民航机场规划设计研究总院有限公司
China Airport Planning & Design Institute Co., Ltd.

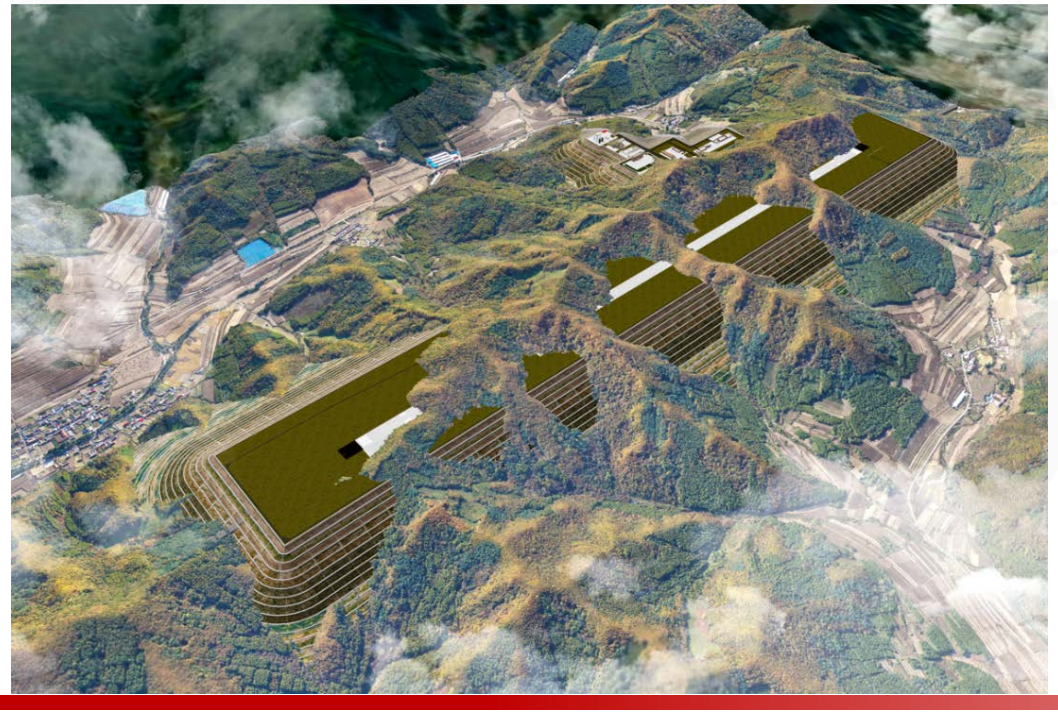
APPLICATION AND PRACTICE OF DIGITAL ASSISTED TECHNOLOGIES FOR AIRPORT SITING

JULY 2023

What is Digital Assisted Technology for Site Selection?

Digital Assisted Technology for Site Selection is a general term that refers to the use of digital technologies such as Geographic Information Systems (GIS), Building Information Modeling (BIM), and Big Data to conduct comprehensive analysis, modeling, and evaluation of factors related to airport site selection. It is applied to various stages of airport siting such as suitable area analysis, site selection, site optimization, and so on.

oblique photography



BIM+GIS

unmanned aerial vehicle

Application of Digital Technology in Airport Siting in China

With the rapid development of digital technology, digital assisted technology for airport siting in China has been widely applied since 2018, including hub airport siting represented by Foshan New Airport and Chongqing New Airport, and site selection for non-hub airport represented by Enshi New Airport , etc

