

Polygon Data Processing

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Introduction. Important information on bottom types is published in the form of polygons, for instance as shapefiles. For some bottom types such as rock, this is standard. Data pre-processing is required to bring the data so it can be processed like other dbSEABED data. The basic philosophy is to render the polygons as points. If this is not done, the polygons swamp other point-samplings in the area. When it is done, the two sets are complementary, with point samplings showing the agreement with, or exceptions to the polygon mapping.

In some cases the edge nodes are sought, such as for coral reef outlines or sand wave crests. They are thinned to a desired spacing to avoid over-sampling. In other cases the fill area is sought. It is populated with a point cloud generated with Poisson distribution. A boundary spacing between the outer points and the edge is an option. A polygon attribute is joined to the points.

Indexing. The polygon file address and name (without extensions) are entered under a SRC metadata header in a file “xx9_FT.rtf/.txt” in the folder “_db9/_Polygns/”. The MID/MIF set is held in “_db9/xx/” and the raw (e.g., Shapefile) copy is retained in “_db9/xx/-Originals/”. The ESRI program “_shp2mif/shp2mif.exe” is used to generate the MID/MIF, employing the batch file co-located “SHP2MIF_dbSEABED.bat”.

```
0,FMT,<>,*****
1,SRC,Flinn1973_OrkneyShetlandSeafloorPy,Univ Liverpool,D Flinn@Univ
Liverpool,public,public,digimap,digimap,publ paper,N North Sea,1961-1973,1973
1,MIF, FLINN_PY,random,,,,,0.01,Column#2
0,MIF,<data_subset>,Original file name here was "flinn_py"
0,FMT,<>,DATASETend
```

A typical entry in the file “xx_PYFT.rtf/.txt”. “Random” indicates to create a random point cloud as infill, “Column#2” says use the attribute in table 2 of the MID file, and “0.01” indicates to separate by 0.01 units from the outer edge. The SRC format is the same as for the rest of dbSEABED.

Preparation. The polygons are transformed pointwise data with the program “dbS_POLYGON_DATA_*.py”. The output file “py9_xxPY.txt” is processable by “dbS_DPR.BAS” under the collection “py9”. For this copy is transferred to “_db9/_Data/”. In it ‘PYG’ data refers to a single polygon and ‘PIP’ to Point-In-Polygon point cloud fill. The other file “xx_PYPT.txt” is for checking the output quality using a GIS.