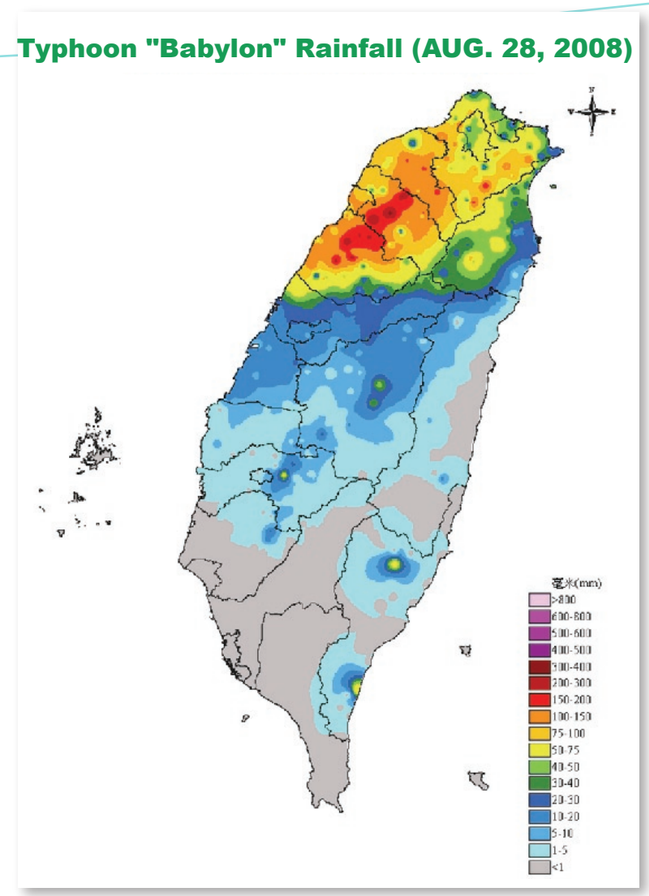
Rainfall Analysis System for CWB

Typhoon "Babylon" Rainfall (AUG. 28, 2008)



Challenges

- Use IDW to estimate precipitation amount.

Goals

- Produce all kinds of precipitation maps.

Scenario

Due to recent development of all kinds of economic activities and the increasing living standards, the requirement for meteorology quality is getting higher for every industry. Topics such as homeland security, disaster prevention and relief, and other related issues also raise much attention. Meteorology data has gradually became one of the important issues of natural science. Central Weather Bureau (CWB) intends to use GIS related tools to make all kinds of precipitation maps for CWB and related units to utilize.

Challenges

This system uses IDW to estimate precipitation amount, which requires the consideration of parameters, such as weight, the number as well as the level of precipitation stations, and the minimum analysis precipitation stations. The system also provides a customized interface for users to obtain analysis results faster.

Goals

To produce and provide all kinds of precipitation information for the CWB and related agencies to use and to increase the effectiveness of weather data application.

Solutions

1.Database structure analysis and building skills

The key point that affects the system performance is the accuracy of the database and its structure analysis. Due to the large information and variety of functions used in the database, the system performance will be affected by the organization of database structure and the coordination of the following key issues: 1) access to the database, 2) edit data from database, 3) remote data linking technology, 4) online data exchange, 5) integrated, safety, recovery, and concurrent management, and 6) interface design.

2.SQL conditional inquiry skills

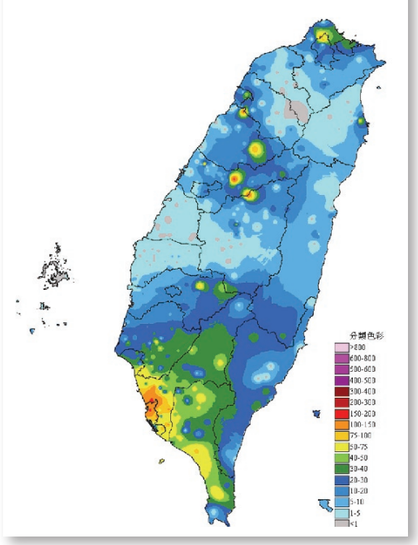
SQL is a strong database inquiry language and has became the primary language used for database inquiries. This website uses SQL to perform conditional inquiries. However, to use SQL inquiries, users need to be familiar not only with SQL language but also the content of the data so that its structure analysis can be done. Therefore, the web designer needs not only the knowledge of data analysis but also enough database analysis experience.

3.System integration skills

The meteorology database of this system and the design of inquiry operations have to be fully planned and combined into one system for the most proper and safe usage environment. Through the user-friendly operating interface, users can access all kinds of product information from the Internet. This kind of operating environment needs experienced system integrator to design.

Results

Using Desktop SuperGIS to customize the simple and user-friendly interface to access database, read as well as analyze the data, and set up parameters for surface analysis, the system has the easiest way to display precipitation distribution in graduated colors.



Typhoon " Grace" Rainfall (Sep. 4 ,2008)

Solutions

- Database structure analysis and building skills.
- SQL conditional inquiry skills.
- System integration skills.

Results

- Produce precipitation maps much faster in speed.
- Provide the easiest way to display precipitation distribution in graduated colors for many applications.

Products

- SuperGIS 2