



## Modis Product Extractor

Modis Product Extractor is a tool designed to extract data from HDF files of Modis products. To projection the coordinates in this data extraction, the tool utilizes the [Unidata Java NetCDF library](#). Below are the codes used to extract data for a specific point:

```
ucar.nc2.dt.grid.GridDataset gds =
ucar.nc2.dt.grid.GridDataset.open(fileName);

ucar.nc2.dt.GridDatatype grid =
gds.findGridDatatype(VariableName);

ucar.nc2.dt.GridCoordSystem gcs = grid.getCoordinateSystem();

var xy = gcs.findXYindexFromLatLon(lat,lon, null);

var dd = mainVar.read(new int[2] { xy[1], xy[0] }, new int[2] {
1, 1 });
```

In the second tab, you can define a region. During this process, the tool's underlying code generates an enclosed rectangle for your specified region and checks all the Modis cells within this rectangular area to determine whether they are within your defined region or not. During extraction, all cells outside your designated region will be assigned a value of -99, while cells within the region will retain the values retrieved from the HDF file, which may include numeric values or NaN, depending on your HDF files.



When we need to verify which cell from the file falls within the user-defined polygon, we employ the [NetTopologySuite](#) library in conjunction with the following code:

```
data[i,j].IsInA =  
NetTopologySuite.Algorithm.CGAlgorithms.IsPointInRing (new  
GeoAPI.Geometries.Coordinate(it.Lon,it.Lat) ,  
polygon.Shell.Coordinates) ;
```

To read a shapefile, we utilize the "[Catfood.Shapefile](#)" library, a .NET-based tool designed for read-only enumeration of ESRI shapefiles. This library supports all 2D shape types, including Point, MultiPoint, PolyLine, and Polygon, along with their associated metadata.