SUPERMAP COMMUNICATIONS

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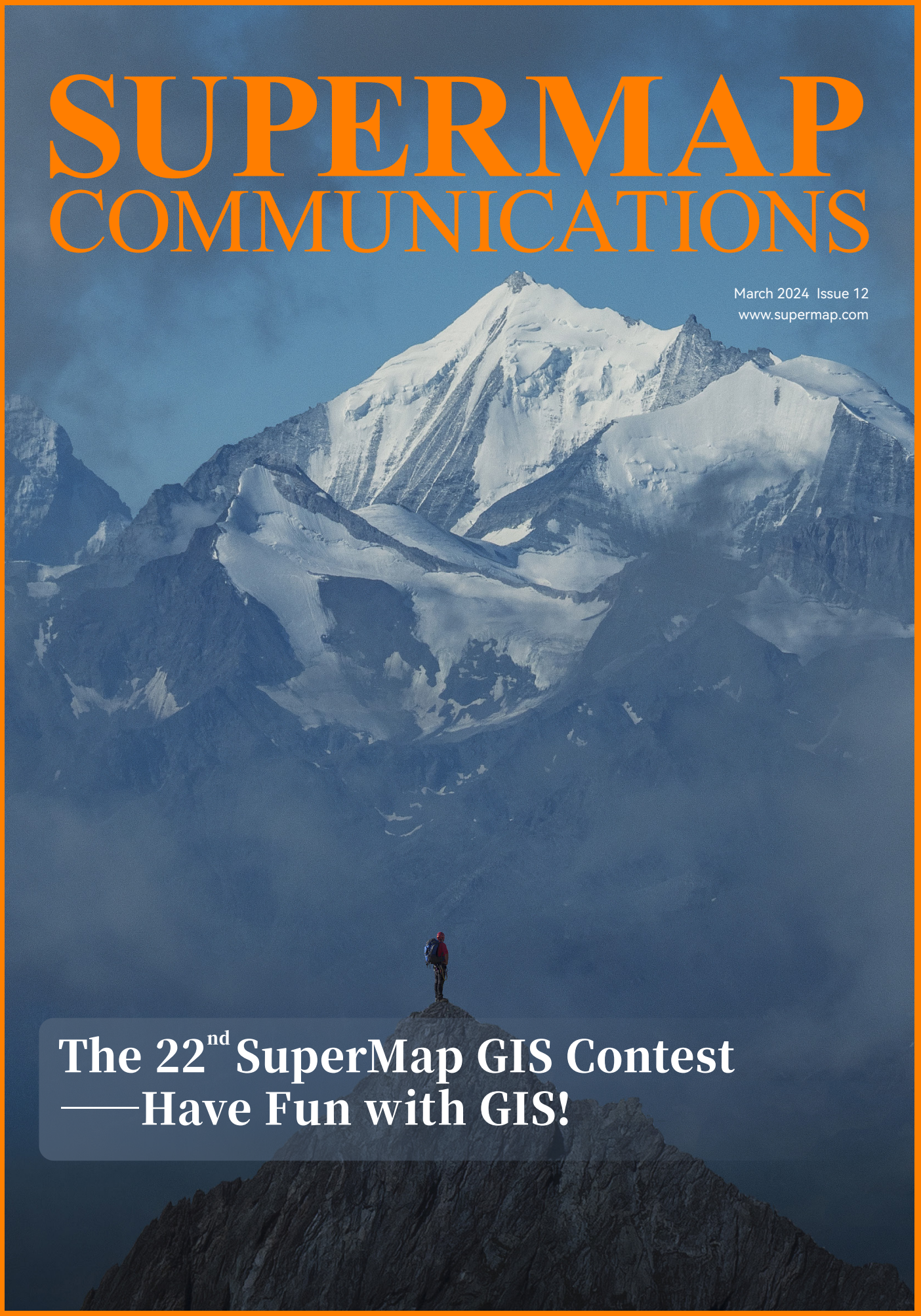


The 22nd SuperMap GIS Contest ——Have Fun with GIS!

Who is SuperMap?

Founded in 1997, SuperMap is a platform software and application software manufacturer focusing on Geographic Information Software (generalized GIS) and Geospatial Intelligence (GI), and a key player in Information Technology Application Innovation Industry, Spatio-Temporal Big Data, Artificial Intelligence, and Virtual Reality. It consists of SuperMap Software (parent company, stock code: 300036), wholly-owned subsidiaries, and holding subsidiaries, as well as domestic branch offices and agencies. In 2022, the total staff number of SuperMap is more than 4,300 and the annual revenue reached 232 million USD (1.6 billion RMB).

1997
Founded

How has SuperMap performed so far?

Together with more than 3,000 Independent Software Vendor (ISV) partners and hundreds of thousands of developers, SuperMap empowers the informatization of governments and enterprises in nearly 100 industries. It has developed distributors and partners in over 50 countries and SuperMap GIS end users in over 100 countries. Now, SuperMap ranks 1st in the GIS software market in Asia and 2nd globally.

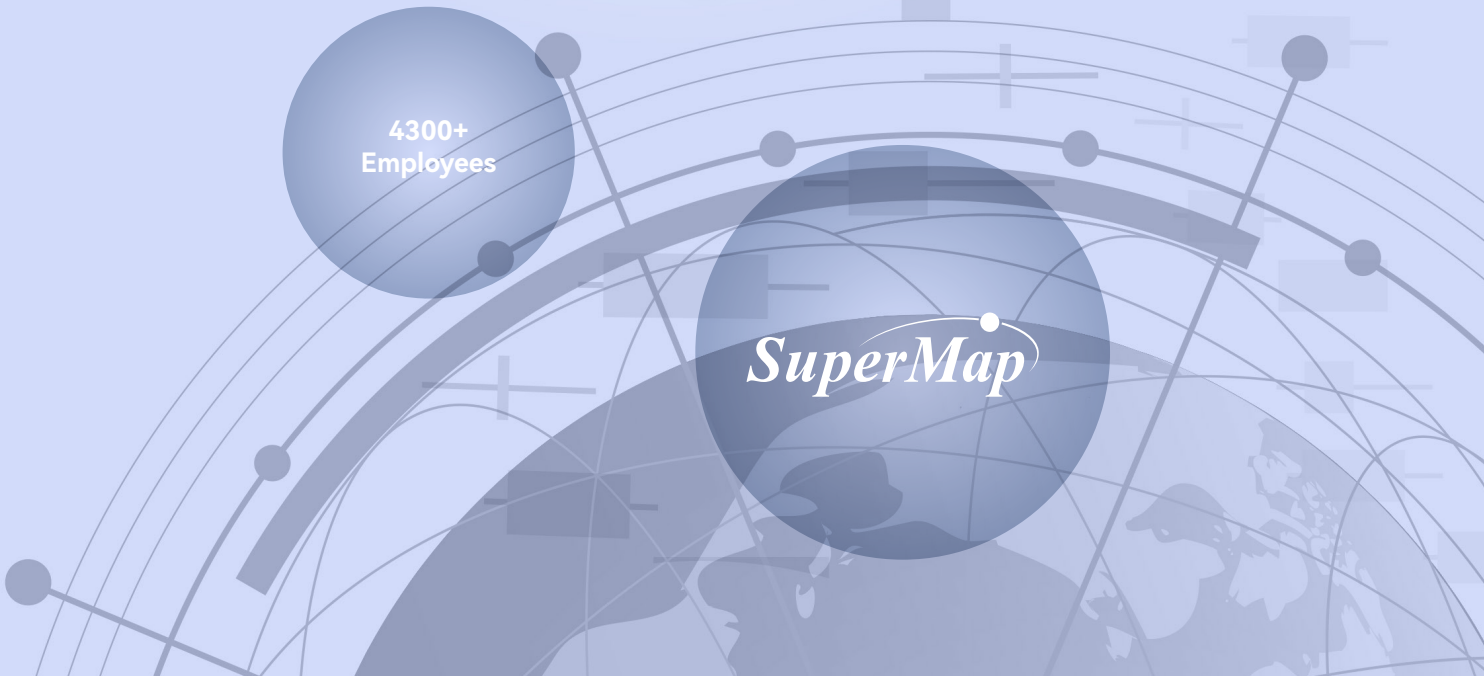
100+
Countries'
Users

What will SuperMap be?

