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Spatiotemporal Analysis of Landscape Transition in Aqua Metropolis Osaka

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As there were many canals and rivers in Osaka, it has been called the Aqua Metropolis.Many bridges were spanned over canals and rivers. Osaka had a landscape with a lot of atmosphere named the bridgescape”Happyaku-yabasi.”Almost all canals were reclaimed during the high economic growth afterWorld War2 in Japan.

However, the development of a metropolis has been changed from expansion to maturity. According to this, the residents have begining to be interested in urban amenities.There are still two canals and three rivers in the central district of Osaka city.These are called the aquatic cloister.If a resident watches the aquatic cloister, one can imagine a part of the aqua metropolis.Many events after waterside are repeatedly done.So, the residents have started having an interest in watersides.In this study, the authors pay their attention to the historical transition of cityscape in the aqua metropolis Osaka,

This study has three purposes. First, the prospered time as the aqua metropolis is identified.Second, the historical transition is understand in Osaka.Third, the landscape in Osaka as the aqua metropolis is restored on computer graphics. In addtion, the authors understand the historical transition of cityscape in the aqua metropolis Osaka visually.

Concretely, old topographical maps are located on the present urban space by using GIS.The topographical maps used in this study are eight sheets, the Genroku term, the early and late Meiji term, the Taisho term, the early, middle and late Showa term, and the present age.The authors traced over rivers drawn on the topographical map, and constructed the database of rivers.The database has a few information, which are the birth age and disappearance age of canals.Next, the changes of waterfront length are understood from database.A waterfront density is calculated by using waterfront length and total area of Osaka city.And the distribution of viewpoints inferred from pictures and old photographs is understood.Then, the important sites in the aqua metropolis Osaka are extracted from the distribution of pictures.And, the cityscape of the aqua metropolis Osaka is restored every time by using GIS and CAD/CG.The landscape transition is understood from the restored models.So, the restored model has the possibility of becoming the new historical data.Therefore, the models are saved as digital archives.

The authors discovered the following things.The change of the waterfront length has been visuallyunderstood from the database.Especially, many canals and rivers reclaimed between1950 and1970 in the central part of Osaka City.The reclaimed places were used as residential area or roads.The waterfront length is increased according to expansion of urban area.Moreover, the waterfront length is decreased after the third expansion of urban area because the reclamation of canals and rivers is advanced much.A waterfront density was high between Genroku era and the start of municipal administration in Osaka.In other words, the prosperous years as the aqua metropolis Osaka is between Genroku era and the start of municipal organization in Osaka.A distribution of pictures and old photographs have analyzed.As a result, the authors recognized ”Osaka-Sango” as the important site of the aqua metropolis Osaka.Especially, Nakanoshima, the area around Tenma, the area around Kawaguchi, Yotsubashi and Matsushima are the most important site as the aqua metropolis Osaka. The landscape of Osaka was restored at the base in the Edo period.Each cityscape of site in the Edo period was restored. Simulating the landscape transition, the authors found a part of urban formation.

They will restore more cityscape in the Edo period in the near future.Also, they have to investigate the charm and identity of Osaka.For that reason , they are required to verify a lot of historical facts.

Keywords: canals and rivers, Aqua Metropolis, landscape transition, historical environment