ESS111

TUTORIAL 3 – HYDROSPHERE & CRYOSPHERE

The purpose of this practical is to apply your knowledge and understanding of the many factors that impact on the quality and general ecological functioning of fluid and solid state (fresh) water bodies. These factors individually and collectively can trigger processes that may have dire environmental consequences if not managed properly. Water (fluid) is arguably the most important earth systems resource and it is therefore imperative to understand how excessive biotic and abiotic influences manifest themselves in water bodies.

Use the map attached and do/answer the following:

Source: www.lake-victoria.net/.../lake-victoria-map.gif

1. The map includes some of the world's most spectacular earth features (that are also huge tourist attractions) related to the hydrosphere, the lithosphere, the biosphere in the form of a world renowned conservation area, and the cryosphere.
   Name these features and indicate in which countries they are located.

2. Eutrophication is a major problem in Lake Victoria, Africa's largest and the world's second largest inland fresh water body.
   Source information on eutrophication and explain what it is, what causes it, and what its general consequences are. Acknowledge the reference(s) that you have used in this regard.
3. Indicate now in the water body on your map (use your own legend) where you think eutrophication will be very prevalent and/or excessive. Briefly explain your locations.
4. The lake is used for a variety of purposes, among other for international boat travel between neighbouring states. If you travel for example on a straight line route from Bukoba to Kisumu, you will traverse territorial inland waters of 3 countries namely Tanzania, Uganda, and Kenya. What do you think is/should be included in the water management agreements between these countries in relation to navigation on the lake?

5. Look at the picture of Mt Kilimanjaro and answer/do the following:

Source: www.everlastingz.com

(a) What are the (possible) reasons for the receding ice cap of Mt. Kilimanjaro?
(b) Source data that illustrate how the ice cap has receded and compile it in a simple table that includes % receding over time/time periods. Acknowledge the reference(s) that you have used in this regard.
(c) Use now the data in your table to generate (e.g. in Excel) or hand draw a simple line graph to show the time line decrease in ice surfaces on the mountain.
(d) What are the consequences of receding ice caps/glaciers and what in your opinion can/should be done to address the problem of a receding cryosphere?

NB!: You may work individually or in groups of maximum five. Submissions preferably to be typed out. Please reference all the sources that you have used. Due date - 3 March 2011 @ 1400.