

Evaluation of land use changes of inland water areas in the Carpathian Basin

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The study of land use change is increasingly focusing on global and regional environmental problems (deforestation, water scarcity, climate change), for which complex monitoring of the Earth's surface and its use is essential for forecasting trends and predicting future conditions.

Production risk includes risks and uncertainties of growth processes in crop production. Quantitative and qualitative characteristics of products may be determined by different factors including, inter alia, drought, inland water and diseases. Preparing for climate change plays a major role in the sustainable use of different resources usable for agriculture. Regarding the risk of climate change, risks associated with water constitute one of the main threats for agricultural production. Extremes in water management occur often in the same year and mostly in the same region, however, in other instances they may vary a lot both in time and space. The experience gained over the last decade confirms that in the Carpathian basin despite the more frequent droughts, risks of inland inundations and floods must also be taken into account.

Land use change may adversely affect the run-off and accumulation processes and it may increase the risk of inland water occurrence.

One of my purposes was the assessment of relations between the run-off and accumulation processes of inland water applying time series of remote sensing radar data since one possible approach for monitoring the inland water phenomena and characterising its occurrence risk might be the evaluation of radar images. Thus, the land use changes were evaluated between 2006 and 2012 in the sample area, furthermore based on Sentinel 1 data, water patches were limited in case of irrigated arable lands and grasslands.

Keywords: CLC, Sentinel 1, land use changes, inland water, radar

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