



The mesoscale morphologies of ice films: porous and biomorphic forms of ice

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We present the results of experiments in which we grew ice films at temperatures of 6—220 K and at low pressures *in situ* in a cryo-ESEM microscope. We find that ice films show pronounced morphologies at the mesoscale consistent with the empirical structure zone model of film growth. As well as verifying this model for ice films and furthering the understanding of the physics involved in the production of the morphologies, our experiments are aimed at discovering the mesoscale morphologies of amorphous and crystalline ice with regard both to laboratory work on ice structure, and to atmospheric applications in Earth and other planets, as the conditions in which the ice films grow in our experiments are those under which exists most of the ice present in space. An intriguing finding is that these ice films sometimes emulate biological forms.