Foshan New Airport

Chongqing New Airport

Enshi New Airport

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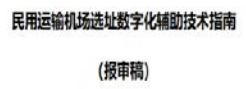
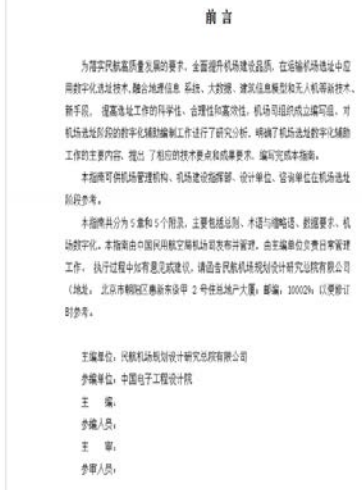
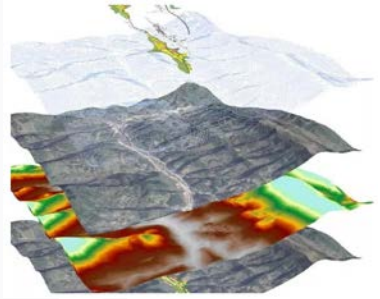


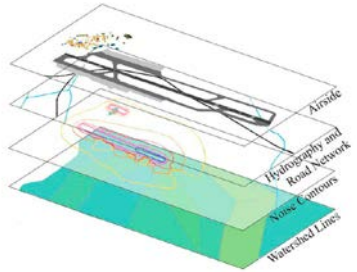


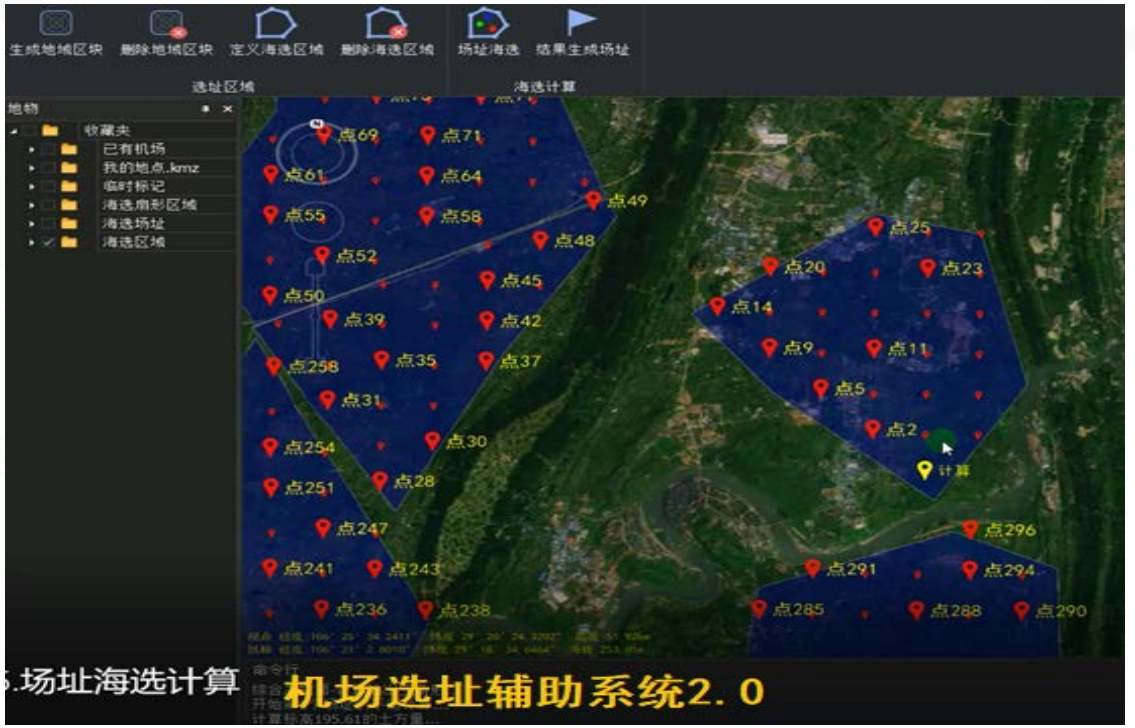
Guide to Digital Assistive technologies for Airport siting

GIS-Based Multi-Source Data Fusion

Using GIS data for airport siting evaluation can dynamically determine the site range. By applying multi-source, massive data processing and fusion technology, many factors affecting siting such as urban planning, surrounding airports and airspace, ecology, meteorology, terrain are fully considered.