With “Innovate Geospatial Intelligence, Elevate IT Value” as the mission and “Light up Every Corner of the World with Geospatial Intelligence” as the vision, SuperMap will keep providing advanced GIS technologies and products to more global users.

1000+
Partners

4300+
Employees



SUPERMAP COMMUNICATIONS

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SuperMap

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FOCUS

Interview

The 22nd SuperMap GIS Contest

SuperMap GIS Contest is open to global college and university students who can use SuperMap technology to present innovative projects with unique GIS vision. Over the last two decades, we've seen so many excellent works from talented students who are not only tech-savvy, but also show deep concerns about our society and represent the value of GIS in various industries.

Every year, we not only award bonuses to the first, the second and the third-place winners for their excellent works, but also intern/job opportunities in SuperMap. Some of them still work in SuperMap today. Working in SuperMap represents students a chance to learn about the real GIS market in person and on site, where you can apply theory into practice. Students learn about GIS knowledge and skills at school, but lack a place or a real purpose to practice them for real projects. Here you'll have the opportunity to get involved into real projects, and address user needs in real life.

Bonuses, and job opportunities are what students get at the end, what's more precious and unique are the experiences you'll gain during the whole contest process. Competition is what drive you to put all your minds into one project and try to get it done. Many students have learnt how to solve problems and about teamwork. Furthermore, some have learnt about project management skills as they need to arrange the contest work, study and their personal life on a tight schedule, and logics, collaborations and so on. That's more unique experiences. These precious experiences and lessons learnt will guide you to better arrange your work and life in the future.

More practically, joining in such a contest will allow you to learn about real GIS projects and let you figure out your own interests. Some students concern more about social development, some are more interested in system or software development, so we have different categories for you to choose. This competition provides a platform for you to dive deep into things you like, or push you to find out what you like on earth. The project will be a great experience when you look for jobs in the future. It's a demonstration of your ability and professionality.

Introduction

Registration and Submission

All the college and university students can participate in this contest by team or individually, and each team should consist of 1-4 students and up to 2 instructors.

Registration starts on March 08, 2024, and the Submission Deadline is on November 15, 2024.

Categories

Four categories are set for the contest: Mapping, Application Analysis, Paper and Development.

Mapping

Free topic selection. It requires creating a specific thematic map through data processing and mapping methods.

Application Analysis

Free topic selection. It requires solving the real needs of industrial applications and daily life through the analysis and mining of spatial data.

Paper

Participants are required to do academic and application researches based on GIS, such as application cases, industrial solutions, 2D and 3D integration applications, current development status and trend research, the application of emerging technologies such as big data and AI (artificial intelligence), development skills and experience, etc.

Development

Free topic selection. Participants are required to design and develop application systems with the current mainstream IT technology while reflecting the application value of GIS in various fields.

Prizes

Invited judges will select first, second and third-place winners for each category on the principle of openness, fairness and justice. For the first, second and third-place winners under each category, they'll get bonuses and Intern/job opportunities in SuperMap. All winners will be awarded Contest Certificate.

Judging

All the prizes will be determined by the invited experts and scholars in the industry, who will be responsible for reviewing the competition on the principle of openness, fairness and justice. Judging criteria for each category can be found at www.giscontest.com

For the Mapping, Application Analysis and Paper group, the judging panel will select first, second and third-place winners directly.

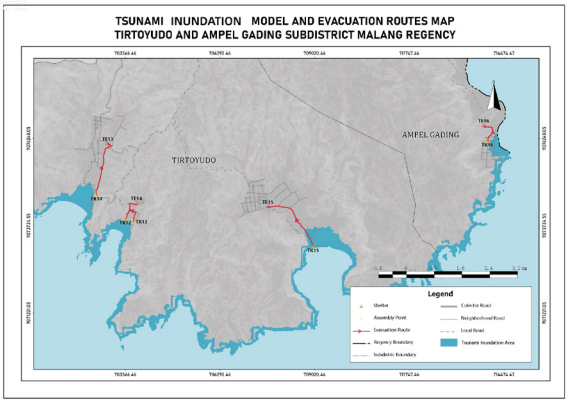
For the Development group, judges will select finalists, and then select first, second and third-place winners by an oral defense.

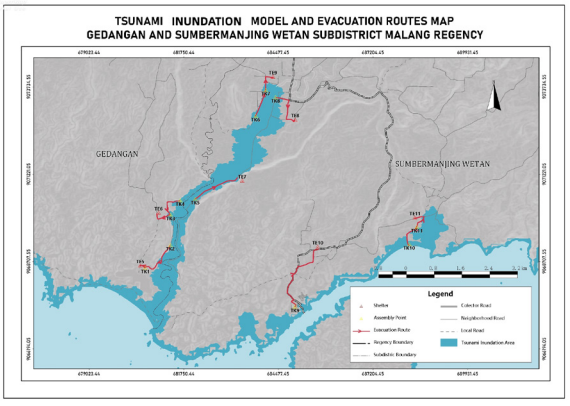
More detailed information about the registration, requirements and technical training can be found at www. giscontest.com.

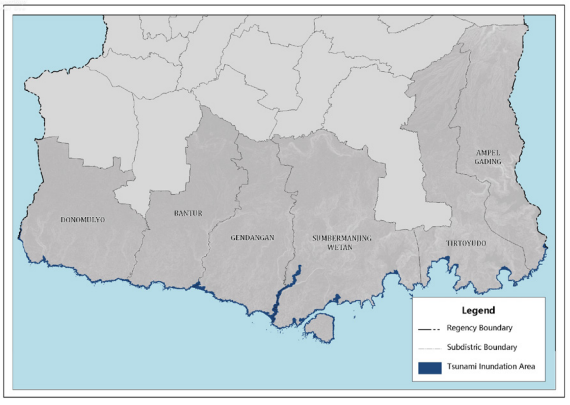
Prize-Winning Works Show

Overseas Works

Application Analysis Category







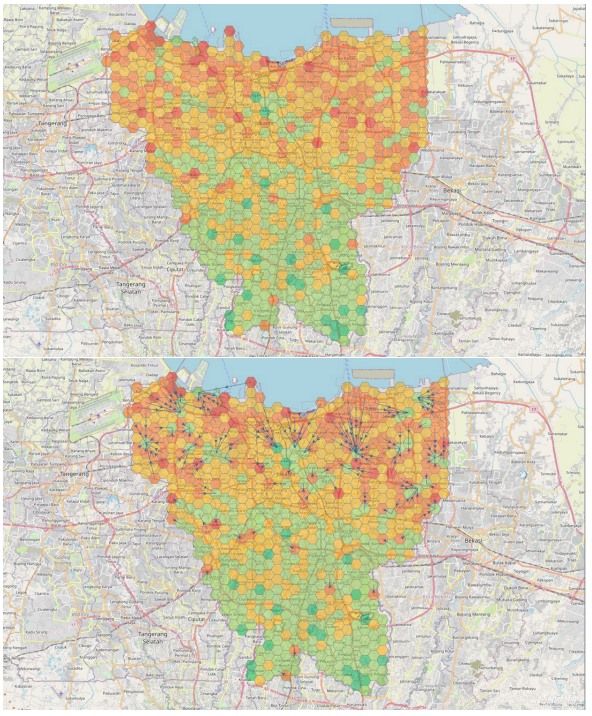
Project Title: Tsunami Evacuation Route Planning Based on Tsunami Inundation Model in Malang Regency

Author: Sekar Nur Amalia (Leader), Firman Ramadhan Putra, Pungky Susilo Rachmawati, Hyatma Adikara Ajrin (Members)

Country: Indonesia

University: Universitas Gadjah Mada

Summary: Malang Regency is one of the districts in the southern region of Java Island and directly faces the Indian Ocean, thus it is vulnerable to threat of earthquakes and tsunamis. This work models the tsunami inundation area and plans the tsunami evacuation routes. Tsunami inundation area modeling aims to provide information about areas that are potentially affected by a tsunami disaster, and the tsunami evacuation route is designed to find the optimal route based on the existing road network so that the time needed to reach a safe location is faster.



