

# **Fukui City - 3D-Cadastral Map and Kyoto University - 3D-Forest Map based on 4D-Image Map Archive Designed Aerial Survey**

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**Key words:** Cadastre; Cartography; Digital cadastre; GNSS/GPS; Land management; Photogrammetry; Real estate development; Spatial planning; Standards; 3D- DX(digital transformation initiative) mapping, 3D-Cadastral Map, 3D-Forest Map, 4D-Image Map Archive Designed Aerial Survey (IMADAS)Keyword 1; Keyword 2; Keyword 3

## **SUMMARY**

3D cadastral map for Fukui City and 3D forest maps for Kyoto University are to be generated based on the Land Survey Act, Cadastral Survey Work Regulations and the Forestry Agency Measurement Regulations, realizing world-standard satellite surveying and photogrammetry in AutoCAD. Japanese cadastral map is reviewed, certified, and sent to a registry based on Article 19 of the Land Survey Act, and becomes the title of the map based on Article 14 of the Real Estate Registration Act, and the land is registered in a registry. The forest basic map and forest plan - compartment map are to be transformed as a 3D forest map with 3D topographical map (airborne laser survey elevation model: point cloud, contour lines), combined with GSI-Japan-5m DEM and TLS( Terrain Laser Scanner) 3D point cloud data, for a 3D-DX (Digital Transformation Initiative) map to be displayed, measured, and stored as a 3D-CAD map. In forest areas, due to the constraints of the tree canopy, the airborne laser topographic data will also be supplemented with DGPS satellite survey of ground surface data, to create a 3D forest map of Fukui City (150 km<sup>2</sup>). Aerial photographic images taken by Fukui City (2023), were provided to the laboratory of Professor Toshihiro Tsukihara, Faculty of International and Regional Studies, University of Fukui, and generated at GeoNet , Inc. (Osaka City), which shares the Summit Evolution (AutoCAD version) digital stereo plotter.

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