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| **Crowdsourced forest information for improving forest aboveground biomass estimates** |
| Increasing availability of open-access satellite data and computational technologies have opened up new possibilities in monitoring forests at large-scales. Nowadays, the earth surface can be observed from space in great geometric and radiometric detail at short time intervals. This offers immense potential for gaining novel insights into the condition and dynamics of global forests. However, realising the power of this big data paradigm requires access to high-quality and large-volume in-situ data which are laborious to obtain and, if present at all, are often not publicly available. The Austrian research project “Citizens for Copernicus” (C4C), aims at bridging this data-gap by involving the public in the process of forest inventorying, thereby creating a citizen science (CS) based in-situ forest database for Austria. Combining the gathered CS data with imagery obtained from Copernicus’ Sentinel-1 and Sentinel-2 satellites to create a machine-learning ready database has the potential to substantially improve estimates of aboveground biomass and tree species maps. At the same time, through actively involving citizens in the building of scientific knowledge, the aim is to boost interest levels and foster trust in scientific methodologies and processes. The backbone of this initiative is a user-friendly smartphone application, which integrates various smartphone sensors, such as the camera, accelerometer and gyroscope, with state-of-the art computer vision and augmented reality functionality to collect accurate in-situ data on stem diameter, tree height and tree species. The application is based on standard smartphone hardware, thus ensuring widespread accessibility and availability for Android and iOS.This presentation will introduce the C4C project, provide an overview of state-of-the art smartphone-based forest inventorying methods and present challenges associated with the large-scale application of citizen-science based forest inventorying. Furthermore, we will present first results from the CS campaign and compare estimates generated with the citizen-science app with traditionally (i.e. calliper, TLS) acquired reference data. The Citizens for Copernicus (C4C) project is funded by the Austrian Research Promotion Agency, [application No. 47907528](https://projekte.ffg.at/projekt/4712922).  |