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When performing statistical analysis on multi-element geochemical data, it is often useful to split the data into groups based on the surface lithology. Statistics can then be calculated separately for each group.

Procedure:

First, use the *DEFINE* program to add a *lithology* field to the geochemical sample table. Normally, this will be an INTEGER, ACTUAL field, but could be a TEXT field instead.

Next, digitize a polygonal outline for each of the rock type for which you want to group the data. This can be done with either the *SDIGIT* program or the *POLYEDIT* program. Make sure to use the *Snap* or *Bind* operation with common points on the outlines to ensure that the polygons neither overlap nor have unassigned gaps between them. For each marker, use the code that you wish to assign to the *lithology* field as the polygon marker (id).

Now, run the *LOCATE* program to assign the *lithology* field values. In the *Setup/Fields* menu, enter the fields in the geochemical sample table containing the sample coordinates (X,Y). Depending on how the outlines were digitized, perform the *lithology* assignment in one of the following ways:

> If each of the rock type outlines was written to a separate polygon file, each rock type will be assigned separately. For example, to assign rock type 1, give the name of the type 1 polygon file in the *Polygon* menu, and in the *Assignment* menu, enter the assignment:
>
> *lithology = 1*
>
> Use the *Locate* choice to set the values for this rock type. Repeat the procedure for each additional rock type.
>
> If all of the rock type outlines were written to a single rock type polygon, the task is even easier. Give the name of the single polygon file in the *Polygon* menu. In the *Assignment* menu, give the *lithology* field name as the last entry:
>
> *lithology = Polygon ID MARKER*
>
> Now, when you use the *Locate* choice, each sample location is compared to each of the rock type outlines in the polygon file, and the *lithology* field is given the value of the polygon id from the first polygon in the file which the sample is inside.

Now that the rock types have been assigned to the *lithology* field, statistics can be performed separately for each type by setting a filter in the *Database* menu.

For additional information on the *LOCATE* program, see **“Locate - Locate values within boundaries” on page 1mo-39**. For information on the polygon file format, see section **“Formats” on page appendix-53**.