Project Title: Assessing Flood Susceptibility and Evacuation Accessibility in Jakarta Using GIS-AHP Multi-Criteria Analysis and H3 Hexagon Spatial Indexing

Author: Ahmad Reza Fachrizal (Leader), Bagas Octavianto Pramono (Member)

Country: Indonesia

University: Universitas Gadjah Mada

Summary: Flooding is a recurring and critical issue in Jakarta, Indonesia, causing significant social and economic disruption. This study aims to develop a comprehensive flood susceptibility mapping model for Jakarta, integrating various geospatial data layers, including Land Use and Land Cover (LULC), soil type, elevation, slope, Topographic Wetness Index (TWI), and rainfall data. The Analytical Hierarchy Process (AHP) will be employed to assess the relative importance of these factors in determining flood susceptibility.

In addition to flood susceptibility mapping, this study also leverages the H3 hexagon spatial indexing system to analyze the potential impact areas of flooding at a 1km x 1km granularity.

Mapping Category

Project Title: Indonesian Happiness Index Map of 2017 -2021

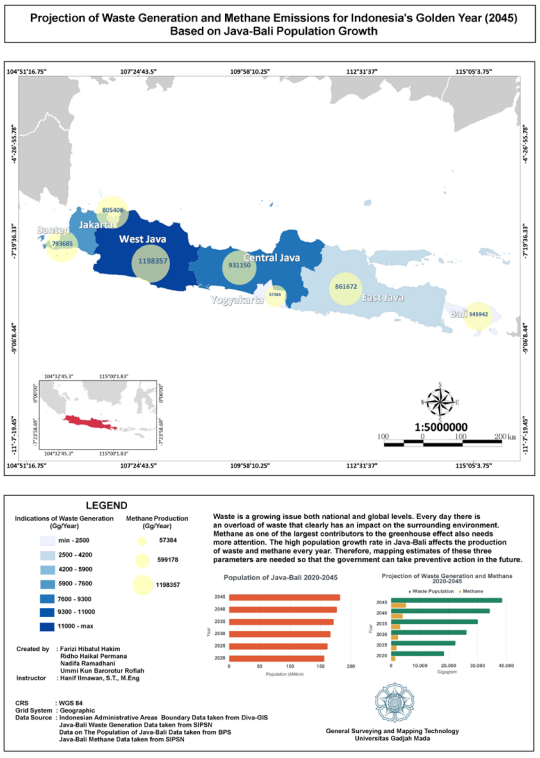
Author: Albertus Andri (Leader), Digna Rahmadinar, Niken Ayu Safitri, Muhammad Maulana Malik Ibrahim (Members)

Country: Indonesia

University: UPN "Veteran" Yogyakarta

Summary: Calculation of happiness levels has the aim of measuring the quality of development in a country or region in more holistic ways. This map was created using a quantitative approach focused on grouping and analyzing quantitative data. The data used is secondary data obtained through the website of the Central Bureau of Statistics (BPS), which includes happiness index data from 34 provinces in Indonesia in 2017 and 2021.

From the results of making the thematic map, there is symbology in the form of a smile emoticon which shows that a province has the highest happiness index value in 2017 and 2021. North Maluku province is the only province that has the highest happiness index during measurements in 2017 and 2021, this means that the happiest province in Indonesia falls to North Maluku Province.



Project Title: Projection of Waste Generation and Methane Emissions for Indonesia's Golden Year (2045) Based on Java-Bali Population Growth

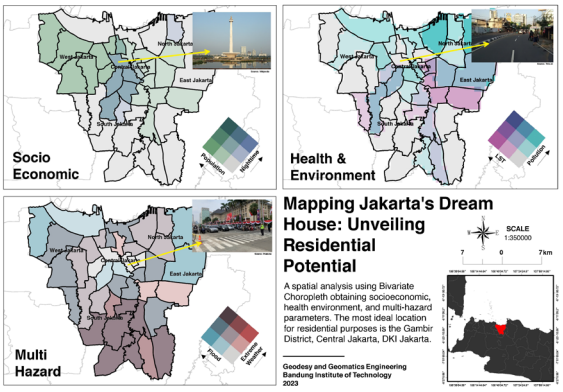
Author: Farizi Hibatul Hakim (Leader), Ridho Haikal Permana, Nadifa Ramadhani, Ummi Kun Barorotur Rofiah (Members)

Country: Indonesia

University: Universitas Gadjah Mada

Summary: The map is a work aimed atillustrating the impact of population growth on environmental issues in the Java and Bali regions, which are currently the center of economic and population growth in Indonesia. The rapid population growth in the Java and Bali regions presents greater challenges in waste management and methane reduction.

The map represents data that combines information about the Projection of Waste Generation and Methane Emissions for Indonesia's Golden Year (2045) Based on Java-Bali Population Growth. On this map, waste generation is marked in blue, with the intensity of the color indicating higher waste accumulation in the respective areas. Meanwhile, yellow circles depict the amount of methane emissions produced by the waste, with larger circles reflecting higher methane gas production. Population data serves as a parameter for calculating waste generation and methane gas emissions, enabling a more in-depth analysis of the impact of human activities on the environment.



Project Title: Mapping Jakarta's Dream House: Unveiling Residential Potential

Author: Adhima Al Azmy (Leader), Daffa Dhimas Raditya, Aldi Firdiansyah, Mentari Khoerunnisa Azzahra (Members)

Country: Indonesia

University: Bandung Institute of Technology

Summary: Jakarta is Indonesia's busiest destination in terms of both tourism and commerce. Therefore, having a residence in Jakarta would be advantageous as it allows easy access to various facilities.

Based on spatial analysis using Bivariate Choropleth, taking into account socio-economic, health environment, and multi-hazard parameters, the most ideal location for residential purposes is the Gambir District, Central Jakarta, DKI Jakarta. This means that the Gambir District has favourable socioeconomic conditions, signifying ease of conducting transactions to meet needs.

Chinese Works Appreciation

Map of River and Lake Ecological Environment Protection in Jianghan Plain

Participant University: China University of Geosciences, Wuhan

Instructor: Yang Nai, Zheng Dandan

Team member names: Hu Fangtai, Luo Yuqi, Jiao Ruoyin, Yang Jiexin

First Prize under the Mapping Category

Introduction

This series of maps of river and lake ecological environment protection in Jianghan Plain present the ecological environment protection status of rivers and lakes in Jianghan Plain from multiple perspectives such as rare animals and air quality. Through substantial scientific information and vivid visual art effects, they clearly display the distribution of rivers, lakes, birds, and vegetation in Jianghan Plain, the protection of air quality, and changes in the ecological environment. By intuitively representing the effectiveness of ecological protection in the plain, the series maps guide the public to enhance their awareness of ecological protection and jointly participate in ecological protection.

