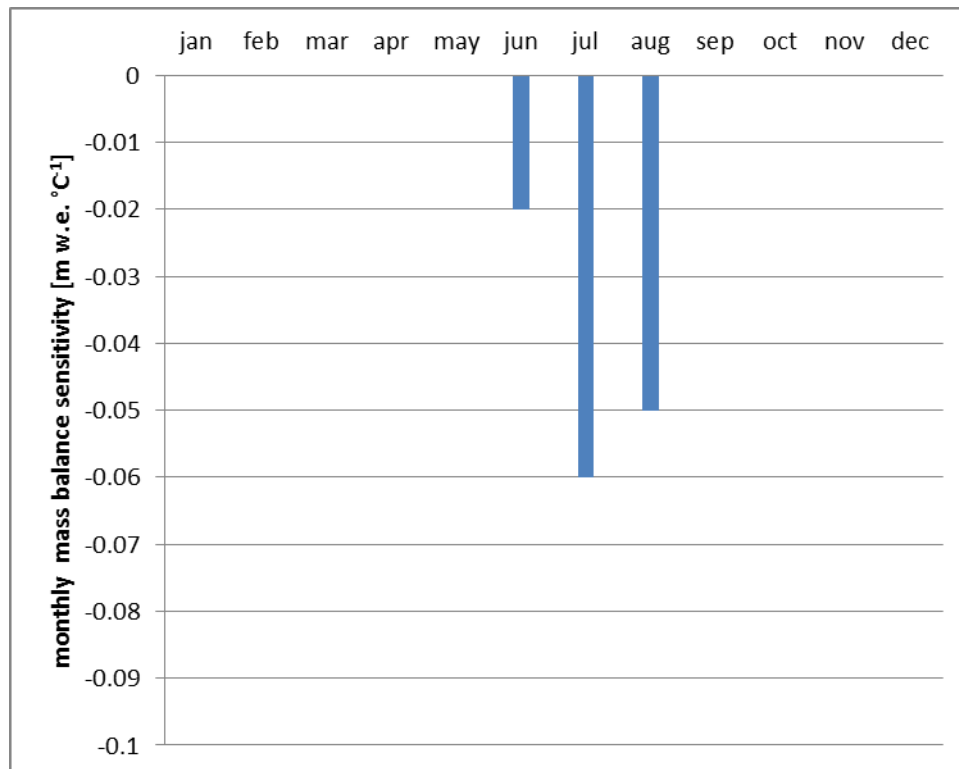# Glacier sensitivity problems

Supplementary info on board:

Seasonal sensitivity characteristics of Devon Ice Cap:

A climate model projects an increase in annual air temperature of 2°C by 2050.

The temperature increase is not uniform throughout the year but warming is more pronounced in winter: The increase in winter (Oct-March) is 3°C and in summer 1°C.

The current annual specific mass balance is -0.5 m a⁻¹

Questions:

1. Compute annual mass-balance sensitivity for Devon Ice Cap
2. What is the specific mass balance in 2050 using annual sensitivities and annual mean temperature increase?
3. What is the specific mass balance in 2050 using the seasonal sensitivity characteristic and the seasonally variable temperature increase?
4. Why do results differ?
5. In reality the specific mass balance will probably be different because there are a number of assumptions. Will the specific mass balance be over- or underestimated by your approach? Why?