

Technology Transfer Opportunities: On-Demand Printing in Support of National Geospatial Data

Introduction

The U.S. Geological Survey (USGS) and the 3M Company of St. Paul, Minnesota, have entered into a cooperative research and development agreement (CRADA) to investigate maps-on-demand technology to support the production of USGS mapping products. The CRADA will potentially help the USGS to develop on-demand alternatives to lithographic maps and help 3M to develop a series of commercial instant map-printing systems.

Joint Research and Development Program

The CRADA was begun in July 1996, and a joint effort of 16 months is anticipated for the map-on-demand segment. The USGS and 3M may consider future cooperative activities that could extend the CRADA timeline. The CRADA statement of work describes a six-phase program that will investigate both ink jet and electrostatic printing technologies. The map-on-demand CRADA deals with the following topics:

- digital storage and archive systems, software, and media development
- evaluation of user requirements
- customer and user software interface development
- scanning resolution
- map accuracy, geometric correction
- color mapping and calibration
- data access, sources, and data bases
- investigation of geographic information systems (GIS) software

The USGS will provide expertise in map products, color replication, and the use and application of digital data and GIS's.

3M will provide most of the hardware and software used for investigation, both proprietary and commercial off-the-shelf products, and expertise in map product and printing software.

Optimization of ink jet and electrostatic printing systems for replicating USGS map products will be the primary goal of the CRADA, with optimal replication of the 1:24,000-scale topographic map as the primary focus. Thematic map products from the USGS, as well as map products from other cooperating agencies, will also be investigated. Customer assessment activities will be used to gather responses to the prototype map-on-demand product. The USGS and 3M also plan to participate in map trade shows and technical mapping conferences to showcase their progress and solicit responses during the CRADA.

Investigation of electrostatic printing systems will allow the USGS to explore the feasibility of high-productivity map-printing systems, and investigations of ink jet systems will focus on low-volume requirements for use in retail environments.

Benefits of CRADA

A long-term potential benefit for the USGS is to maintain a map inventory designed to meet the demand for specific products while improving customer service. The partnership could ultimately improve USGS responsiveness to our customers by creating systems that will give immediate access to all USGS map products.

3M hopes to commercialize the map-printing systems developed under this CRADA and provide the inks, paper, and other consumables that these systems will use. Of great interest to 3M is the low-cost desktop point-of-sale system that is to be developed under phase 4 of the CRADA. The company believes there is a worldwide market for this kind of technology.

Future Cooperative Activities

The following topics may be jointly investigated by the USGS and 3M after the 16-month CRADA is completed:

- advanced imaging systems development
- print-on-demand for textual data and products
- development of advanced map-on-demand capabilities using Internet interfaces and remote and (or) distributed data bases
- direct digital to plate technology

Additionally, there may be opportunities for other companies to establish partnerships with 3M and (or) with the USGS to explore custom products and services. Integration of GIS capabilities and customization according to user-defined requirements would be the basis for joint investigation.

Information

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Information

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