

Automated Selection of Topographic Base Information from the Global Map Database for Thematic Maps

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Key words:

SUMMARY

While GIS are capable of producing effective maps, generally they provide little assistance with map design for non cartographically trained users. There may be default settings for many parameters, but often these are poor and are inflexible to changing requirements. In order to alleviate this it is necessary to build cartographic knowledge into GIS so that non cartographers can more easily produce sensible maps which adhere to basic principles of cartographic design.

One aspect that knowledge based systems could be applied to is the selection topographic background information to provide context for special topic information in thematic maps. Map authors are understandably primarily concerned with the main topic information so having to spend time considering and selecting appropriate classes of topographic information from a potentially extensive topographic database with many feature classes is a distraction from their overall goal.

The selection of appropriate topographic information will depend upon map topic, map purpose and scale. Based on values for these factors and knowing what information exists in the Global Map database, a knowledge based system can select the appropriate classes of information for display. In order to reduce significant problems of generalisation, the scale of output maps is limited to the 1:1000 000 to 1:10 000 000 range.

In order to create the knowledge base a selection of published maps have been examined for their content. Two aspects have been considered: maps with the same topic at different scales; and maps at the same scale but with different topics. However many published maps represent a compromise by accepting standard topographic base material rather than creating a specific topographic base for the topic. In order counter this problem discussions with practicing cartographers and subject experts have been used to further develop the knowledge base.

While this knowledge based approach may not produce the ideal selection in every case, it will stop important information being overlooked, or information being included that is not relevant to the topic and will allow user of GIS to focus on other issues in analysing their data and producing maps. Improving the ease of use of GIS software will be of major benefit in promoting the wider use of the Global Map in environmental mapping and decision making.

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