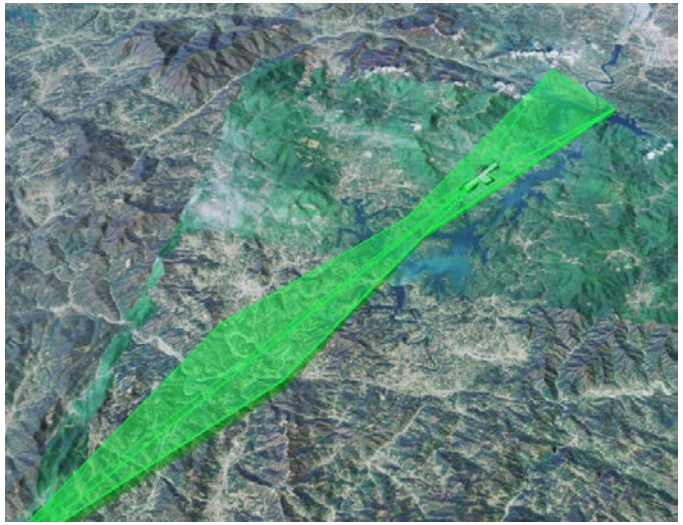


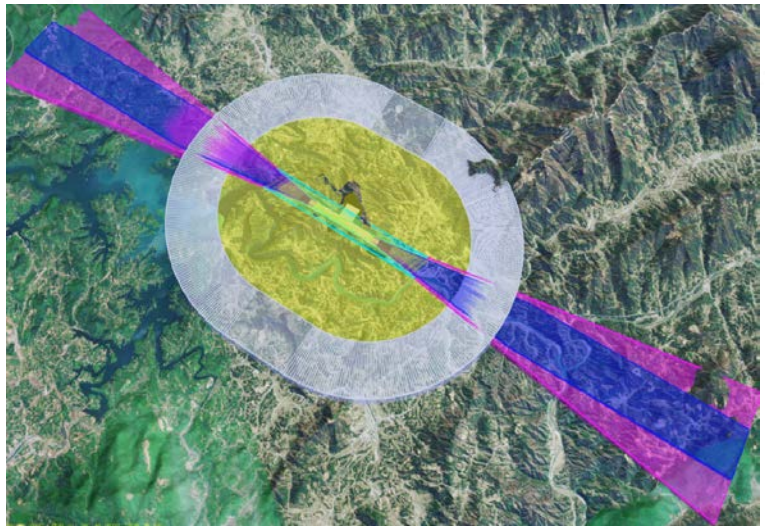


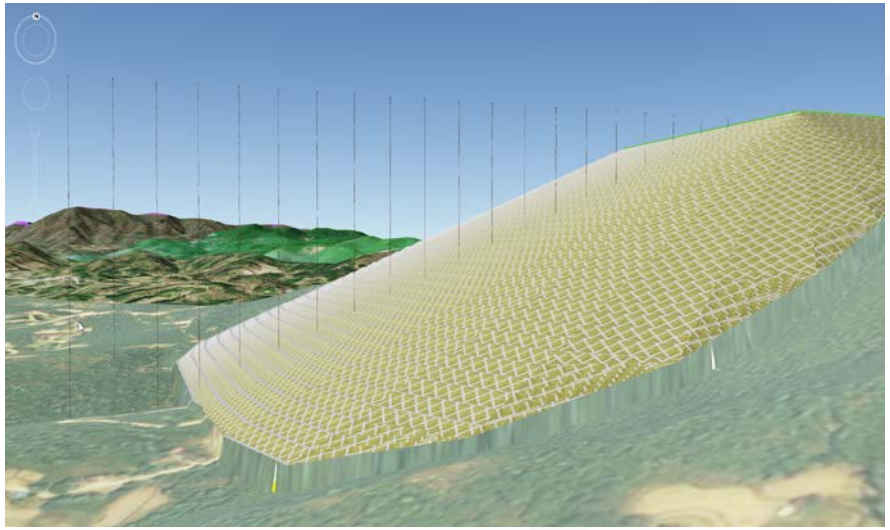


Ground and airspace factors are fully considered in earthwork calculation

This calculation adopts integrated modeling of the airspace and ground, which includes models of the flight procedure restriction surface, the terrain model, and design elevation model to calculate earthwork. The method greatly improves the efficiency and accuracy of earthwork calculations.

