Table of Contents

Preface xiii
T. Masson-Zwaan

About the IISL xxiii

Board of Directors 2015-2016 xxv

New Members Elected in 2015 xxvii

Standing Committee on the Status of International Agreements Relating to Activities in Outer Space xxix


58th IISL COLLOQUIUM ON THE LAW OF OUTER SPACE JERUSALEM, ISRAEL

SESSIONS

1. Nandasiri Jasentuliyana Keynote Lecture on Space Law &c 7th Young Scholars Session

The Impact of National Space Legislation on Private Space Undertakings: A Regulatory Competition between States? 3
Dimitri Linden, Winner of the 2015 Isabella H.Ph. Diederiks-Verschoor Award for Best Paper by a Young Author

Sustainable Space Exploration and Use: Space Mining in Present and Future Perspectives 23
Rishiraj Baruah & Nandini Paliwal

The International Regime Governing Exploitation of Natural Resources in Outer Space: Potential Process of Formulation 43
Yangzi Tao & Guoyu Wang

The Effects of the Fragmentation of International Law on Aerospace Regulation 53
Charles Stotler
The Legal Implications of Erroneous GNSS Signal, Resulting from Harmful Interference
Simona Spassova & Andreas Loukakis

The Intellectual Property Rights Regime for the Development Phase of Galileo
Caroline Thro

Extraterrestrial Extraterritoriality: Enforceability of Patents from the Earth to the Moon
Brendan Cohen & Elena Carpanelli

NASA’s Transactional Approach to Commercializing Space Systems Activities: A Novel Way Forward
Brian M. Stanford

Identifying Elements of *lex mercatoria* in the Space Domain
Anja Nakarada Pecujlic

2. The Relationship of International Humanitarian Law and Territorial Sovereignty with the Legal Regulation of Outer Space

The Applicability of the United Nations Space Treaties during Armed Conflict
Steven Freeland & Ram S. Jakhu

Practical Application of *jus in bello* and *jus ad bellum* to the Legal Regulation of Outer Space Environment
Olusoji Nester John, Victoria Morenike John-Olorioke, Ololade Olateru-Olagbegi & Olaposi Adedolapo Olaseeni

Avoiding Legal Black Holes: International Humanitarian Law Applied to Conflicts in Outer Space
Cassandra Steer

Extending the International Law Principle of Good Neighborliness to Outer Space
Motolani Fadahunsi-Banjo

Environmental Protection as a Limitation to the Use of Force in Outer Space
Peter Stubbe
Humanitarian Law Implemented: Space Communication in the Service of International Humanitarian Law 247
Mahulena Hofmann & Loren François Florey

The Applicability of the Right to Self-Defence to the Area of Exploration and Exploitation of Outer Space 257
Olga A. Volynskaya

Cybersecurity in the Space Age 267
Michael Potter

3. The Portrayal of Space (Law) in Media and Movies

Space Law and the Media: Science Fiction Movies on the Moon 287
Rafael Moro-Aguilar

Where Law Meets Cinema: James Cameron’s Avatar as Food for Thought about the Anthropocentric Nature of Space Law 303
George D. Kyriakopoulos

The Hard or Soft Law of “Gravity”? 319
Larry F. Martinez

Bugs Bunny and Daffy Duck vs. Marvin the Martian – A Perspective from (Earthly) International Space Law 337
Annette Froehlich

The Meaning of Life and Close Encounters of the Commercial Kind 345
George Anthony Long

Avatar Film: Perspectives from Space Law 369
Álvaro Fabricio dos Santos & José Monserrat Filho

4. Legal Issues of Space Traffic Management

Space Traffic Management: A Challenge of Cosmic Proportions 385
Frans G. von der Dunk

Space Traffic Management Regime Needs and Organizational Options 397
James D. Rendleman & Brian D. Green
Space Traffic Management and the United States Data Sharing Environment 423
P.J. Blount

The Current Practice of the European Space Agency in Registering Its Space Objects Launched into Earth Orbit or Beyond 433
Alexander Soucek, Tim Flohrer, Stijn Lemmens, Marco Ferrazzani, Pierre Reynaud & Stefan Frey

Looking into the Future: The Case for an Integrated Aerospace Traffic Management 447
Michael Chatzipanagiotis

An Economic Analysis of the Legal Liabilities of GNSS 461
Hatsuru Morita

The Impact of Growth Markets in the Downstream Sector – The Parameters for Connectivity and Services: Beyond Outer Space Law 471
Lesley Jane Smith

Legal Regulation of the Commercial Use of the Radio-Frequency Spectrum 483
Elina Morozova

Right of Way for On-Orbit Space Traffic Management 497
Nathan A. Johnson

5. Recent Developments in Space Law

The Controversial Rules of International Law Governing Natural Resources of the Moon and Other Celestial Bodies 521
Maureen Williams

How Simple Terms Mislead Us: The Pitfalls of Thinking about Outer Space as a Commons 533
Henry R. Hertzfeld, Brian Weeden & Christopher D. Johnson

