

IAF SYMPOSIUM ON INTEGRATED APPLICATIONS (B5)
Tools and Technology in Support of Integrated Applications (1)

Author: Mr. Jiri Pavlik
Czech Republic, pavlik@stratosyst.com

Mr. Marek Novák
Charles University, Czech Republic, marekgood@gmail.com

Mr. Jan Snížek
Czech Republic, snizekjan@gmail.com

Mr. Richard Hynek
Czech Republic, hynek@stratosyst.com

HAPS OBSERVATORY IN STRATOSPHERE

Abstract

This is a follow-up to IAC2017 "Astronomy observatory in Stratosphere" presentation and will present the continuous effort and achievements of developing our HAPS. During last year, we have expanded the portfolio of possible uses of our HAPS from astronomy to telecommunication, research and other areas. A breadboard was developed and successfully tested all key technologies - namely our novel 3D printed and scalable vacuum balloon structure, power subsystem and feedback-controlled pressure regulation based on two barometric sensors, with one of them being powered wirelessly from the outside of the balloon, without requirement of hermetic cable feedthroughs. The main advantage over existing solutions is that unlike gas-filled balloons, the buoyancy is generated using electricity and not by a limited gas supply. Thus, it should allow for use over extended periods of time. We will describe the opportunity ESA Aeolus gives to us as a data source for position control of our HAPS. Next year, we plan to perform a maiden flight of the platform.