



EGNOS supports sample plot positioning in the Italian National Forest Inventory

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Credits: CREA

Forest inventories aim at quantifying and describing the forest resources of a region or country. In particular, they contribute to biomass estimation and climate change mitigation.

A field survey of the third Italian National Inventory of Forests and Forest Carbon Reservoirs ([INFC2015](#)) was carried out by the Carabinieri Command for Forest, Environmental and Agri-food protection with the scientific supervision of the Research Centre for Forestry and Wood belonging to [CREA](#) (Council for Agricultural Research and Economics) in Trento, Italy.

The inventory was completed during the first months of 2020 using airborne digital orthophotos to classify the forest's macro-categories (wood-not-wood, forest, grassland, crops, etc.). Theoretical geographical coordinates originating from a sample design were used for photointerpretation. Therefore, GNSS was an essential tool in validating the classification made in the field by assigning the closest position to the theoretical one.

Antonio Floris, from CREA, says: "We have been users of EGNOS in the forest for several years now (since it became available on GIS-class receivers), because we need precise positioning in real-time, without the 'traditional' real-time differential corrections, which is often very difficult to achieve in mountainous and forest environments."

Due to operational difficulties in obtaining real-time GNSS differential corrections from ground reference stations, CREA researchers decided to use the EGNOS augmentation system as a recommended option. The fifty field crews were given specific guidelines on configuring EGNOS corrections in their receivers. Additionally, they were also briefed on the particular procedures and services needed when using a Web-GIS platform and a dedicated mobile application.

Antonio Floris, from CREA, says: "EGNOS corrections have helped to improve the uncertainty of positioning by up to four times, compared to uncorrected positioning. In addition, the combined use of orthophotos and EGNOS strongly assists in obtaining reliable and accurate data collection surveys that contribute to decision making in climate change mitigation."