

Assessment of the Quality of Digital Terrain Models

Instructors:

Joachim Höhle (Aalborg University) and Marketa Potuckova (Charles University in Prague)

Course Objectives:

It is the objective of this course to get acquainted with methods which check and improve Digital Terrain Models using manual and automatic procedures. Results with these methods and test material of EuroSDR and other projects, comprising DTMs derived from laser scanning and digital photogrammetry, are presented. The applied methods use standard and robust statistical concepts. Photogrammetry and correlation techniques are applied in the automated procedures. The different standards in Europe regarding the assessment of the DTM quality are compared.

Course outline

Module 1

The first module characterizes the different methods of deriving DTMs. The filtering of the raw data as well as the completion of the DTMs by interpolation methods are dealt with.

Module 2

An overview on the methods of checking and improving the quality of DTMs is given. The question of accurate reference values and sample size are discussed. The accuracy measures and visualization of the DTM quality are presented. Several computer programs will be used.

Module 3

The automatic method using two overlapping orthoimages is explained in detail. It includes the derivation of orthoimages, the principles of matching of overlapping orthoimages and the detection/removal of blunders. Computer programs will be presented and used in order to receive insights how the task can be realized.

Module 4

Existing standards regarding the quality assessment of DTMs will be presented. Results of projects (including a EuroSDR project), which were derived by different methods and standards, are compared and evaluated.