

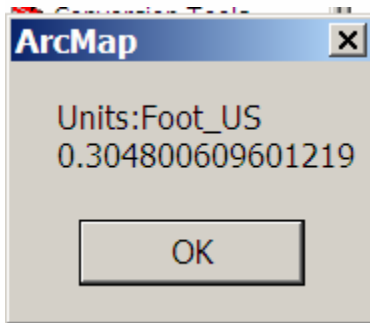
ArcObjects: ISpatialReference Due by Friday 6pm

Modify your VBA code from last week by first checking that your feature class is in a projected coordinate system. Then compute the area of each polygon in m² and hectares.

You can use the ***ILinearUnit.ConversionFactor*** property to convert the units to meters. For example:

```
Dim pMxdoc As IMxDocument, pFeatureLayer As IFeatureLayer, pFeatureClass As IFeatureClass
Set pMxdoc = ThisDocument
Set pFeatureLayer = pMxdoc.ActiveView.FocusMap.Layer(0)
Set pFeatureClass = pFeatureLayer.FeatureClass

Dim pGeoDataset As IGeoDataset, pSpatialReference As ISpatialReference
Set pGeoDataset = pFeatureClass
Set pSpatialReference = pGeoDataset.SpatialReference
Message = MsgBox(pSpatialReference.Name, vbOKOnly, "Coordinate System: ")
Dim pUnit As ILinearUnit, pProjectedCoordSys As IProjectedCoordinateSystem
Set pProjectedCoordSys = pSpatialReference
Set pUnit = pProjectedCoordSys.CoordinateUnit
MsgBox "Units:" & pUnit.Name & vbNewLine & pUnit.ConversionFactor
```



Download the winzipped file ***polygons.exe*** from <http://nrm.salrm.uaf.edu/~dverbyla/nrm638/data/>

The unzipped folder will contain three polygon themes in three different coordinate systems and units...you can use these to test drive your VBA code.



The coordinate systems all are different:

Version 1 is in feet:

```
Projected Coordinate System: NAD_1927_StatePlane_Alaska_4_FIPS_500
Projection: Transverse_Mercator
False_Easting: 500000.00000000
False_Northing: 0.00000000
Central_Meridian: -150.00000000
Scale_Factor: 0.99990000
Latitude_Of_Origin: 54.00000000
Linear Unit: Foot_US
```

Version 2 is in cm:

```
Data Source
Projected Coordinate System: Mercator_plot
Projection: Transverse_Mercator
False_Easting: 0.00000000
False_Northing: 0.00000000
Central_Meridian: -147.00000000
Scale_Factor: 0.99600000
Latitude_Of_Origin: 0.00000000
Linear Unit: Centimeter
```

Version 3 is in meters:

```
Projected Coordinate System: NAD_1927_UTM_Zone_6N
Projection: Transverse_Mercator
False_Easting: 500000.00000000
False_Northing: 0.00000000
Central_Meridian: -147.00000000
Scale_Factor: 0.99960000
Latitude_Of_Origin: 0.00000000
Linear Unit: Meter
```

Your VBA code should return the following polygon areas in m² and hectares:

Attributes of polygons_version1					
FID	Shape *	OBJECTID	meters2	hectares	
0	Polygon	1	32483.617744	3.248362	
1	Polygon	2	60703.855878	6.070386	
2	Polygon	3	385608.780916	38.560878	

Attributes of polygons_version2					
FID	Shape	OBJECTID	meters2	hectares	
0	Polygon	1	32227.167805	3.222717	
1	Polygon	2	60224.802816	6.02248	
2	Polygon	3	382567.905331	38.256791	

Attributes of polygons_version3					
FID	Shape	OBJECTID	meters2	hectares	
0	Polygon	1	32460.556309	3.246056	
1	Polygon	2	60660.949632	6.066095	
2	Polygon	3	385338.454438	38.533845	

Email me (D.Verbyla@uaf.edu) your VBA program by Friday.

<http://nrm.salrm.uaf.edu/~dverbyla>