

Practical 8:

Age equation and data-model comparisons

Aims:

Get a feel for what controls age-depth

Learn how to ‘tune’ a model to observations.

Understand some of the limitations of this type of ‘inverse method’

The age equation

$$\frac{\partial A}{\partial t} = 1 - w \frac{\partial A}{\partial z}$$

A is the age

t is time

w is vertical velocity (positive upwards)

z is vertical position (positive upwards)

$$A(z = H) = 0$$

$$w = -a \left(1 - \frac{(p+2)z}{(p+1)H} + \frac{1}{1+p} \left(\frac{z}{H} \right)^{p+2} \right)$$

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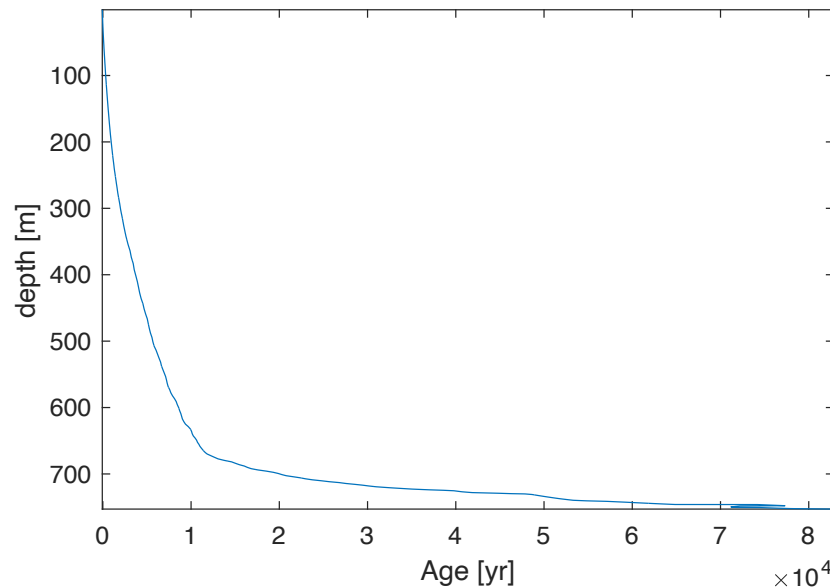
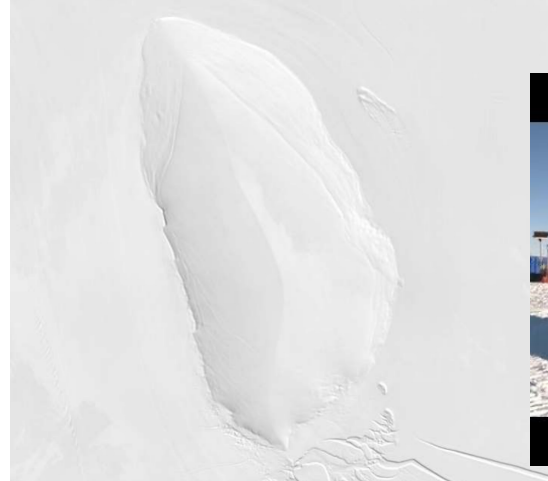
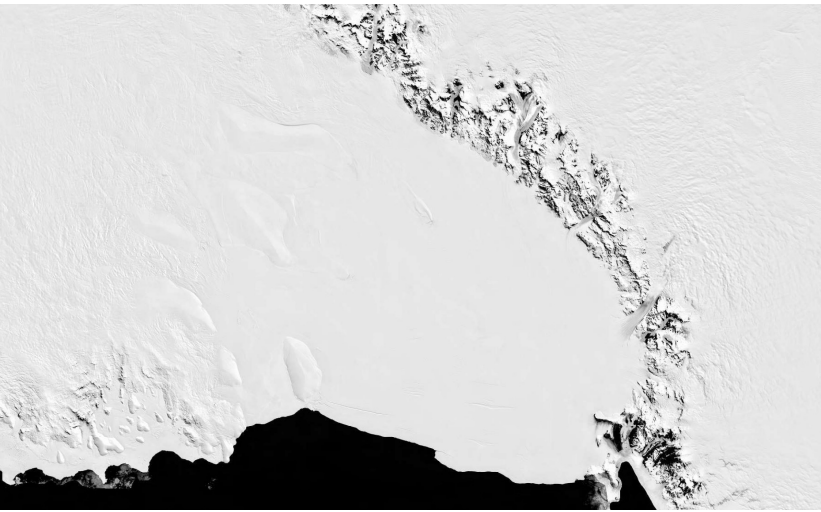
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Model has
two
parameters
a, p

Observed age-depth from Roosevelt island



We have a model and we have data. Can we use this to learn something about climate or ice dynamics?