1. Map of River and Lake Ecological Environment Protection in Jianghan Plain

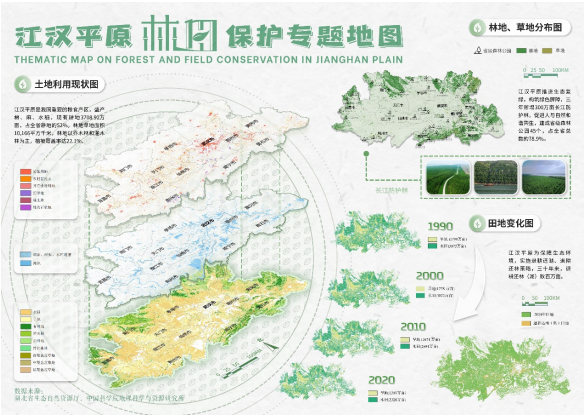
The "Thematic Map of River and Lake Ecological Environment Protection in Jianghan Plain" is the main map, which provides an overall introduction to the basic situation of the Jianghan Plain. It includes three sub-maps and a column map, covering geographical location, rare animals, nature reserves, wetlands, etc. Among them, the "Jianghan Plain Area Map" shows the topography and landforms of Hubei Province. The range of the Jianghan Plain is highlighted. From the map, it can be seen that the Jianghan Plain is located

in the south-central part of Hubei Province and is one of the plains with the lowest altitude in China. The "Nature Reserve Map" and "Wetland Statistical Graphs" use hierarchical statistical chart methods and statistical charts to display the current status of nature reserves and wetland protection. The "Rare Wildlife Distribution Map" shows the distribution of rare animals such as cygnets, curly pelicans, white cranes, finless porpoises, and elk. Finless porpoise and elk—the national protected animals have been protected in nature reserves in the plain.

2. Thematic Map of Water System Protection in Jianghan Plain

The "Thematic Map Water System Protection in Jianghan Plain" takes lakes and water as the theme and includes three sub-maps, focusing on the current distribution and historical changes of rivers and lakes. The "River System Distribution Map" shows the current distribution status of river and lake systems in the Jianghan Plain. "Lake Change Map" shows the historical changes of lakes. From 1950 to 2019, the area of lakes in the Jianghan Plain decreased from 8,528 square kilometers to 2,706 square kilometers. Therefore, lake protection has a long way to go. The "Change Map of Honghu Lake" shows the effectiveness of Honghu Lake management. In Hong Lake, nearly 60% of the lake surface was occupied due to fence farming, and the water quality seriously deteriorated. Hubei had invested nearly 7 billion yuan to dismantle the fence and ban all the fishing. After ten years of restoration, the pleasant scenery has once again been restored.

3. Thematic Map of Forest and Field Conservation in Jianghan Plain



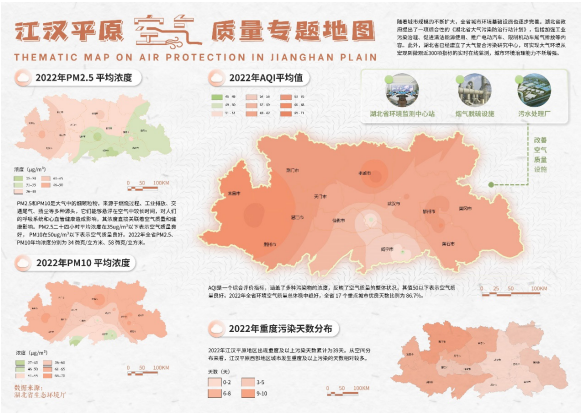
The "Thematic Map of Forest and Field Conservation in Jianghan Plain" closely focuses on the theme of "forest, field and grass", highlighting the achievements in protecting the ecology and restoring the environment in the plain. It consists of three sub-parts. The "Current Land Use Map" uses a layered and three-dimensional overlay method to show the distribution of woodlands, fields, grasslands and other types of land. The "Field Change Map" shows the changes in paddy fields and dry land in the plain from 1990 to 2020 through a time series diagram. The comparison between existing fields and converted fields is used to demonstrate the results

of ecological restoration in the past three decades. The "Woodland and Grassland Distribution Map" shows the distribution of woodland and grassland in the plain as well as the number and location of provincial forest parks, reflecting the determination and effectiveness of promoting ecological restoration in the Jianghan Plain.

4. Thematic Map of Bird Conservation in Jianghan Plain

The "Thematic Map of Bird Conservation in Jianghan Plain" focuses on bird protection, using three sub-maps and a statistical chart to display a rich variety of bird resources from the four dimensions of bird distribution, bird statistics, bird watching spots, and bird protection indicators. The "Bird Statistical Chart" displays the general categories of birds observed in Hubei and the first and second-level national protected bird species in the form of characteristic statistical charts. The "Bird Distribution Map" takes 8 species of national first-level protected birds as examples and uses visual thematic symbols to show their distribution in the plain. "Bird Watching Spots Distribution Map" introduces the famous bird watching spots. The "Bird Protection Indicators Map" displays the bird protection indicators of various cities in the plain and the number of national first- and second-level bird protections in the form of graded diagrams and hierarchical statistical charts. Bird protection indicators reflect the current status and future trends of bird protection, with level 1 being the lowest and level 10 being the highest. The higher the index, the better the protection of birds in the area.

5. Thematic map on air quality in Jianghan Plain



The "Thematic Map on Air Quality in Jianghan Plain" contains four sub-maps, which respectively use AQI value, PM 2.5, PM10, and the number of days of severe pollution to reflect the air quality conditions in the Jianghan Plain. "2022 AQI Average" is calculated through interpolation of monitoring data from Jianghan Plain air quality monitoring stations, and displays the average air quality index in various places in Jianghan Plain in a layered coloring method. "PM2.5 Average Concentration in 2022" and "PM10 Average Concentration in 2022" show PM2.5 and PM10 concentration levels in different regions. "Spatial Distribution of Days of Heavily Pollution in 2022" shows the distribution of heavily polluted days in various cities in the plain.

Prediction and Analysis of Urban Soundscape Based on Machine Learning and Multi-Source Data

Participant University: Shenzhen University

Instructor: Tu Wei

Team Members: Cai Zhaoyue, Yu Zhuoyi, Ye Yaosen, Chen Siqi

First Prize under the Application Analysis Category

Introduction

Soundscape refers to the acoustic environment perceived, experienced or understood by individuals or groups in a certain scene. Urban soundscape displays the natural features, social and cultural aspects of the city, and plays an important role in optimizing urban planning, improving the urban living environment, and enhancing the city's image. With the acceleration of urbanization, noise pollution has become one of the major environmental problems in cities, causing negative impacts on residents' quality of life and physical and mental health. In recent years, urban soundscape has gradually become a key indicator of sustainable urban development.

Traditional soundscape research generally uses field research methods such as acoustic measurements, sound walks, and qualitative questionnaires to predict soundscapes through spatial interpolation. However, these studies are costly, time-consuming, and difficult to apply on a large scale. In recent years, with the development of machine learning and computer vision algorithms, some studies have begun to combine new data such as remote sensing images and street view images to establish prediction models based on machine learning, reducing the cost of soundscape prediction and evaluation. However, most of these studies use a single data source and do not consider factors affecting soundscape from multiple perspectives, resulting in certain biases in urban perception.

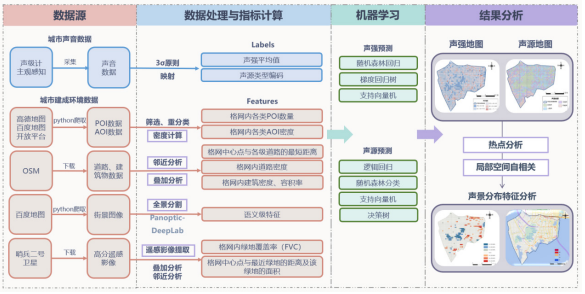


Figure 1 Technical flow chart

To this end, this work integrates measured sound data, roads, buildings, points of interest, areas of interest, street view images, remote sensing images and other urban built environment data, performs multi-source spatial data processing and analysis, and builds machine learning models, realizing large-

scale accurate prediction and mapping and analysis of the soundscape. We have conducted soundscape distribution pattern analysis and abnormal detection, proposed a new approach to urban soundscape research, thus providing technical support for improving the quality of urban soundscape and protecting the health of urban residents.

Basic data

The data of this work include sound-level meter sampling and measured data, POI data and AOI data from the Amap Open Platform and Baidu Map Open Platform, road and building data from the Open Street Map platform, and street view images from Baidu Maps, and data, remote sensing image data from the Gaofen-1 satellite.

Analysis process

1. Spatial distribution analysis of predicted sound

Plot the predicted sound intensity and source on a map to conduct descriptive analysis of spatial distribution.

