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SYMPOSIUM ON INTEGRATED APPLICATIONS (B5)
Integrated Applications End-to-End Solutions (2)

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OPTIMIZING THE INTERACTION BETWEEN DRONES AND SPACE INFRASTRUCTURES

Abstract

Space systems are proving to be particularly effective in delivering solutions when combined with airborne systems (e.g. drones, balloons..), especially where regional or local needs cannot be fulfilled by an existing ground infrastructure or when they are out of service. The first point to be addressed is how to best define a clean interface between these systems, in order to ensure full interoperability and integration of data streams in real time. This is a prerequisite for allowing the end users to receive the information in a format which can be directly received and used in the field also by mobile equipment.An example of how international suppliers of space data, are working together is given by the ICG of the United Nations in the field of GNSS, and by the GEOSS in the field of Earth Observation. Whether such a coordination mechanisms could be expanded also to other (new) types of platforms worldwide is further discussed in the paper. We need a comprehensive information systems allowing better analysis and assessment of causes of hazard events or events affecting security.It is then important to analyse how this valuable information can be placed at the service of the International Charter of Space and major disasters. In such a case the well-established process of disaster response coordinated with the Charter data, could be enriched with data provided by airborne platforms that have the added value of flexibility, modularity, accuracy and targeted response in a localized area.The clear advantage is that where space systems can provide a fast feedback on a certain situation on the ground, allowing for initial planning and deployment of resources, once the situation evolves it then becomes relevant to have more detailed and localized information that airborne dedicated systems can provide: images, videos, samples of volcanic or nuclear clouds.These processes should nevertheless be completely transparent to the end users, who are interested in receiving information which can be readily used in situ, irrespectively of its source. It is therefore argued that an end to end scenario should be designed according to the needs and requirements of the end users, and proper coordination mechanisms should be put in place in order to acquire and processes the data from space and airborne sources in a fully integrated system. Finally, information must be secured in a data bank system to be consulted for preventing measures.