

## Aalto University's Remote Sensing Aircraft

Erkka Rouhe <sup>(1)</sup> and Jaan Praks <sup>(1)</sup>

*<sup>(1)</sup>Department of Radio Science and Engineering, Aalto University School of Electrical Engineering, P.O. Box 13000, 00076 AALTO, Finland; Email [erkka.rouhe@aalto.fi](mailto:erkka.rouhe@aalto.fi)*

The Department of Radio Science and Engineering of Aalto University is one of few remote sensing institutes in Europe to operate its own research aircraft. The Short SC7 Skyvan (OH-SBA) is a twin-engine turboprop manufactured in Northern Ireland, Belfast, in 1973. This aircraft is especially suitable and modified for remote sensing measurement flight operations. It is equipped with a relatively large (1.5 m by 1.9 m) rear cargo door and has a six meter long, square-shaped (2 m by 2 m) fuselage, which is ideal for instrument installations and offers a good working environment. The aircraft has a fast and easy instrument attachment system, accessible and modifiable instrument cabling, as well as an independent 28 VDC / 230 VAC electric subsystem in the cabin. A GPS/INS system provides accurate attitude and position data.

Skyvan has five possible instrument installation locations for multi-sensor measurement flights. The main location is the cargo bay area in the back of the fuselage next to the rear cargo door. Four other locations are the fuselage nose inside a radome, the port- and starboard side of the fuselage, and underneath the fuselage. With a full fuel and a maximum range of 1100 km, the usable payload for the measurement instruments and operators is 600 kg. The aircraft has good STOL capability allowing the use of short strips for take-off and landing. The target airspeed during data collection can be set within 110 - 278 km/h, depending of the measurement sensors onboard.

Skyvan has participated in numerous flight measurement campaigns in the last 20 years and has demonstrated excellent overall dispatch reliability. Aalto University has the capability to organize total ground handling and measurement flight support for any kind of measurement and transfer flights in Europe.