

ISO19152 LADM Osaka Naniwa capital (645AD) 3D cadastral mapping

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SUMMARY

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Consistency of the Japanese cadastral system, from Osaka-Naniwa capital - JohRi land administration(645 AD.) to the current land registration, has been supported by modern maps (since 1880s) and aerial photos (since 1928) in Osaka, Japan, as national standard.

The most pressing issue is the Japanese cadastral system and 3D cadastral map creation for Nankai Trough mega-earthquake and storm surge countermeasures in Osaka Bay area.

Based on the accuracy of 1cm on the ground by GNSS geodetic networking, we could establish 3D cadastral mapping, proceeding to helicopter/ drone photogrammetry by bundle triangulation for 3D image modeling and diorama designing of urban area 3D modeling, using non glasses 3D display, to build consensus among landowners in land registration process.

4D-IMADAS (Image Map Archive Designed Aerial Studies) covers the total process of 3D mapping, based on Geocentric GNSS Geodetic networking, combined single-stroke TS/TLS surveying and authentic photogrammetry with bundle triangulation and satellite photogrammetry, as the basis for 3D cadastral mapping. Aerial photography is reconstructed as 3D image models on digital stereo plotter for Cadastral mapping, to ensure the title of land registration with historical reality of land property.

Proposal of ISO19152-LADM for 3D cadastral maps could be well prepared, showing the achievements from Osaka 3D cadastral mapping works.

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Figure 1: 1880s maps on CAD Globe: Osaka GNSS geodetic networking

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