
Subject: Adding shapefiles to globe model

Posted by [Pete Warner](#) on Thu, 24 Aug 2006 17:06:15 GMT

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I've been moving from direct graphics to object graphics in IDL and stumbled onto the problem of displaying maps in object graphics. I mashed out some code to read a shapefile and display the contents on a globe. With the hope that this helps someone as much as this board has helped me I am posting my solution. Of course I have the ulterior motive of having someone find mistakes or suggest improvements.

```
#####
```

```
;function to convert latitude, longitude value
```

```
;in degrees to cartesian coordinates on a globe
```

```
;radius = the radius of the sphere the points are on
```

```
function toglobe, locations, RADIUS=radius
```

```
compile_opt idl2
```

```
if n_elements(radius) eq 0 then radius = 1.0d else $
```

```
    radius = double(radius)
```

```
size_arr = size( locations )
```

```
locations[1,*] = 90.0d - locations[1,*] ;convert latitude to  
colatitude
```

```
locations[0,*] = 90.0d - locations[0,*]
```

```
locations = locations * !DTOR ;convert latitude, longitude to radians
```

```
cartesian = radius * $
```

```
  [cos(locations[0,*])*sin(locations[1,*]), $
```

```
  cos(locations[1,*]), $
```

```
  sin(locations[0,*]) * sin(locations[1,*])]
```

```
return, cartesian
```

```
end
```

```
#####
```

```
function read_shapefile, file, RADIUS = radius, SKIP=skip
```

```
compile_opt idl2
```

```
radius = (n_elements(radius) gt 0) ? radius : 1.0
```

```
skip = (n_elements(skip) gt 0) ? skip : -1
```

```
model = Obj_new('IDLgrModel')
```

```
shapefile = Obj_New('IDLffShape', file)
```

```
shapefile->GetProperty, N_ENTITIES=num_ent
```

```
; Read all the entities.
```

```
FOR i=0, (num_ent-1) DO BEGIN
```

```

;Read the entity x
ent = shapefile->GetEntity(i)
for j = 0, (ent.n_parts-1) do begin
  if ( where( skip eq i ) eq -1 ) then begin ;skip selected shapes
    index_begin = (*ent.parts)[j]
    index_end = (j ne ent.n_parts - 1) ? $
      (*ent.parts)[j+1] - 1 : ent.n_vertices-1
    current_verts = (*ent.vertices)[*,index_begin:index_end]
    points = toglobel( current_verts, RADIUS=radius )
    oshape = obj_new('IDLgrPolyline', points)
    model -> add, oshape
  endif
endfor
shapefile->DestroyEntity, ent ;Clean-up of pointers
ENDFOR
obj_destroy, shapefile
return, model
end
;#####

```

example use:

```

countryFile = Filepath(Subdirectory=['resource', 'maps', 'shape'], $
  'cntry02.shp')
ocountries = read_shapefile(countryFile)
xobjview, ocountries

```