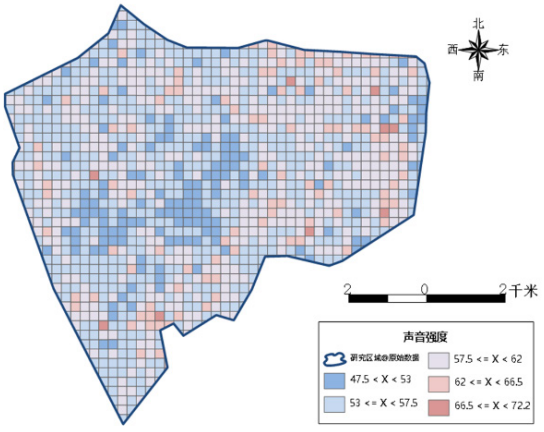


Figure 1 Distribution of sound intensity

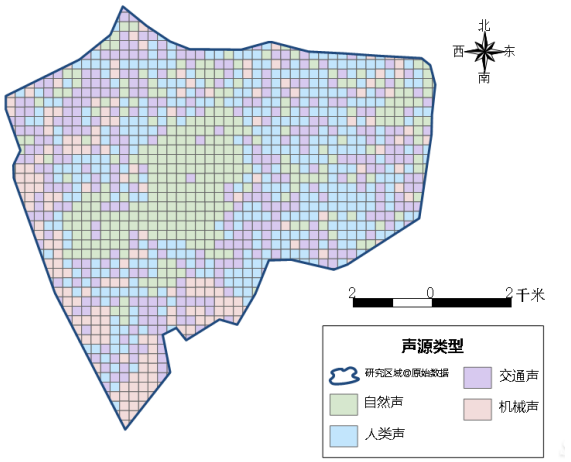


Figure 2 Spatial distribution of sound sources

2. Hot spot analysis

Explore the hot and cold spot distribution of sound intensity in the study area through hot spot analysis.

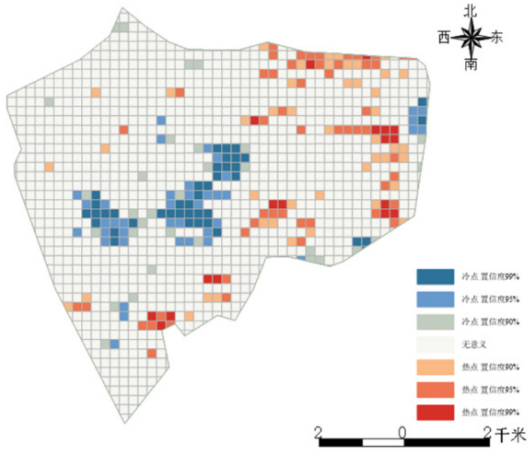


Figure 3 Hot spot analysis results

3. Local spatial autocorrelation analysis

The distribution characteristics of sound intensity in the study area are further studied through local spatial autocorrelation analysis, and a LISA cluster map is output for analysis.

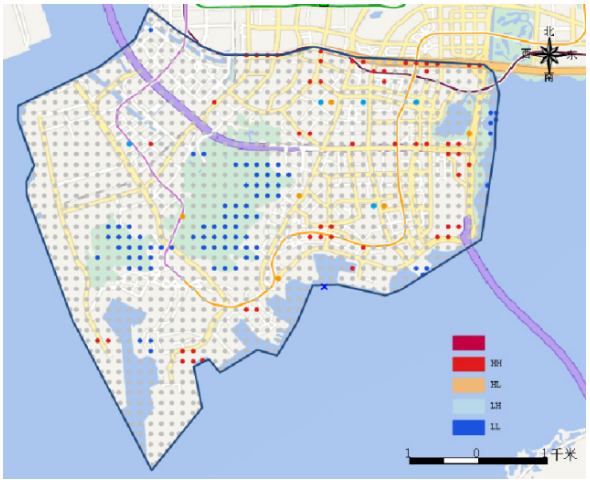


Figure 4 LISA cluster map

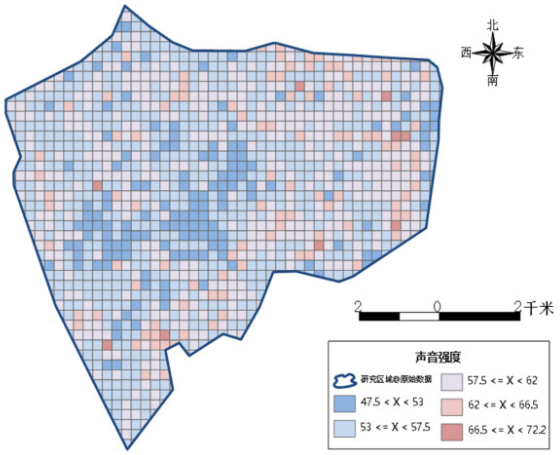


Figure 6 Map of sound intensity predicted by machine learning

4. Comparative analysis of spatial interpolation method and machine learning method

Use the inverse distance weighting method to perform spatial interpolation and obtain a spatially interpolated sound intensity map, and conduct a comparative analysis with the sound intensity map obtained by the machine learning method used in this work.

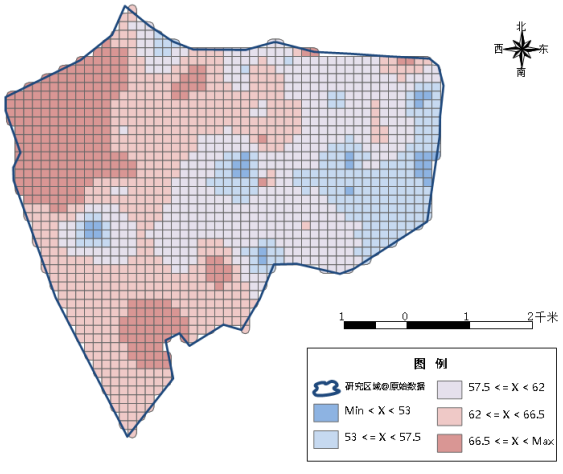


Figure 5 Spatial interpolation sound intensity map

Highlights of the work

1. It closely associates multi-source geographical information data with sound data collected on the spot to make up for the current single data source bias in perceiving urban sounds to a certain extent.

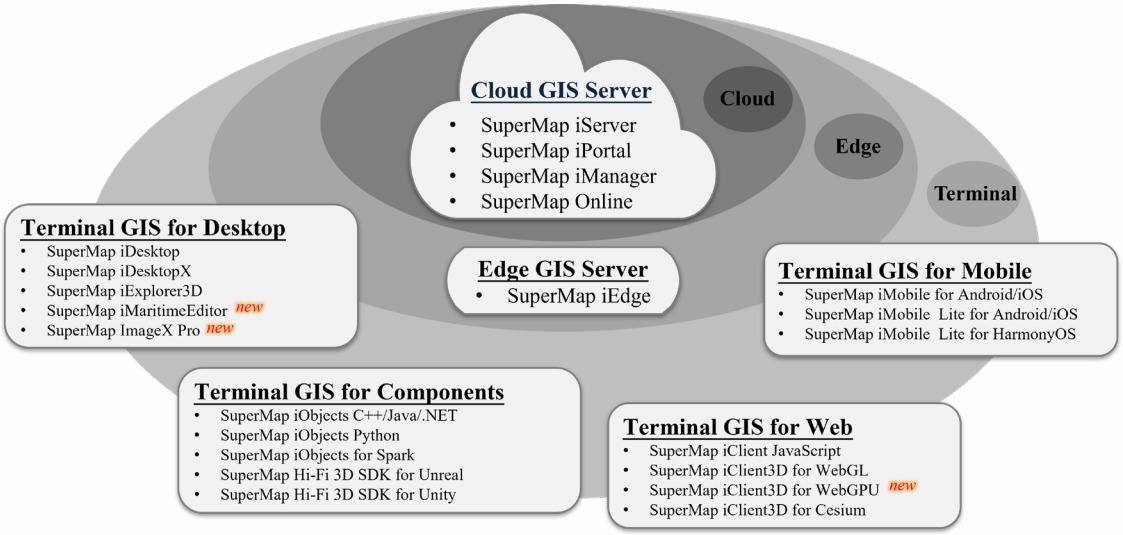
2. It combines geographical information and artificial intelligence technology, and use machine learning models to make full use of small sample sizes to accurately predict large-scale soundscapes. This method improves the accuracy of sound prediction, reduces the cost of prediction, and provides strong support for large-scale soundscape visual analysis.

