Space Operations
Exploration, Scientific Utilization and Technology Development.
(Cruzen, Gunn, and Amadieu, Editors)

This excellent book is the second book initiated by the SpaceOps Organization Publishing Group (PG) issued as Volume 236 of “Progress in Astronautics and Aeronautics” by AIAA.

The book is a compilation of 31 outstanding and enhanced papers selected from a total of 380 papers presented at the International SpaceOps2010 Conference. The peer-review and selection was performed by the SpaceOps International Technical Program Committee (TPC).

The papers present an exemplary overview of the current approaches on how to perform safe, efficient and cost effective space- and launch vehicle operations by utilizing an optimized ground and space infrastructure. It also points the way to future improvements and new concepts for operations.

The papers can be considered as a representative snapshot, describing state-of-the-art operations, but are not limited to current implementations because most of the presentations provide a summary of the “history” as well, i.e., the previous developments of the appropriate subject but also interpolate into the future in a “conclusions” chapter.

The book can be used as a reference by SpaceOps2010 attendees and professionals but also might be of interest for “newcomers”, because in particular it “boosts” the learning factor for a selected subject tremendously. The extensive reference section makes it easy to find subjects according to “key-words” and provides in many cases the explanation for the ever growing labyrinth of abbreviations and acronyms. At the end of each chapter an exhaustive list of the most relevant associated papers and articles is provided.

An additional benefit is hidden in the back of the book by pointing out that many topics introduced in this book (in fact all topics presented during the SpaceOps2010 Conference and earlier conferences) are discussed in more detail in other AIAA publications. In the case of SpaceOps all conference papers can be accessed on-line at http://www.spaceops.org under “Forum and References”:

Three of the thirty-one papers contained in the book shall be briefly introduced to outline the impressive range of the subjects discussed during the SpaceOps2010 Conference:

“Space Operations for a new Era.”
This paper analyzes the influence of the new entrepreneurial venture intending to service new and/or existing space markets in novel ways as well as the consequences of NASA’s new approach for involving industry in providing manned and unmanned “Commercial Orbital Transportation Services” (COTS) to suborbital and LEO orbits and sketches possible impacts on future operations. Important and valuable aspects are pointed out taking the de-commissioning of the Shuttle Transportation System (STS) flights in 2011 into account.

“From MSG to MTG, Cost-Effective Operations of a Complex System.”
This paper describes an “honest-a-goodness” all-out approach to implement cost effective operations by the Meteosat Third Generation (MTG) operations preparation team based on the acquired Meteosat Second Generation (MSG) experience. It explores all venues ranging from establishing operations requirements and interfaces during the construction of the spacecraft, levies interfaces, standardization and automation requirements on the ground segment to achieve the goal to operate and maintain six complex MTG-satellites of different natures over 20 years for the same yearly price than MSG! This heroic attempt deserves the attention of future spacecraft and ground segment designers.

“On-Orbit Servicing Missions: Challenges and Solutions for Spacecraft Operations.”
This paper points far into the future and depicts the European activities to make it happen: automated on-orbit servicing (OOS). Two current approaches are described, the DEOS project intended to demonstrate the capture of a tumbling and non-supportive client satellite in LEO and a controlled de-orbiting of the mated system and the OLEV project, a commercial project with the goal to extend the lifetime of geostationary communication satellites whose fuel has been depleted.

The complete book is an invaluable reference for SpaceOps professionals but also for beginners – and in some cases a reference to “historical” developments and “lessons learned”.

Contrary to the individual papers the book lends itself in an easy-to-handle compact hardcover format as reference source on your desk readily pointing to on-line resources but gains value on your bookshelf as well, since it is quickly retrievable and flipped through – easier than any tablet computer would do.

Remark: Further references to SpaceOps Conference papers and associated “key-words” can be found by clicking “SpaceOps Wiki” on the home page menu.

The international book reference number for easy ordering is:

Joachim J. Kehr, Editor SpaceOps News (August 2011)