



Effects of insufficient validation data on retrieval of land surface information and uncertainty assessment

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Within the past decades numerous prosperities were achieved to derive relevant information about land and sea surface conditions from remote sensing sources. In most cases this was done simulations with efforts to standardise transformation techniques and to make applied methods operational. Today such information is widely used even in landscape and catchment assessment but discussion arises how to assess uncertainties and how to handle complex or inhomogeneous data sets. In some cases it seems that only little attention is paid to the availability and quality of the required reference data.

Within the Interreg IIIB project WaReLa a large assortment of remote sensors was employed to feed the hydrological information system - the data-collecting tool of the project's decision support system - with information about catchment properties and their changes. Thus the contribution can rely on more than three years of experience in the retrieval of land use information, soil moisture and physical forest attributes.

It had to be recognized that one main obstacle in the transformation process from data to information were the obvious uncertainties in the validation data. Examples are mistakes in the ATKIS data used to validate land use and land cover change detection like too coarse polygons in cases of intense mixture of classes. For land use classifications of the past, only census data with a very coarse spatial resolution was available. The reference data for soil moisture retrieval was affected by measurement errors in the field and the observed high spatial dynamics even on seemingly homogenous test plots. The retrieval of reference data for the determination of forest biomass was very difficult because only estimations based on allometric methods were available. For the

quality assessment of high-resolution digital elevation models derived from LiDAR measurements only federal data with a resolution of 20 meters and a coarse network of reference points was available. Examples on information retrieval and validation strategies in the light of missing or incomplete ground truth data will be given in our contribution.