The surface of ice exhibits the swath of phase transition phenomena common to all materials and as such it acts as an ideal test bed of both theory and experiment. It is readily available, transparent, optically birefringent and probing it in the laboratory does not require cryogenics or ultra high vacuum apparatus. Systematic study reveals the range of critical phenomena, equilibrium and nonequilibrium phase transitions and, most relevant to this talk, premelting, traditionally studied in more simply bound solids. While this makes ice as a material appealing from the perspective of the physicist, its ubiquity and importance in the natural environment makes ice compelling to a broad range of disciplines in the earth and planetary sciences. I describe important aspects of the physics of ice and
then we develop a number of the many tendrils of the basic phenomena as they play out on land, in the polar oceans and throughout the atmosphere.

Fri. February 2nd, McCook Auditorium, 3:00 pm, Refreshments 2:45 pm