OPEN ACCESS Freely available online

ISSN: 2469-4134
Journal of Remote Sensing & GIS

Perspective

Cadastral Mapping Techniques with Usage of Geoinformatics

Samuel Gerk*

Department of Geodetic Engineering, Ohio State University, Columbus, USA

DESCRIPTION

Land is a valuable natural resource for meeting fundamental requirements and ensuring humankind's long-term survival on our planet. The globe needs to establish capacity for proper land management because of the dynamic growth of population and its relationship with land. Establishing a complete land cadastre and keeping it up-to-date is a contemporary challenge for many developing and developed countries, respectively. Cadastral maps are usually defined as a spatial representation of recorded land plot boundaries or other spatial units that the land rights concern. Cadastral mapping *via* on-site surveys or large-scale aerial photography each has its own set of costs, time and technical constraints.

Thus the existing cadastral maps date back to 80-90 years and these cadastral maps are prepared using the old techniques like plane table survey and chain survey. These were prepared for assessing revenues based on the land parcel area, quality of land and output. Recently The Government of India has initiated the "National Land Records Modernization Programme (NLRMP)" with emphasis to modernize the management of land records. The basic need of this program is the updation of these old cadastral maps using modern surveying techniques like Electronic Total Station/Global Position System (ETS/GPS), Aerial photography or in High-Resolution Satellite Images (HRSI).

Geomatics started from cadastral mapping from chain surveys to the modern-day technology of Satellite and Unmanned Aerial Vehicle (UAV) based remote sensing. Remote sensing is defined as the science and art of acquiring information about material objects or phenomena, without actually coming in contact with any of them. Using various sensors, active or passive, remote sensing devices acquire data through energy sources. The energy is transmitted in the form of a wave. Remote sensing can be an effective alternative to fieldwork because it is cheaper and faster compared to conventional cadastral surveys, and it is a useful data source for many base map-updating activities. Cadastral boundaries set by roads, buildings and water is visible in remote sensing images and can be mapped from them.

Digital image processing techniques assign every pixel of the remote sensing data to particular land use and land cover class. This process is also referred to as classification and various algorithms have been developed by the researchers to achieve high accuracy for various sources of data under varied geographical and environmental conditions. Digital Image classification includes a selection of training samples, image pre-processing and feature extraction, choice of a suitable classification, post-classification processing and accuracy assessment. This classification approach has been divided into two broad categories Pixel-based and Object based methods. The basic units of analysis are no more pixels, but image objects.

CONCLUSION

An image object is a discrete region of a digital image that is internally coherent and different from its surroundings. The image objects are identified by a process called segmentation. These image objects are then analyzed based on their shape, texture, context and spectral properties to classify them under certain classes. Object-Based Image Analysis (OBIA) is a technique used to analyze digital imagery, was developed relatively recently compared to traditional pixel-based image analysis. While pixel-based image analysis is based on the information in each pixel, object-based image analysis is based on information from a set of similar pixels called objects or image objects. The comparison of pixel-based and objected-based classification has been extensively done in the early phases of the OBIA technique.

Correspondence to: Samuel Gerk, Department of Geodetic Engineering, Ohio State University, Columbus, USA, E-mail: samuel.gerk@osu.edu

Received: 02-Jan-2023, Manuscript No.JGRS-23-19885; **Editor assigned:** 04-Jan-2023, Pre QC No. JGRS-23-19885 (PQ); **Reviewed:** 18-Jan-2023, QC No JGRS-23-19885; **Revised:** 23-Jan-2023, Manuscript No. JGRS-23-19885 (R); **Published:** 03-Feb-2023, DOI: 10.35248/2469-4134.23.12.272

Citation: Gerk S (2023) Cadastral Mapping Techniques with Usage of Geoinformatics. J Remote Sens GIS. 12:272.