Bearing Azimuth and Drainage (bAd) Calculator: A Visual Basic Program for Calculation of Bearing, Azimuth and Drainage Basin Parameters

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A computer program called bearing Azimuth and drainage (bAd) calculator has been developed by Mr. A. C. Dinesh, Senior Geologist (Geological Survey of India, Mangalore) in visual basic program which is very useful for creating spatial maps. Using this program, one can perform drainage analysis within no time. When the user opens the bAd calculator, data window and tool bar with commands for calculation of drainage parameters will open. The digitized line features in ESRI shapefile in .txt format are required for input features. Using (bAd) calculator the user can perform the following tasks:

Bearing and Azimuth: The bearing and azimuth data of large number of linear features such as drainage lines, faults and lineaments can be represented in the form of rose diagram using the software. The user can select three ways of representation: (i) as a line diagram, (ii) percentage of total measurements fall in each interval, and (iii) number that falls in each interval. The software also calculates the initial direction, final direction, delta azimuth and weighted average azimuth.

Drainage basin parameters: Drainage parameters such as drainage density, stream frequency, stream order, bifurcation ratio, stream length ratio, sinuosity index, hypsometric integral, length of streams, stream junctions are easily measured by using bAd calculator. The software gives the values of each parameter in a user defined grid interval (e.g. 1 km^2) and later the user can import these values to ArcGIS to prepare spatial maps. One can use digitized drainage lines or extract the drainage from the SRTM data. In case of digitized data, the user must ensure, data are topologically corrected and drainage digitization is done from upstream to downstream. If the user is able to select reversely digitized data, the software will reshape the lines from upstream to downstream. In case of SRTM derived drainage network, one stream of a particular order splits into different parts will results in error in the drainage basin parameters. Using bAd calculator the user can merge the split drainage into a single part. The software also gives the numbers of Survey of India topomaps - both old and new series - of any area by selecting the shapefile of the same area. For better portability and installation no data base is connected with the software. Those who are interested in this software can obtain the copy of the same, free of cost, by sending an email to A.C. Dinesh (acdinesh@rediffmail.com). The program is useful for researchers working in geomorphology and neotectonic studies.