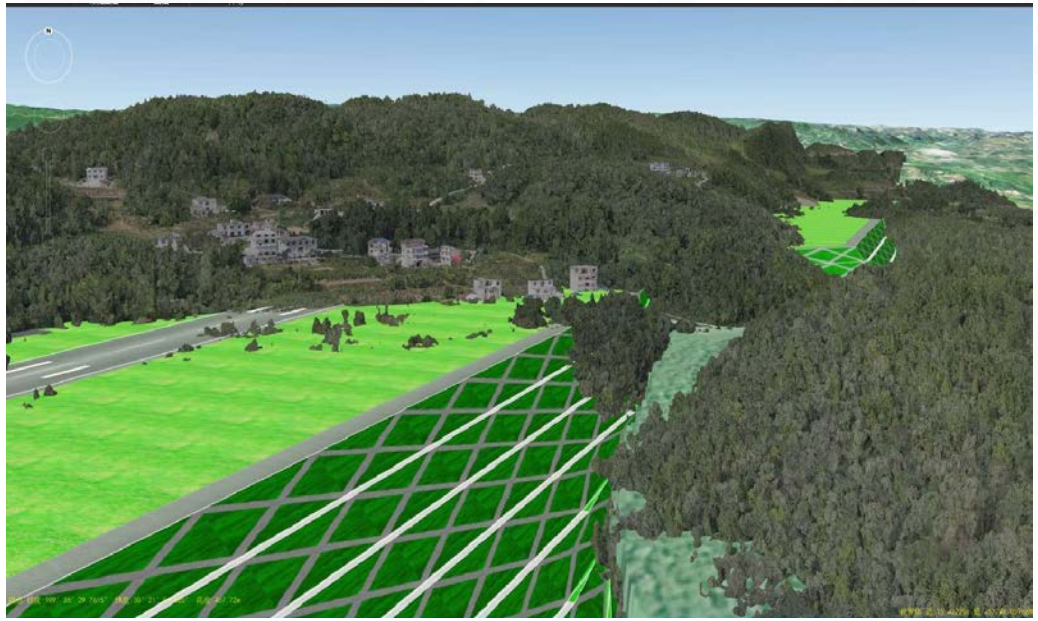


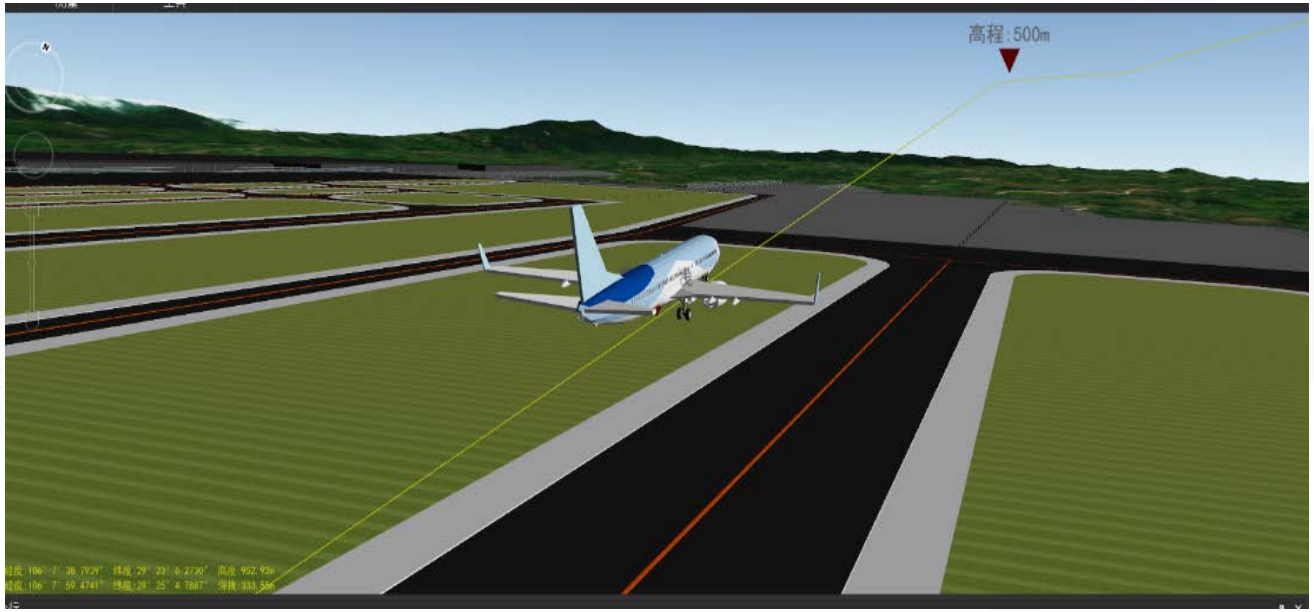




Three-Dimensional Parameterized Airspace and Ground

