Currently there is no common altitude reference in manned vs unmanned aviation, or between different drone manufacturers.

Traditional methods to determine altitude, and ensure vertical separation, are based on pressure altitude.

Drones already use satellite measurements (GNSS) for navigation purposes. This technology offers excellent accuracy, integrity, continuity and availability properties and represents the ideal technology for ensuring a common altitude reference for drones flying at VLL.

ICARUS benefits

The U-space service that ICARUS will develop and validate can be used by drone and manned aviation to obtain their current altitude, using a Common Altitude Reference, as well as distance from the ground or known obstacles.

This innovative service will increase the safety of operations, boosting long distance (BVLOS) operations, increasing the capacity of congested low level airspace and further the integration of drones with the traditional manned aviation.

To get more information about the project ICARUS, please contact us at:

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ICARUS

Integrated Common Altitude Reference System for U-space

This project has received funding from the SESAR Joint Undertaking under the European Union 2020 research and innovation programme under grant agreement No 894593

What is ICARUS

ICARUS is an altitude translation service (geodetic to/from barometric) for UAS and General Aviation pilots in the form of an innovative U-space service to be used in both strategic and tactical phases of the flight. Pilots may use the ICARUS service to obtain the terrain profile, the distance from ground and known ground obstacles, while keeping a common reference altitude datum as well as augmenting the "level of confidence" on the vertical position.

The main objectives of ICARUS are:

1. Define the technical requirements for GNSS-based altimetry
2. Investigate the vertical accuracy of existing Digital Terrain Models to be used for prevention of ground obstacles
3. Design a U-space service for height transformation
4. Define a safe system for a common altitude reference system for drones and general aviation to enhance the VLL capacity and safety

Project Timeline

may 2020
Project Start

oct 2020
Survey to understand the user requirements

dec 2020
Design of the prototype service

apr 2021
Digital simulation of key elements of the proposed service

sep 2021
Validation of key elements of the simulated environment

jul 2022
Finalization of the CONOPS of the proposed U-space service

Project Consortium

Project Coordinator

e-geos
AN ASI / TELESPAZIO COMPANY

Partners

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