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Begründet von Prof. Dr. Alex Meyer †
Fortgeführt von Prof. Dr. Karl-Heinz Böckstiegel
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Marboe, Irmgard (Ed.), Small Satellites: Regulatory Challenges and Chances, (Studies in Space Law; 11), Brill/Nijhoff, Leiden, 2016, 393 p., ISBN 978-90-04-31222-7, 130,00 €.

In the early days of space law an unstated assumption was that satellites would be large. Today many are. However, the assumption was wrong. Thanks to technology otherwise used in devices such as mobile phones we now see micro-satellites (100 - 500 kg), nano-satellites (1 - 10 kg), and pico-satellites (0.1 - 1 kg). Even smaller satellites, femtosatellites, of less than 0.1 kg, are possible. 'Small-sat' constellations are proposed for Earth imaging purposes, low rate data transfer, and for scientific research. Appropriate launch vehicles are under development.

This book derives from the papers of a Workshop on the regulatory challenges of small satellites organised by *Professor Marboe* in March 2014 at the University of Vienna. That gathering was coincident with the meeting of the COPUOS Legal Subcommittee, during which the IISL/ECSL presented a Symposium on small satellites. As a result of these efforts the topic 'small satellites' was taken on to the Subcommittee's agenda. Its Report for 2016 (A/AC.105/1113) shows how matters are proceeding.

The eighteen chapters of this book are written by twenty-seven contributors drawn from across the world, from international organisations including ESA and the ITU, and from government advisers, companies and academe.

The six chapters of the first section are informative. The surveys of what is happening opens one's eyes. Non-specialists should note.

The ten chapters of second section range widely. Small satellites may cause damage, so how do existing laws fit the problem? What are, or should be, the requirements as to their registration? How have countries reacted to the new developments? What should launch contracts cover? How can compliance with requirements be achieved through conditions in procurement and financial grants? And, buried within the section there is an indication of the difficulties that the ITU may face as small-sat constellations are developed.

Last, an 'economic' section contains a chapter on crowd-funding, which is not a financing method that had ever crossed my mind in relation to space. The final chapter covers questions of insurance, and foresees the possible effect of insuring the new modalities on the general insurance market.

The 'small-sat' saga flows on. Though the final versions of the papers date to late 2015/early 2016, little of the book's content has been rendered obsolete. I would hope that those discussing these matters in all the arenas in which the necessary law may be created, and not only in COPUOS, will use these chapters to inform themselves, before they harden their views.

Prof. Francis Lyall

van Schyndel, Heiko, Aviation Code of the Russian Federation, 2nd ed., (Essential Air and Space Law; 13), Eleven Intern. Publ., The Hague, 2015, 231 p., ISBN 978-94-6236-433-2, 65,00 €.

In 2015 *Heiko van Schyndel* published a successor to his first edition, volume 7 of the series Essential Air and Space Law. Volume 13 gives us the texts of the subsequent Amendments to the 1997 Aviation Code, beginning with the 1999 Law on the prohibition to strike for air traffic controllers and ending with April 2014 Amendment Laws nos 1 and 2. The Aviation Code of 1997 and the Amendment Laws ending in April 2014 can in their English version be found on pages 73 and following, followed by the original Russian texts as from page 143.

Before the official texts begin the book starts with an explanation of the history of the modern Code and of Russion aviation before and after 1988 when a reorganisation took place as a consequence of the independence efforts of regional operators especially those not located on Russian territory. In 1991 the Supreme Soviet adopted a Law transferring ownership of aviation items of the Soviet Union to the Republic where the respective aviation items were normally located. After the break-up of the USSR, the questions arose which of the now independent States was the successor to international agreements concluded by the USSR, and which air carriers were the successor of Aeroflot in their new State. In December 1991 an Interstate Aviation Committee was formed to coordinate civil aviation in the former Soviet republics.

For the new Russian Federation a new Aviation code entered into force on 1 April 1997. The functions of different aviation bodies had to be redefined together with the indication which organs would be responsible for the overseeing of the new bodies.

The book indicates which legal problems were encountered in the modernization of the aviation sector, very especially where market economy concepts were introduced.

Not all necessary decisions have been taken already. On pages 36-38 you can find interesting discussions concerning the distribution of private and public functions. On page 39 there is an impressive list of achievements, followed on page 40 by a list of shortcomings (registration of aircaft, foreign aircraft flying in Russia and foreign investment). An important conclusion on page 41 is that the Code gave the Russian aviation community the market-oriented basis which it so urgently needed.

The book makes it possible to see what happens when a big important State breaks up and what the successors must do in a short time to provide a feasable and modern system in an important sector of human relations.

Wybo P. Heere