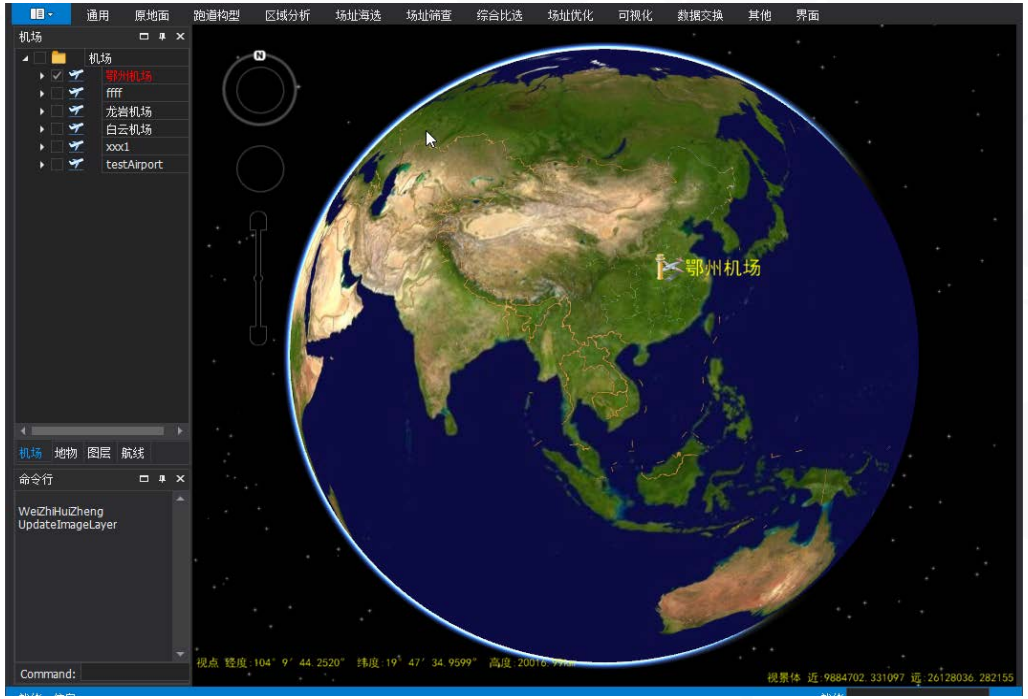
The three-dimensional model of airspace and ground can analyze the site intuitively, comprehensively to avoid hidden risks.