3. It visualizes the prediction results through soundscape map drawing and analysis, which not only reveals the distribution of the soundscape, but also captures the abnormal areas of the soundscape. It helps planning departments and decision-makers better understand the impact of sound on the urban environment and supports decisions such as noise control, traffic management and urban planning.

Products

What is SuperMap GIS？

SuperMap is devoted to developing and providing the most innovative Geographic Information System (GIS) platforms and solutions for global customers. SuperMap product line includes a full range of GIS platforms, including Desktop GIS, Server/Web GIS, Mobile GIS, and Online GIS, which makes SuperMap GIS known as one of the most complete GIS software platforms.



SuperMap GIS 2023 Product Architecture

SuperMap iDesktop: Full-featured Customizable Desktop GIS

SuperMap iDesktopX: Full-featured Customizable Cross Platform Desktop GIS

SuperMap iExplorer3D: 3D Scene Browsing Software

SuperMap iObjects: Full-featured Components GIS SDKs

SuperMap iTablet: Native App for Mobile GIS

SuperMap ARSurvey: AR field surveying tools for Mobile GIS

SuperMap UAV Survey: UAV field survey and annotation software

SuperMap iMobile: Native SDKs for Mobile GIS

SuperMap iServer: Full-featured Application Server for Cloud GIS

SuperMap iPortal: Portal for Cloud GIS

SuperMap iClient: Web GIS APIs for Browsers

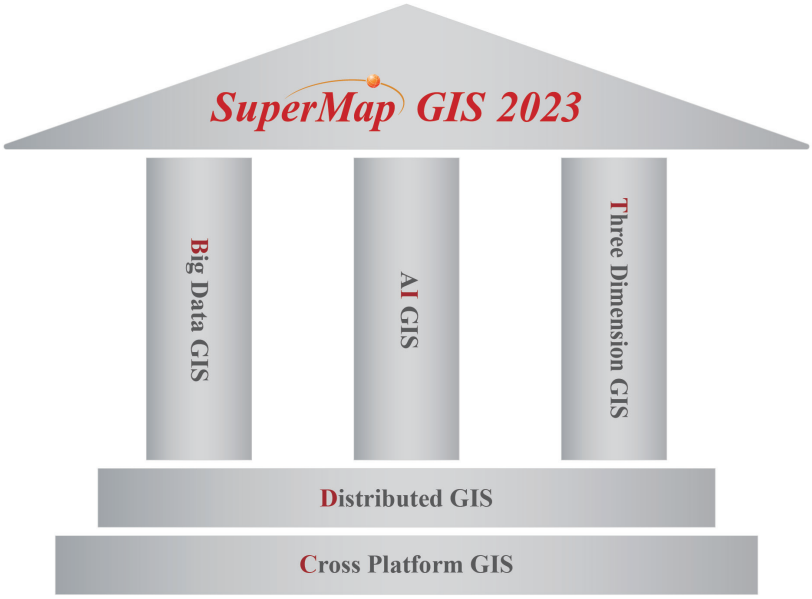
SuperMap iManager: Operation Manager for Cloud GIS

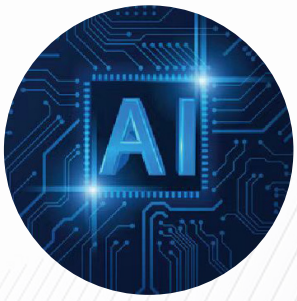
SuperMap iEdge: Server for Edge Computing GIS

Application Cases

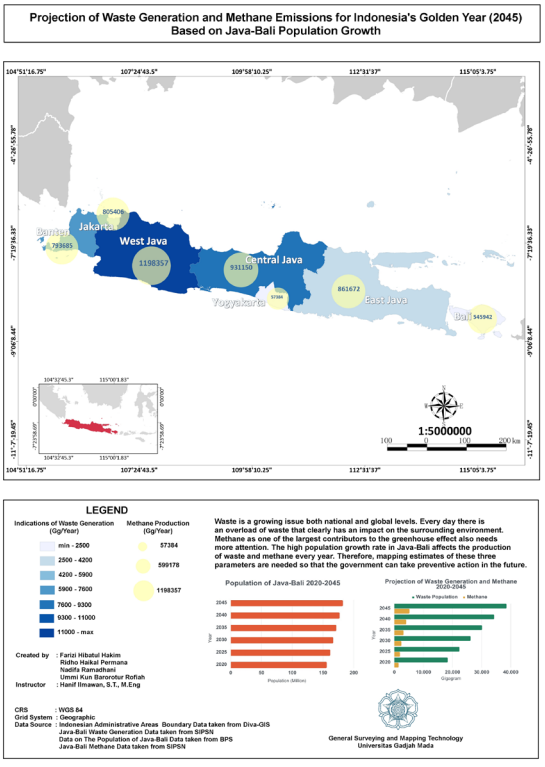
Technologies

In SuperMap GIS 2023, SuperMap has further improved the five key technologies system (BitDC) of GIS platform software. The five key technologies are big data GIS, AI (artificial intelligence) GIS, new 3D GIS, distributed GIS and cross-platform GIS technology, which enriched and innovated GIS theory and technology, and empowered the informatization of various industries.





Interview with the 21st SuperMap GIS Contest Winners



Participant University: Universitas Gadjah Mada

Team Members: Farizi Hibatul Hakim, Ridho Haikal Permana, Nadifa Ramadhani, Ummi Kun Barorotur Rofiah

2nd Place Winner under the Mapping Category

If applicable, could you tell us about any GIS project you undertook at university, and briefly explain what they focused on?

In addition to the GIS project we did at the GIS Contest, we have conducted GIS analysis several times as final semester projects. We analyzed the potential groundwater distribution in Sleman City and the Application of GIS in landslide disaster mitigation in Kulon Progo.

What factors led you to choose the topic for the SuperMap GIS Contest 2023?

The closure of the landfill in Yogyakarta City for some time was the starting point for our idea. We began to search for the reasons behind this event and found that there had been an overload capacity from the landfills around Yogyakarta, especially the Lempuyangan landfill. Upon further investigation, we

discovered that the closure of landfills was not only happening in our area but also in almost all landfills in Java Island, which is the largest waste producer in Indonesia. Projecting the possible amount of waste accumulation could provide an overview of the waste situation in Indonesia. Waste accumulation is closely related to methane emissions, and the issue of climate change due to global warming is increasingly concerning.

Based on the literature study we conducted, a significant portion of the atmospheric composition causing this phenomenon is methane. The year 2045 is crucial for Indonesia, not only marking its 100th independence anniversary but also being hailed as Indonesia's golden year. That's why we chose waste generation and methane emission as our research topic.

In your opinion, how will your project benefit society or the GIS industry?

