Design and implementation of a geographic information system for meteorological applications

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A thematic Geographic Information System (GIS) for meteorological applications is set up originally by programming in C# on the Microsoft .NET platform. A self-copyrighted independent GIS kernel is implemented to meet the demands of GIS functionalities in meteorological operations and services, not relying on any business GIS system and its secondary development interface. A new spatial-temporal data model for meteorological database design is put forward based on the relational database management system Microsoft SQL Server 2000. The development background, targets, significance, technical principles to follow and many key techniques of this system are introduced. Its architecture, functions, main innovations and application perspectives are also illustrated briefly.