the Court disposed that where an operating air carrier (which has not concluded a contract with the passenger) fulfils its obligations under the over mentioned Regulation, it is to be considered as doing so on behalf of the airline which concluded the contract with the passenger concerned.

In addition, the Court disposed that, in the case of a connecting flight where both flights are operated by two different air carriers, the "place of performance" must be considered as the place of arrival of the second flight.

\*Professor of Air Law at the University of Bologna, Partner LS LexJus Sinacta Italy

\*\*Trainee Lawyer in Bologna—Italy

Therefore, the final destination in Germany can be regarded as the place of performance of the services to be provided not only with respect to the second flight, but also with respect to the first domestic flight in Spain.

As a result, the German Courts have, in principle, jurisdiction over the claims for the recognition of compensation proposed to the *Air Nostrum*.

With regard to the passengers' protection and to the right to compensation under Regulation (EC) No 261/2004, Ryanair airline has recently implemented a "compensation policy", in accordance to the recent decision of the London High Court issued in March 2018.

From now on, it will be possible for passengers to communicate directly with the company for the payment of compensation under Regulation (EC) No 261/2004 and to be reimbursed directly by Ryanair.

The Irish Airline has set out a project team aimed at trying all the valid applications within a period of 10 working days, seeking to be the faster in the airline sector.

---

<sup>1</sup> The above-mentioned Regulation establishes common rules on compensation and assistance to passengers in case of denied boarding, flight cancellation or long delay of flights.

*FORTHCOMING EVENT*



**2 ° CONGRESSO NAZIONALE DI SPACE  
RENAISSANCE ITALIA**

**18-19 Maggio 2018 - INAF IRA Bologna**

**2 ° Congresso Nazionale di Space Renaissance Italia**

Speaker: Professor Anna Masutti speaker – University of Bologna

**Date:** 18th / 19th May 2018

**Location:**

INAF IRA – Bologna, Via Piero Gobetti, 101

**Email:**

stefano.antonetti@spacerenaissance.it (organizer)

**For more information:**

<https://sritac.spacerenaissance.space>



## EBACE2018

### The European Business Aviation Convention & Exhibition (EBACE2018) - Geneva's magnificent Palexpo

Tuesday 29 May / Thursday 31 May

The 2018 European Business Aviation Convention & Exhibition (EBACE2018) will take place from 29 to 31 May at Geneva's magnificent Palexpo. Thousands of business leaders, government officials, manufacturers, flight department personnel and all manner of people involved in nearly every aspect of business aviation will meet to conduct business and make buying decisions for the year ahead. EBACE exhibits will showcase more than 400 exhibitors and 55 business aircraft on static display.

**Participants:** Anna Masutti and Pietro Nisi

**Exhibit Hours:**

**Tuesday 29 May**

10:00–18:00

**Wednesday 30 May**

09:00–18:00

**Thursday, 31 May**

9:00 – 16:00 Exhibit Halls

9:00 – 14:00 Static Display

**For more information:** <https://ebace.aero/2018/>

**Email:** [exhibits@ebace.aero](mailto:exhibits@ebace.aero)



## EALA's 7th Copenhagen Air Finance Legal Seminar

1 June 2018

EUROPEAN AIR LAW ASSOCIATION - AIR FINANCE LEGAL SEMINAR -

Copenhagen, Friday, 1<sup>st</sup> June 2018

The seminar will be held at the offices of Gorrissen Federspiel in the new spectacular building Axel Towers just next to the Tivoli Gardens in the middle of Copenhagen, with Tivoli Hotel as the conference hotel.

**For more information:** <http://eala.aero/#home>

**E-mail:** [a.dehmel@eep-law.de](mailto:a.dehmel@eep-law.de)