

SIO 115 Homework 8 (due Friday 10th March): *Glacier dynamics & hydrology*

Please write your answers on a separate sheet with your name clearly written at the top. You will be graded on your writing style as well as the content of your answer. The marks for each partial answer are in parentheses. Please be careful with units and significant figures.

***** PLEASE FILL IN YOUR CAPE EVALUATIONS *****

1. CAPE form.

Did you fill out your CAPE form? [Answer: Yes or No!] [You only get the points if you put yes!] [2]

2. Term paper.

Please write a draft *outline* for your term paper (300-500 words). Include the major subheadings that will be used for the report, and a brief summary of what will be in each section. Please use a standard format for all references. [10]

3. Glacier and ice sheet movement.

- (a) What are the two main mechanisms by which a glacier moves? [2]
- (b) Which is the dominant mechanism on a temperate glacier in the summer? [1]
- (c) Which is the dominant mechanism on an ice shelf? [1]
- (d) What are the four primary factors that control how fast a glacier will flow? [4]
- (e) How is ice-sheet flow measured and monitored? [2]

4. Supraglacial and subglacial lakes.

- (a) What is the source of the water in *supraglacial* lakes in Greenland? [1]
- (b) What is the source of the water in *subglacial* lakes in Antarctica? [1]
- (c) Do you think it is likely that *supraglacial* lake drainage is going to become more frequent as climate changes? Why? [2]
- (d) Do you think it is likely that *subglacial* lake drainage is going to become more frequent as climate changes? Why? [2]
- (e) What are the differences between a *channelized* and a *distributed* (linked cavity) subglacial drainage system? [2]