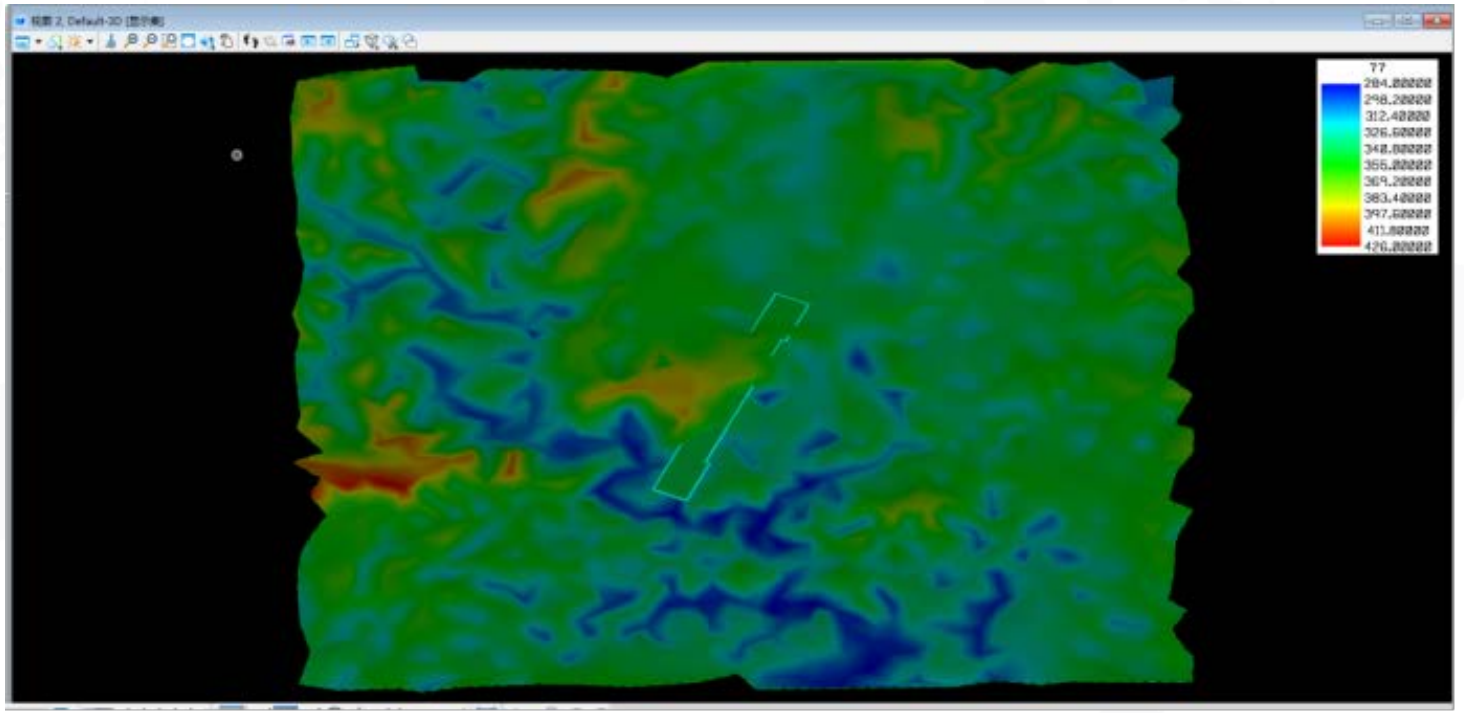




Siting Technology Based on BIM/GIS Platform

Based on the idea of digital twin, all kinds of data related to site selection are integrated into a unified platform. New technologies such as GIS, three-dimensional modeling and big data are integrated to innovate the software named "airport siting auxiliary technology platform".





ACTION BY THE MEETING

a) note the information contained in this paper;

b) note that the digital assisted technologies are very helpful for airport siting;

c) encourage other APAC States to share their experience in using digital assisted technologies for airport siting.

Thank you for your attention!

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