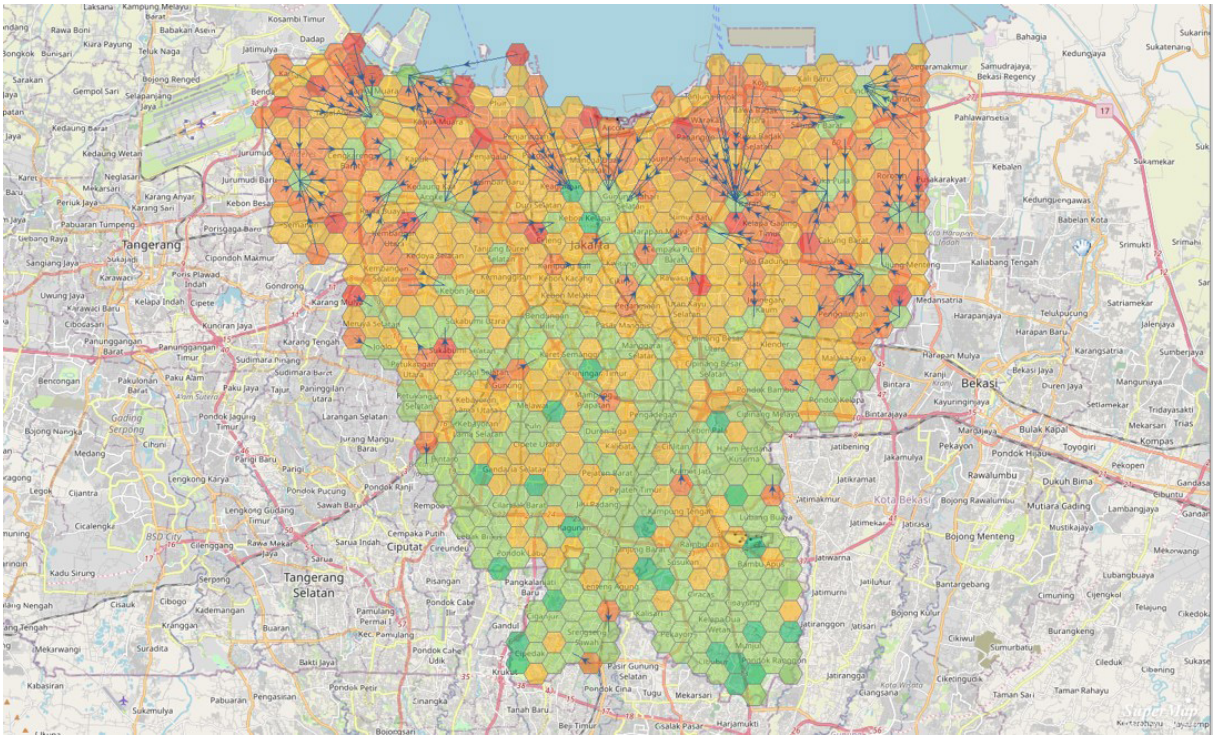
From the project we created, the benefit is to raise awareness among the public about the seriousness of the waste problem in Indonesia. We hope to encourage public participation in waste sorting and urge relevant authorities to improve waste processing effectiveness in the country.

Did you encounter any technical difficulties during your research? How did you overcome them?

During our research, we encountered some difficulties, especially in presenting data into maps with SuperMap software. It was the first time that we had used the software. We had some difficulties in trying out specific features due to the lack of a manual book, but we managed to overcome them by trying out each feature one by one and searching for some related training videos on YouTube made by SuperMap.

What did you learn and gain from participating in this contest?

After participating in the GIS Contest organized by SuperMap, we gained several experiences in processing data into maps. We learned various methods that can be used in making maps, paying attention to making maps correctly, and presenting maps so that they are easily understood by the general public. We became familiar with the features available in SuperMap software.



Participant University: Universitas Gadjah Mada

Team Members: Ahmad Reza Fachrizal, Bagas Octavianto Pramono

3rd Place Winner under the Application Analysis Category

What factors led you to choose the topic for the SuperMap GIS Contest 2023?

I chose the topic of "Assessing Flood Susceptibility and Evacuation Accessibility in Jakarta Using GIS-AHP Multi-criteria Analysis and H3 Hexagon Spatial Indexing." Several factors influenced my decision to focus on this topic.

Firstly, Jakarta has been experiencing significant challenges with flooding, making it a pertinent issue to address. By focusing on flood susceptibility mapping and evacuation accessibility, I aimed to contribute to efforts in mitigating the impacts of floods in the city.

Secondly, the integration of GIS technologies such as AHP Multi-criteria Analysis and H3 Hexagon Spatial Indexing presented an exciting opportunity to explore innovative solutions to complex urban problems. I was drawn to the potential of these technologies to provide comprehensive insights into flood vulnerability and evacuation planning.

Furthermore, the topic aligned well with my academic interests and expertise in GIS and spatial

analysis. I saw the contest as a platform to apply my skills and knowledge to tackle real-world challenges effectively.

Overall, the pressing issue of flooding in Jakarta, coupled with the opportunity to leverage advanced GIS technologies, motivated me to choose this specific topic for the SuperMap GIS Contest 2023.

Can you give us a brief overview of your project in the contest?

Certainly! My project focused on addressing the challenges of flooding in Jakarta by employing GIS technologies and advanced spatial analysis methods. The primary objectives were to map flood susceptibility, identify evacuation accessibility, and provide insights into mitigating flood risks in the city.

The approaches used are:

1) Flood Susceptibility Mapping:

Utilizing Analytical Hierarchy Process (AHP) to assign weights to various criteria influencing flood susceptibility. Integrating multiple criteria layers such as topography, land use, and drainage infrastructure to generate a comprehensive flood susceptibility map. Implementing H3 Hexagon Spatial Indexing to create a detailed grid covering Jakarta for spatial analysis.

2) Evacuation Accessibility Analysis:

Generating Origin-Destination (OD) matrices to analyze travel distances and identify nearest safe evacuation points for flood-prone areas.

Utilizing network-cost-based analysis to determine optimal evacuation routes and locations.

And we got some outcomes:

Producing flood susceptibility maps highlighting vulnerable areas in Jakarta.

Identifying nearest evacuation points for flood-prone regions based on accessibility analysis.

Providing insights into influential factors contributing to flood susceptibility and effective evacuation planning.

Overall, my project aimed to leverage GIS technologies and spatial analysis methods to address the pressing issue of flooding in Jakarta, contributing to disaster preparedness and resilience in the city.

Which SuperMap software did you use for your project? How was your experience using it?

I used SuperMap iDesktopX. I was initially a bit confusing, especially since it was my first time using it. However, as I delved deeper into the software

and familiarized myself with its features and functionalities, I found it to be a robust and powerful tool for GIS analysis and mapping.

One aspect that stood out to me was the comprehensive range of spatial analysis tools available within SuperMap DesktopX. These tools allowed me to effectively perform complex geospatial analyses, such as flood susceptibility mapping and evacuation accessibility analysis. Additionally, the software's support for various data formats and its ability to handle large datasets were advantageous for my project, particularly when working with extensive geographic data for Jakarta.

While there was a learning curve involved in getting accustomed to the interface and workflow of SuperMap iDesktopX, I found that the software offered considerable flexibility and customization options, allowing me to tailor my analyses according to the specific requirements of my project.

Overall, despite the initial challenges, my experience using SuperMap iDesktopX was positive, and I appreciated its capabilities for advanced GIS analysis and mapping.

What did you learn and gain from participating in this contest?

Participating in the SuperMap GIS Contest 2023 was an invaluable experience that provided me with numerous learning opportunities and valuable takeaways. Some of the key lessons and advances I obtained from this contest include:

Advanced GIS skills. Through the contest, I had the opportunity to apply and further develop my skills in GIS analysis, particularly in utilizing advanced spatial analysis techniques such as Analytical Hierarchy Process (AHP) and H3 Hexagon Spatial Indexing. This hands-on experience enhanced my proficiency in GIS software and methodologies, expanding my technical capabilities in geospatial analysis.

Problem-solving skills. Addressing the challenges presented by the contest topic required creative problem-solving and critical thinking. I learned to approach complex issues systematically, break them down into manageable components, and devise innovative solutions using GIS tools and techniques. This experience sharpened my problem-solving skills, which are invaluable in both academic and professional settings.

Interdisciplinary knowledge. The contest topic encompassed various disciplines, including geography, urban planning, and disaster management. By researching and analyzing these interdisciplinary aspects, I gained a deeper understanding of the complex interactions between environmental factors, human activities, and urban development. This interdisciplinary perspective broadened my knowledge base and provided

insights into the interconnected nature of societal and environmental challenges.

Project management. Participating in the contest involved managing time effectively, setting clear objectives, and prioritizing tasks to meet deadlines. By planning and executing my project methodically, I honed my project management skills and learned to work efficiently under pressure. This experience equipped me with valuable project management techniques that are applicable across different domains and contexts.

