Contribution 180 in session “Ergonomics and Man-Machine co-developments“

Terrestrial real-time navigation for harvesting machines

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Aim of the technical approach is the development of a real-time navigation system for steering and controlling harvesting machines and processes. It is required to reach a positioning precision of less than one meter. The system should work under all relevant middle European forestry conditions, beneath any kind of canopy, in hilly terrain and under changing weather conditions.
Satellite navigation systems including all positioned satellites and available terrestrial correction signals are so far not able to reach the required precision in real-time.
Therefore a terrestrial system based on radio technology should be developed. The technical solution should be easily transportable and should include temporarily fix and precisely positioned radio-landmarks.
The project frame covers the development of the basic radio-technology and its practical test under field conditions. First results will be available in September 2014.
A second step represents the analysis of possibilities for process optimizations. For example is one research aspect related to unused stocking timber especially in small scaled private forests which could be possibly better realized by automatically ownership identification through precise positioning of harvesting machines. A further general aspect is the soil protection especially the maintenance of the skid tracks for a steady use.
In summary the project aims at a better use of the standing timber resource and an enhancement of sustainability of harvesting processes.