

address the following aspects of the applied computer sciences: Contents: Applications of User-Supplied Transformations in Computer-Graphics Programs; Linking Digital Technology to Printing Technology for Producing Publication-Quality Color Graphics; Generating Color Separations of Geologic Maps on the Computer; Digital Spatial Data Technology and Applications; Radon Potential Defined by Exploratory Data Analysis and Geographic Information Systems; Automation of Data Systems — Minnesota's Approach for Water-Use Data.

**Beta Splines Interpolation for DEM's.** Instituto de Pesquisas Espaciais, Sao Jose dos Campos (Brazil). March 1990, 13pp. N91-11415/7/WNR; price code: PC A03/MF A01.

The interpolators used for the densification of Digital Elevation Models normally do not take into account additional information known to the operator, like rivers, lakes (flat areas), or mountain ridges. They interpolate based on the control points only. The Beta-splines curves, on the other hand, have properties that enable the operator to modify the bias and the tension for each cell by assigning values to the parameters beta 1 and beta 2. Thus, it is possible to force the resulting three dimensional surface to acquire a desirable shape. The disadvantage is the relatively large amount of extra calculations, but with the now available faster, and cheaper microcomputers, this disadvantage can be overcome. This work tests the use of Beta-splines interpolators for DEM's running on an IBM-PC-like environment.

## AVAILABILITY OF INTERNATIONAL TOPOGRAPHIC MAPS

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One of the benefits of the political upheaval in Eastern Europe has been the lifting of restrictions on cartographic products, particularly topographic maps. Topographic maps available to the public are newly printed, sanitized versions of military topographic maps. Unfortunately, the Polish and Hungarian topographic maps lack latitude and longitude information, because the maps are based on internal grid systems unique to their countries.

Hungary was the first Eastern bloc country to release topographic maps since World War II. These included maps at scales from 1:10,000 to 1:200,000, at \$22 to \$29 a sheet. For many years Hungary had public access to geologic and other non-topographic maps through Cartographica, a quasi-governmental publishing and export agency, but the release of topographic maps was a real breakthrough.

In early spring, Poland and the German Democratic Republic also released their topographic maps to the public. Both countries released map series at scales from 1:25,000 to 1:200,000 at about \$15 a sheet. Ironically, after becoming available, the East German maps were temporarily unavailable after reunification, due to the consolidation of East and West German ministries.

In late summer Czechoslovakia became the fourth Eastern bloc country to release its topographic maps to the public. These maps also are available at scales from 1:25,000 to 1:200,000 at \$13 to \$16 a sheet.

The Soviet Union also has released its topographic maps for public sale. Although the USSR is completely mapped at the scale of 1:100,000 (26,000 sheets) and

1:50,000 (90,000 sheets), only 99 of the 5,500-sheet series at 1:200,000, and 55 of the 180-sheet 1:1,000,000 series are available. Additional sheets are due to be printed this year. Due to the severe paper shortage in the USSR, only limited numbers of sheets have been printed in non-military versions. Unfortunately, GUGK (Glavnoe Upravlenie Geodezii i Kartografii) has priced the maps at an astronomical \$100 to \$125 a sheet to try to acquire hard currency from the major oil and mining companies. The current prices preclude most customers buying more than a few sheets and puts buying complete sets well beyond any library's budget. Eventually GUGK will have to lower their prices if they are to have any sales volume at all.

The other Eastern bloc countries — Albania, Bulgaria, Romania, and Yugoslavia — have not yet released their topographic maps to the public. Ethnic unrest in these regions has made the governments slow to follow the regional trend. However, travel, tourist, and a few geologic maps are now available for Bulgaria, Romania, and Yugoslavia.

Countries in South America are continuing to publish new topographic maps on a regular basis. Bolivia is leading the way, with nearly 200 new topographic sheets in 1990. Uruguay offers 41 sheets at 1:50,000. Several other countries have printed new sheets, including Brazil and Venezuela, while the PAIGH Commission (Pan American Institute of Geography and History, a body within the Organization of American States) printed new sheets for Venezuela, Argentina, and Chile. But obtaining maps from South America continues to be quite difficult. Several of these countries require prepayment in their own currency, which is difficult to obtain, and take several months to fill an order.

*Geotimes, February 1991*