Networking and collaboration. Engaging with fellow participants, mentors, and experts during the contest allowed me to expand my professional network and establish connections within the GIS community. Collaborating with peers provided opportunities for knowledge sharing, feedback, and mutual support, enriching my learning experience and fostering a sense of camaraderie.

Overall, participating in the SuperMap GIS Contest 2023 was a rewarding journey that not only enhanced my technical skills but also provided me with valuable insights, experiences, and connections that will benefit me in my academic and professional endeavours.

Do you have any advice for future SuperMap GIS Contest participants?

Of course! Here are some simplified tips for future SuperMap GIS Contest participants:

Know the theme. Understand what the contest is about and what you need to achieve.

Plan your project. Break your project into smaller tasks and set deadlines for each part.

Learn the software. Take time to learn how to use SuperMap software before starting your project.

Think creatively. Be innovative and try out new ideas to solve the contest's challenges.

Ask for help. Don't be afraid to ask questions or seek advice from others if you get stuck.

Test and improve. Regularly check your work and make improvements as needed.

Keep good records. Keep track of your progress and document what you've done along the way.

Explain clearly. Make sure your final project is easy to understand and explain your ideas well.

Manage your time. Stay organized and make sure you have enough time to finish your project before the deadline.

Enjoy the process. Have fun and see the contest as a chance to learn and grow!

Interview with SuperMap GIS Contest Instructor

Zhang Mengyi, instructor of SuperMap GIS Contest. She is also the training engineer of SuperMap. Having been the instructor for the contest for 3 years, and undertaking a lot of training tasks, she is experienced in providing guidance to contestants.

What is the current situation of GIS competitions in China and overseas? What features they represent respectively?

Usually, we set two competition areas for SuperMap GIS Contest every year: China and overseas regions. There are also precedent cases of setting up special competition areas in certain overseas countries like Indonesia. The domestic contest has a longer history, and the instructors and contestants have richer competition experience. The entries tend to present and analyze the geospatial phenomena in a certain area in a multi-faceted and multi-angle manner, especially in the Application Analysis Category and Development Category, contestants can all follow the latest research trends and methods for regional research and project practice. Overseas contestants pay more attention to using GIS means to present local geographical, economic and cultural characteristics, and are constantly trying to use mature GIS analysis theory to solve geological and environmental problems in the real world. From their entries, we can see their enthusiasm for GIS technology and their exploration of and thinking about the value of GIS applications.

How do you think of last year's overseas entries? What are the highlights and aspects that need to be improved?

It's obvious that overseas contestants made innovations in topic selection last year. Many works provided complete analysis results and solution suggestions for the research problems, forming complete logics in the entries. What need to be improved are that the diversity of topic selection, the analysis methods used are relatively traditional, and there is room for further in-depth research on some issues.

What suggestions do you have in regard of overseas entries?

Before choosing a topic, participants can carefully observe the problems and application needs that urgently need to be solved in the real world, and discuss with students and teachers from different majors. Thinking about how GIS technology can be innovated using other technologies is helpful to address the needs of other industries, and analyze and solve problems from new perspectives.

In addition, students can also learn about the latest development trends of GIS technologies by reading the latest academic papers and participating in academic and industry conferences. On the basis of learning new technologies and new ideas, discussing with teammates the more in-depth topics in the application of GIS technologies is also a good choice.

No matter which group contestants are in, they should always focus on practical value, that is, not just making maps or analyzing problems, but thinking about what valuable information the completed maps should provide to the public (not the judges); how can the conclusions drawn after analysis help solve practical problems, etc.

As for team members, they do not have to be students from the same major. Members from different fields such as computing, mathematics, and visual design may also provide new ideas for topic selection, analysis methods, graphics, or UI design, etc.

As far as the Development Category is concerned, what scalable advantages do SuperMap's software products have that can allow contestants to give full play to their full potential?

The SuperMap iClient series development toolkit combines mainstream 2D map front-end development tools such as Leaflet and OpenLayers, and encapsulates more APIs to easily implement functions such as multi-source data loading, calculation, query, and dynamic visual display of

massive data; and for 3D WebGIS developers, SuperMap iClient3D for WebGL provides front-end high-performance 3D rendering capabilities without plug-ins, and can connect to multi-source heterogeneous 3D spatial data such as BIM models, oblique photography 3D models, point cloud data, etc., which can help efficiently load realistic and smooth 3D scenes through browsers. It can also be combined with game engines to further improve the rendering effect.

The competition in the Applied Analysis and Mapping Categories seems to be fierce. How do you think the contestants can improve their works and win the favor of the judges from aspects such as topic selection, data processing and map display?

We receive a large number of excellent entries every year and we are often impressed by the innovation, detailed reports, beautiful maps /interfaces and complex system designs. These are just the four key highlights the judges are looking for. Among them, complete reports and beautiful maps/interfaces are essential elements for winning entries, while innovation and complex system designs are more bonus points.

However, many participants tend to overlook the importance of these four elements. Many of the works were creative and beautifully drawn, but the reports submitted were too simple, summarizing several months of effort in less than 10 sentences and not even providing complete work data. In this case, the judges were unable to evaluate the quantity and difficulty of their work, nor were they able to fully understand the purpose and practical value of the research, which affected the final evaluation.

Therefore, it is important to document the mapping or analysis steps in detail from the beginning and submit them in full at the end as the judges always consider the innovation, practical value and depth of analysis based on the completeness of the work.

What do you think players can gain from participating in such a contest?

SuperMap GIS Contest is different from the usual homework and course design on campus. It not only gives the participants a clear competition goal, but also provides more freedom. They can choose topics according to their own interests and apply theoretical knowledge into practice. It also helps students accumulate experience and lay a solid technical foundation for participating in actual projects in the GIS industry in the future.

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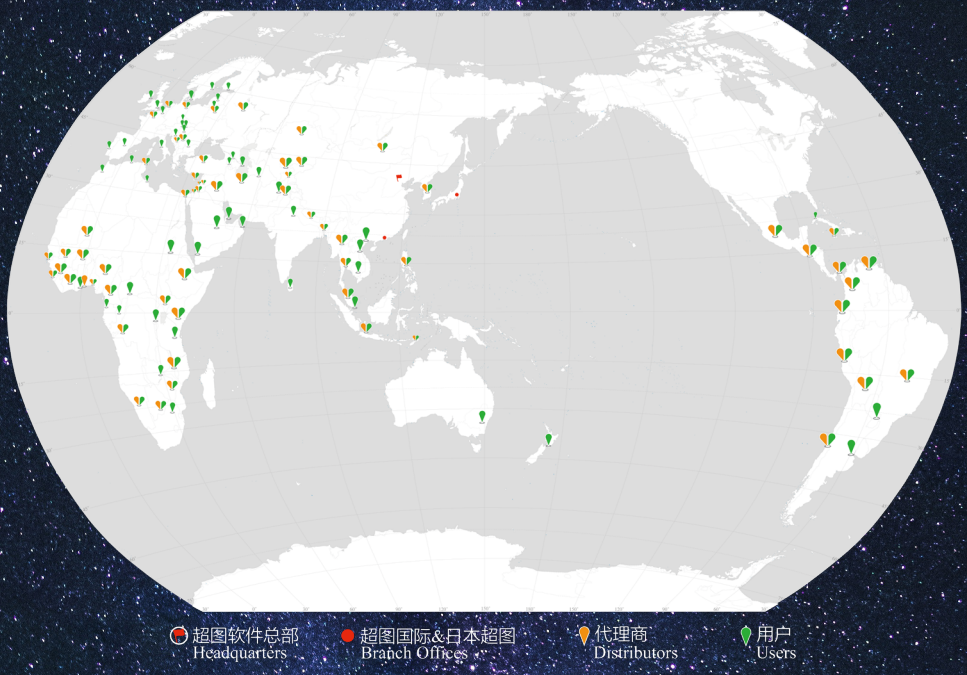

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