U.S. Department of the Interior
U.S. Geological Survey

Digital Mapping Techniques '06—Workshop Proceedings

Edited by David R. Soller

June 11-14, 2006
Columbus, Ohio

Convened by the
Association of American State Geologists
and the
United States Geological Survey

Hosted by the
Ohio Geological Survey

U.S. GEOLOGICAL SURVEY OPEN-FILE REPORT 2007-1285
2007

This report is preliminary and has not been reviewed for
conformity with the U.S. Geological Survey editorial standards.
Any use of trade, product, or firm names in this publication is for
descriptive purposes only and does not imply endorsement by the
U.S. Government or State governments

CONTENTS

Introduction
David R. Soller (U.S. Geological Survey) 1

Oral Presentations

The National Geologic Map Database Project: Overview and Progress
By David R. Soller (U.S. Geological Survey) 7

The New *Geology Ontario* Web Portal - An "out-of-the-box" Solution for Discovering and Delivering Ontario's Geoscience Data
By Zoran Madon (Ontario Geological Survey) and Brian Berdusco (Ministry of Northern Development and Mines). 15

Building a Water Well Database for GIS Analysis
By A. Wayne Jones and Kelly A. Barrett (Ohio Department of Natural Resources, Division of Water) 27

Sensitive Aquifers in Ohio – Relationship to Highly Susceptible Public Water Systems
By Christopher Kenah, Michael W. Slattery, Linda D. Slattery, and Michael L. Eggert (Ohio Environmental Protection Agency, Division of Drinking and Ground Waters) 35

GeoSciML – A GML Application for Geoscience Information Interchange
By Stephen M. Richard (U.S. Geological Survey and Arizona Geological Survey) and CGI Interoperability Working Group 47

Open Source Web Mapping: The Oregon Experience
By David Percy (Portland State University) 61

Lidar Basics for Mapping Applications
By James D. Giglierano (Iowa Geological Survey) 65

Geological Map Database – A Practitioner's Guide to Delivering the Information
By Jeremy R A Giles (British Geological Survey) 77

Preservation of North Carolina Legacy Geologic and Topographic Maps: A Cooperative Effort with the North Carolina Geological Survey, North Carolina State University and the Library of Congress
By Jeffrey C. Reid (North Carolina Geological Survey), Jefferson F. Essic (North Carolina State University), Steven P. Morris (North Carolina State University), Smitha Ramakrishnan (North Carolina State University), and Julia L. Harrell (North Carolina Department of Environment and Natural Resources) 85

Saturation and Value Modulation (SVM): A New Method for Integrating Color and Grayscale Imagery
By David W. Viljoen and Jeff R. Harris (Geological Survey of Canada) 87

Unpublished Geologic Evidence and Other Databases of the Kentucky Digital Mapping Program
By Gerald A. Weisenfluh and Douglas C. Curl (Kentucky Geological Survey) . . 101

The Challenges and Benefits of Distributing Digital Data: Lessons Learned
By Kenneth R. Papp, Susan Seitz, and Larry Freeman (Alaska Division of Geological & Geophysical Surveys), and Carrie Browne (formerly with ADG&GS) 107

The Alabama Metadata Portal: http://portal.gsa.state.al.us
By Philip T. Patterson (Geological Survey of Alabama) 113

3D Geological Modeling: Solving as a Classification Problem with the Support Vector Machine
By Alex Smirnoff, Eric Boisvert, and Serge J. Paradis (Geological Survey of Canada) 119

Qualitative and Quantitative 3D Modeling of Surficial Materials at Multiple Scales
By Erik R. Venteris (Ohio Geological Survey) 129

Poster Presentations

Arkansas Geological Commission template for 1:24,000 Scale Geologic Maps
By Jerry W. Clark and William D. Hanson (Arkansas Geological Commission). . 151

Geologic map of the Ouachita Mountain region and a portion of the Arkansas Valley region in Arkansas
By William D. Hanson and Jerry W. Clark (Arkansas Geological Commission). . 153

ArcGIS Geodatabase Schema for Geologic Map Production
By Vic Dohar (Natural Resources Canada) 155

Compression of Digital Orthophotography Collections: Factors to Consider in the Compression of Large Data Sets of Geospatial Imagery
By Deette M. Lund (Illinois State Geological Survey) 159

Converting Adobe Illustrator Maps to ArcMap Format
By Jennifer Mauldin (Nevada Bureau of Mines and Geology). 165

Using GIS to Create and Analyze Potentiometric-Surface Maps
By Paul N. Spahr, A. Wayne Jones, Kelly A. Barrett, Michael P. Angle, and James M. Raab (Ohio Department of Natural Resources) 169

Updates to the Known and Probable Karst Map of Ohio
By Donovan M. Powers and Dennis Hull (Ohio Geological Survey). 171

New Map of the Surficial Geology of the Lorain and Put-In-Bay 30 x 60 Minute Quadrangles, Ohio
By Edward M. Swinford, Richard R. Pavey, Glenn E. Larsen, and K.E. Vorbau (Ohio Geological Survey) 177

Rapid Acquisition of Ground Penetrating Radar Enabled by LIDAR
By David Percy and Curt Peterson (Portland State University) 183

GIS and GPS Utility in the Geologic Mapping of Complex Geologic Terrane on the Mascot, Tennessee 7.5' Quadrangle
By Barry W. Miller and Robert C. Price III (Tennessee Division of Geology). . . 187

Prototype GIS Database for the DNAG Geologic Map of North America
By Christopher P. Garrity and David R. Soller (U.S. Geological Survey) 197

USGS National Surveys and Analysis Projects: Preliminary Compilation of Integrated Geological Datasets for the United States
By Suzanne W. Nicholson, Douglas B. Stoeser, Frederic H. Wilson, Connie L. Dicken, and Steve D. Ludington (U.S. Geological Survey) 203

Banding Birds with MapServer CGI
By Robert S. Wardwell and Kevin W. Laurent (U.S. Geological Survey) 211

Appendix A. List of Workshop Attendees 215