

1. Record Nr.	UNINA9910877575803321
Titolo	Spatial interpolation for climate data : the use of GIS in climatology and meteorology // edited by Hartwig Dobesch, Pierre Dumolard, Izabela Dyras
Pubbl/distr/stampa	London ; ; Newport Beach, CA, : ISTE, 2007
ISBN	1-280-84783-2 9786610847839 0-470-39491-9 0-470-61226-6 1-84704-620-7
Descrizione fisica	1 online resource (304 p.)
Collana	Geographical information systems series
Altri autori (Persone)	DobeschHartwig DumolardPierre DyrasIzabela
Disciplina	551.60285
Soggetti	Climatology - Data processing Meteorology - Data processing Geospatial data - Mathematical models Geographic information systems Spatial data infrastructures
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Spatial Interpolation for Climate Data; Table of Contents; Preface; Part 1. GIS to Manage and Distribute Climate Data; Chapter 1. GIS, Climatology and Meteorology; 1.1. GIS technology and spatial data (working group 1); 1.1.1. Introduction; 1.1.2. Weather and GIS; 1.1.3. Geographical data, environmental data and weather data; 1.1.4. A GIS approach to access weather data; 1.2. Data and metadata; 1.2.1. Introduction; 1.2.2. Important datasets; 1.2.3. Metadata; 1.2.4. Open Geospatial Consortium; 1.2.5. EU strategies for data handling and standards 1.2.6. Meteorological datasets, important projects and programs 1.2.7. Projects using Earth Observation satellites; 1.3. Interoperability; 1.3.1.

Introduction; 1.3.2. Technology for service-oriented architectures; 1.3.3. Interoperability in GIS; 1.3.4. Open Geospatial Consortium foundation ideas; 1.3.5. Standardized geospatial Web services; 1.3.6. GIS and AS interoperability potential: data model and formats; 1.3.7. Atmospheric data model; 1.3.8. Support from GIS for atmospheric data formats; 1.4. Conclusions; 1.5. Bibliography; Chapter 2. SIGMA: A Web-based GIS for Environmental Applications
2.1. Introduction 2.2. CPTEC-INPE; 2.3. SIGMA; 2.3.1. Basic functions; 2.4. Impacts of weather conditions on the economy; 2.5. Severe Weather Observation System (SOS); 2.5.1. Tracking of convective clouds; 2.5.2. Risk of lightning occurrence; 2.6. SOS interface; 2.7. Conclusions; 2.8. Acknowledgements; 2.9. Bibliography; Chapter 3. Web Mapping: Different Solutions using GIS; 3.1. Introduction; 3.2. Examples of Web mapping based on the usage of GIS technology in offline mode; 3.3. Examples of Web mapping using GIS tools in online mode; 3.4. Conclusion; 3.5. Bibliography
Chapter 4. Comparison of Geostatistical and Meteorological Interpolation Methods (What is What?) 4.1. Introduction; 4.2. Mathematical statistical model of spatial interpolation; 4.2.1. Statistical parameters; 4.2.2. Linear meteorological model for expected values; 4.2.3. Linear regression formula; 4.3. Geostatistical interpolation methods; 4.3.1. Ordinary kriging formula; 4.3.2. Universal kriging formula; 4.3.3. Modeling of unknown statistical parameters in geostatistics; 4.4. Meteorological interpolation; 4.4.1. Meteorological interpolation formula
4.4.2. Possibility of modeling unknown statistical parameters in meteorology 4.4.3. Difference between geostatistics and meteorology; 4.5. Software and connection of topics; 4.6. Example of the MISH application; 4.7. Bibliography; Chapter 5. Uncertainty from Spatial Sampling: A Case Study in the French Alps; 5.1. Introduction; 5.2. The sample as a whole; 5.3. Looking in detail where the sample is not representative; 5.4. Summarizing the sampling uncertainty; 5.4.1. 2D simplification; 5.4.2. 3D generalization; 5.4.3. Geographic homogenous sub-regions of the sample
5.4.4. Interpolation of a climate parameter

Sommario/riassunto

This title gives an authoritative look at the use of Geographical Information Systems (GIS) in climatology and meteorology. GIS provides a range of strategies, from traditional methods, such as those for hydromet database analysis and management, to new developing methods. As such, this book will provide a useful reference tool in this important aspect of climatology and meteorology study.
