

Petroleum Geology ta3450
Written Examination, October 29, 2003

Prof. Dr. Stefan M. Luthi

The following questions should be answered as concisely as possible (this is part of the rating I will use). Please mention your name and student number at the top of each sheet.

1. Make a sketch of the carbon occurrences on the earth and indicate in percentages of the total how much of it is at a given time at a certain place. Show with arrows the various pathways, including those that form a cycle.
2. Name and describe the factors that lead to a mature oil source rock. Use a diagram if you want to.
3. Name the principal hydrocarbon groups and their relative distributions in the distillation fractions after refining.
4. Describe differential entrapment, perhaps with the aid of a sketch, in various stages. Also describe why explorationists are puzzled by it and how they can verify that they are dealing with this kind of situation.
5. The sketch below shows an oil field in young (Tertiary) turbidite sandstones, with the accumulation conditions and several wells. Describe how you think migration and trapping occurred here. What is the role of the faults? Why was a well drilled entirely in the fault? Watch the geological layers: Do you observe anything specific (from old to young: To = Oligocene; Tm = Miocene; Tp = Pliocene)?

