Hydrol. Earth Syst. Sci. Discuss., 3, S1968–S1969, 2007
www.hydrol-earth-syst-sci-discuss.net/3/S1968/2007/
© Author(s) 2007. This work is licensed
under a Creative Commons License.

Hydrology and Earth System Sciences Discussions

Interactive comment on "Uncertainties in land use data" *by* G. Castilla and G. J. Hay

S. Siebert

s.siebert@em.uni-frankfurt.de

Received and published: 15 March 2007

comment 1: In this manuscript uncertainty is defined as: an indication of the amount of distrust with which the data should be regarded or used (p. 3445, lines 1-2). This definition is very interesting and I would certainly agree with it. However, the authors should notice that this definition implies that the uncertainty level is user-specific. If, for example, I want to apply a model to simulate crop water stress, it would not increase the level of uncertainty when in a land use data set "housing areas" would be misclassified as "industrial area". However, if "agricultural areas" would be misclassified as "residential", I would certainly have to distrust the data set and uncertainty would be high. A user, who wants to simulate surface runoff might have a different position on that.

comment 2: The authors address also the problem of so called "mixed pixels" and the dependency of uncertainty on the pixel resolution which is very important (e.g. on page 3459). I miss here some discussion on the related uncertainty in area calculations and its implications (see for example Ozdogan and Woodcock (2006): Resolution dependent errors in remote sensing of cultivated areas. Remote Sensing of Environment 103, 203-217.). If I want to simulate for example crop production, crop water requirements or related variables it is very important that the total area classified in a land use map as "agricultural land" is more or less correct for my research area (basin, country etc.) while spatial inaccuracies (placement of agricultural land at the wrong position) may be less important. Because many of the remote sensing based land use and land cover data sets don't have proper sub-pixel decomposition it can easily happen that uncertainty in the total area of a land use category are large, in particular when using low resolution input data. In an extreme case a categoric land use map can even be 100% accurate in the meaning, that the main land use category is correct assigned to each pixel, but the total areas for the specific categories maybe completely wrong.

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 3, 3439, 2006.