Who Owns the Natural Resources on Asteroids? 549
Guoyu Wang & Yangzi Tao

Hypothetical “Exploration and Use of Outer Space Act of 2015” 559
Dennis J. Burnett
<table>
<thead>
<tr>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Space Legislation for Developing Countries – Lessons from Europe</td>
<td>577</td>
</tr>
<tr>
<td><em>Kumar Abhijeet</em></td>
<td></td>
</tr>
<tr>
<td>Spain: Towards a National Space Legislation and a Spanish Space Agency?</td>
<td>587</td>
</tr>
<tr>
<td><em>María-del-Carmen Muñoz-Rodríguez</em></td>
<td></td>
</tr>
<tr>
<td><em>Neta Palkovitz &amp; Tanja Masson-Zwaan</em></td>
<td></td>
</tr>
<tr>
<td>Legal Issues in China’s Future Participation in the Space Protocol to the Cape Town Convention</td>
<td>613</td>
</tr>
<tr>
<td><em>Yun Zhao</em></td>
<td></td>
</tr>
<tr>
<td>European Earth Observation Data Policy – Meeting Various Goals by Multiple and Diverse Actors: A Herculean Task?</td>
<td>627</td>
</tr>
<tr>
<td><em>Irmgard Marboe</em></td>
<td></td>
</tr>
<tr>
<td>International Legal Issues on Developing Space-Based Solar Power</td>
<td>641</td>
</tr>
<tr>
<td><em>Shouping Li</em></td>
<td></td>
</tr>
<tr>
<td>Earth in Danger and Space Law</td>
<td>657</td>
</tr>
<tr>
<td><em>José Monserrat Filho</em></td>
<td></td>
</tr>
<tr>
<td><strong>JOINT IISL/IAF SESSION</strong></td>
<td></td>
</tr>
<tr>
<td>Legal Framework for Cooperative Space Activities</td>
<td></td>
</tr>
<tr>
<td>International Cooperation Mechanisms Used by the United States in the Peaceful Exploration and Use of Outer Space</td>
<td>675</td>
</tr>
<tr>
<td><em>Sumara M. Thompson-King &amp; Robin J. Frank</em></td>
<td></td>
</tr>
<tr>
<td>Global Space Governance for Ensuring Responsible Use of Outer Space, Its Sustainability and Environmental Security: Legal Perspective</td>
<td>685</td>
</tr>
<tr>
<td><em>Olga S. Stelmakh</em></td>
<td></td>
</tr>
<tr>
<td><em>Anita Rinner</em></td>
<td></td>
</tr>
</tbody>
</table>
INTERACTIVE PRESENTATIONS

Space Stations and International Cooperation: Possible Models of Jurisdiction for the Impending China Space Station (CSS)  
Jie Long  
709

Assistance by the Launching Authority – Requirement or Entitlement?  
Hannes Mayer  
723

Policy Considerations for New Human Space Exploration Strategies: The Space Generation Perspective  
Chantelle Dubois, Laszlo Bacsardi, S. Ali Nasseri, Michael Deiml, Alana Bartolini, Kate Howells, Abhijeet Kumar & Jessica Todd  
729

Mining Outer Space: Overcoming Legal Barriers to a Well-Promising Future  
Maria Manoli  
739

Space Law Principles in Action: Case Study of Human Exploration in Outer Space in Mass Effect, the Trilogy of Role-Playing Video Games  
Kamil Dobrowolski  
753

International Code of Conduct for Outer Space Activities: Analysis from an Institutional Perspective  
Anastasia Voronina  
761

Internet from the Sky: Legal Challenges  
Dimitrios Stratigentas & Mclee Kerolle  
781

COLLOQUIUM REPORT

Dimitrios Stratigentas, Neta Palkovitz, Simona Spassova, Michael Chatzipanagiotis, Deepika Jeyakodi, Andreas Loukakis & Olga S. Stelmakh  
Compiled and edited by P.J. Blount & Rafael Moro-Aguilar  
797
30th IAA-IISL SCIENTIFIC-LEGAL ROUNDTABLE

Universities as Actors in Space

Report of the Roundtable 819
Christiane Lechtenbörger & Nicola Rohner-Willsch

IAA-IISL INTERNATIONAL CONFERENCE ON CLIMATE CHANGE AND DISASTER MANAGEMENT
KERALA, INDIA
(26-28 February 2015)

Report of the Conference 825
V. Gopalakrishnan, Shripad Jagdale & Kumar Abhijeet

Role of Non-State Actor in Enforcing Environmental Laws vis-a-vis Remote Sensing Technology and International Obligations 829
Kumar Abhijeet

Legal Framework of Indian Satellite Data Measuring Climate Changes 837
Malay Adhikari

Intellectual Property Rights Protection for Data Received from Outer Space 841
Sadaf Amrin Fathima

International Programs and Initiatives on Space for Disaster Management 849
Shripad Jagdale

Disaster Management Law in the Space Age 865
Paul B. Larsen

Climate Change and Role of Outer Space: A Multilevel Framework for Legal and Policy Issues 877
K.R. Sridhara Murthi & V. Gopalakrishnan
UNITED NATIONS
2015 IISL-ECSL SPACE LAW SYMPOSIUM HELD ON THE OCCASION OF THE 54th SESSION OF THE LEGAL SUBCOMMITTEE OF UNCOPUOS, VIENNA, AUSTRIA

Space Traffic Management
(13 April 2015)

Program of the Symposium 891

Report of the Symposium 893
Carol A. Anderson & Mclee Kerolle
Edited by Rafael Moro-Aguilar

Rights and Obligations in the International Commons –
The Case of Outer Space 903
Stephan Hobe

10th EILENE M. GALLOWAY SYMPOSIUM ON CRITICAL ISSUES IN SPACE LAW, WASHINGTON D.C., UNITED STATES

Through the Looking-Glass of Time:
What Has Been Achieved and Where It Leads
(December 2015)

Program of the Symposium 915

Report of the Symposium 919
P.J. Blount

Excerpts from and Expansion of Luncheon Keynote 925
Sumara M. Thompson-King

24th MANFRED LACHS SPACE LAW MOOT COURT COMPETITION

Report of the 2015 Manfred Lachs Space Law Moot Court Competition (Introduction, Case and Winning Memorials) 933
Martha Mejia-Kaiser

Author Index 995