ARC MARINE - GIS FOR A BLUE PLANET

GEO:CONNEXION'S EDITOR REVIEWS THE LATEST FROM ESRI PRESS ON MARINE DATA MODELLING

The Arc Marine Data Model has been presented at conferences globally since its launch in 2001 and is actively discussed on marine lists. Some see Arc Marine as an 'American' product, because of its development roots, yet the community involved in its creation and evolution is international in scope. The resulting data model is of interest to the marine research and environmental management community, regardless of the brand of GIS they use.

In "Arc Marine - GIS for a Blue Planet", co-authors Dawn Wright (Oregon State University, USA), Michael Blongewicz (DHI Water & Environment, Inc.), Patrick Halpin (Duke University, USA) and ESRI's Joe Breman, have created a valuable resource for the marine community. The data model and case studies cover both deep ocean and coastal data requirements that shelter under the ambiguous term 'marine', uniting in a single data model the traditional science focus of oceanic applications with the policy and management related data needs of coastal researchers and management practitioners.

After the introduction, Chapter 2 dives directly into the heart of any data model, presenting common marine data types that form the core feature classes for the Arc Marine Data Model. Marine feature types is an area where much past and current research is focused. Agreement on common feature types and feature type codes is critical in developing applications based on the underlying data models. This is recognised also in the Epilogue chapter which describes other marine data modelling initiatives around the globe and the relationship to the Open Geospatial Consortium, Inc. (OGC) interoperability specification community.

Chapter 3 stresses the importance of using the Arc Marine Data Model for support in planning marine surveys, in which huge volumes of marine data are collected, often at great cost. If pre-survey data requirements are well understood and modelled, then efficiency of data management and post-survey analysis is increased. Two real-life case studies based on large volumes of point data are included in the chapter.

Using five case studies, Chapter 4 examines use of the data model to track marine animal species, in three dimensions, in relation to other important environmental features. Chapter 5 uses a case study to demonstrate the power of the Arc Marine Data Model to reduce the complexity of dealing with temporal (time-varying) data, such as time series. The coastal community will be most interested in Chapter 6, which looks at near-shore, coastal and shoreline analysis issues via two case studies, one from Denmark on coastal evolution and an engineering application in the USA. Two additional near-shore studies relate to coral reefs. Chapter 7 presents Model Meshes, based on a German case study and Chapter 8 completes the technical presentations with a look at multi-dimensional GIS (3D and 4D) advances in recent years. All chapters are well illustrated and easy to understand.

Conclusion? We highly recommend this text to those new to data modelling and to marine researchers or managers responsible for marine data collection, processing and use for decision-making purposes. The ESRI data model support site offers many case studies, templates, tools and forums at: http://support.esri.com/index.cfm?fa=downloads.dataModels.filteredGateway&dmid=21 A comprehensive Arc Marine web site is maintained by Dawd Wright at: http://dusk.geo.orst.edu/djl/arcgis/

Price: US$ 47.95 (€ 34.50) from ESRI Press of its distributors. ISBN 978-1-58948-017-9

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