GIS EXERSISE:

A. Create a new raster representing the mean population plus one standard deviation based on all population rasters provided (including estimates), and name it *onestd_pop.* pop

B. Then calculate the difference of the population of year 2005 to the *onestd_pop* population raster that you calculated in the previous step.

C. In a single A4 map present all rasters after having selected appropriate symolization. Include in the same page the actual formulas used in the *Single Output Map Algebra* tool.

D. Prepare a map in ArcMap using symbols of your choice. The region should contain all Greece. The map should be presented in a single A4 page including a title, a legend, your details and anything else you think appropriate. The content should include:

   a. DEM fused with the shaded relief.
   b. Settlements
   c. Coastline
   d. Rivers
   e. Lakes
   f. Settlements_area
   g. Countries
   h. The sea zone between 6 and 12 nautical miles around the coastline.

E. An investor is looking for suitable land in order to build a holidays' resort near Volos. You are the GIS expert and you are given the following factors in order to propose locations. Only Magnesia prefecture mainland is of interest. The location criteria are :

   a. Maximum distance to the settlements and to the coastline 10 and 3 km respectively.

   b. Minimum distance to the transportation network (all categories) 3 km.

   The deliverable is an A4 page map showing the proposed locations on suitable background, using the existing data, in pdf.

F. You need to add a new information layer in your vector_exercise folder in order to display the beaches of Pelion. As the source of this information you are given the image map called Map_of_Pelion.tif. You need to take the following steps

   a. Georeference the image Map_of_Pelion.tif using as reference a suitable (i.e. that you can identify common points) existing layer in your vector_exercise.

   b. Create a new point SHAPEFILE (you need ArcCatalogue for that) and call it beaches.shp.

   c. Digitize the beaches of Pelion marked with the umbrella symbol on the TIFF image (as points not lines!) using the georeferenced image and store it in beaches.shp.

   d. Make a map showing the georeferenced Map_of_pelion.tif and on top of it the
      i. rivers.shp
      ii. coastline.shp
      iii. beaches.shp

   the deliverable of this part is this map in A4 in pdf.

The overall final deliverable is four A4 pages in total preferable in a single pdf document. Please make sure you include your details (name, email etc) somewhere within those two pages. Marks: Content = 7, symbols = 2, general layout = 1. Please email it to dimitris.stathakis@jrc.it before the deadline.

Deadline: May 15, 2007