ESS 533 Dynamics of Ice and Snow
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Notes from class 3/26

We started class going through the syllabus and convincing ourselves that ice can be dynamic and interesting to study. We looked at slumping snow, before and after avalanche pictures, crevassed ice fields, all evidence that snow and ice can deform, occasionally, very rapidly. We touched on the tetrahedral structure of ice and some of the properties of the unit crystal before building a framework to understand ice flow via conservation of volume. In this discussion the flux of mass flowing into a volume equaled the difference between accumulation and ablation at the top of our volume (bdot), plus the difference between accretion and melt at the bottom of the ice mass, plus the flow inside the solid which we can describe as the integral from the bottom of the volume to the top of the volume of the density rho(x,y,z) in the volume at each point time the velocity u (x, y, z). We finished class by posing the question is the depth averaged density times the depth averaged velocity equal to the depth average of density time velocity. As it turns out, this equality does not hold.