

diatoms in EPS-filled pores in natural sea ice

protects microorganisms
against **osmotic shock**:

highly concentrated brine
fresh water from melt ponds

antifreeze, cryoprotectant

depresses freezing point

physical barrier from ice crystals

Transmitted light with
Alcian Blue stain for EPS

Jody Deming and Christopher Krembs

Extracellular Polysaccharide Substances (EPS)

polysaccharides with carbon backbones of high molecular weight

exopolymers ***algal mucous***

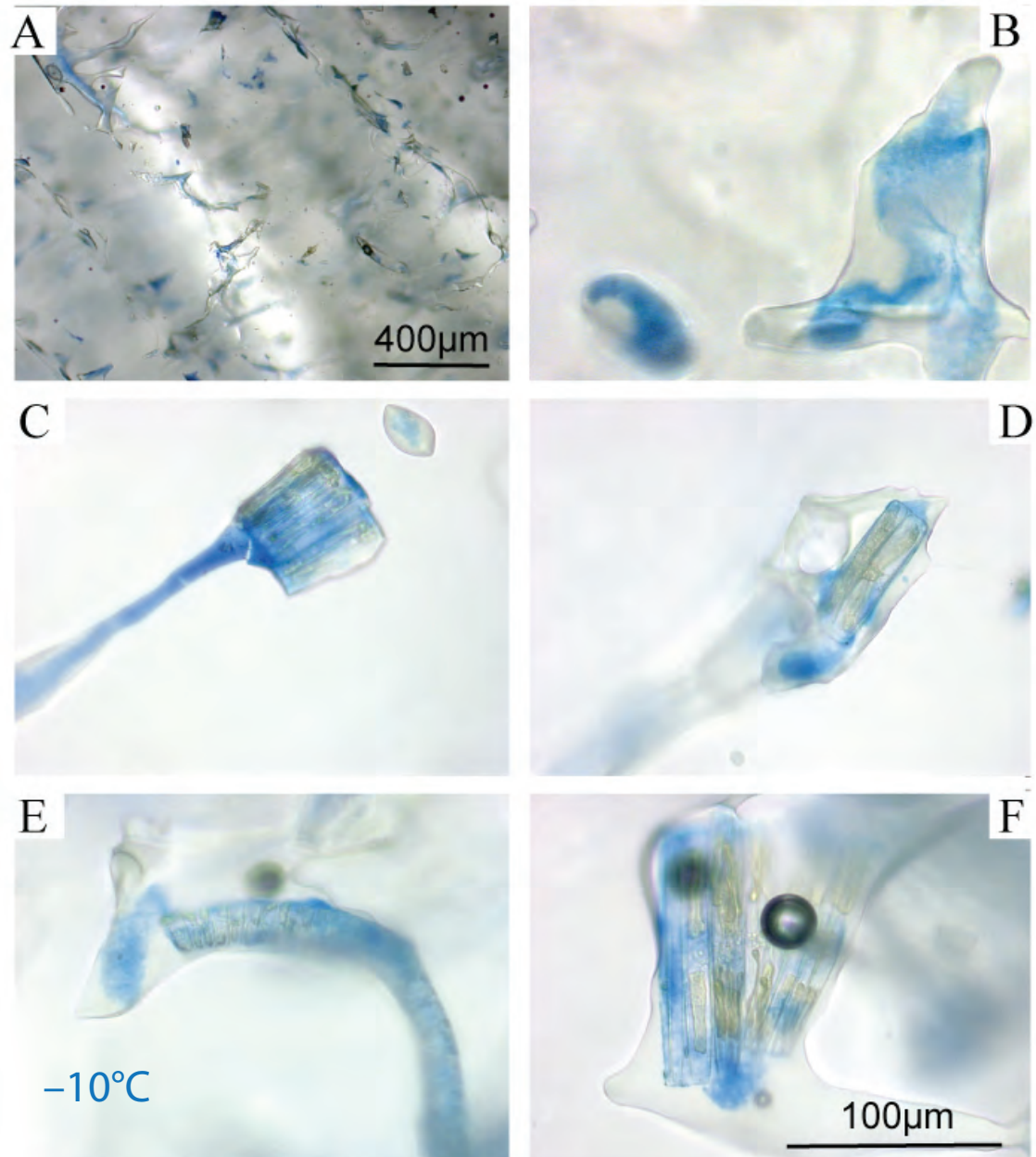
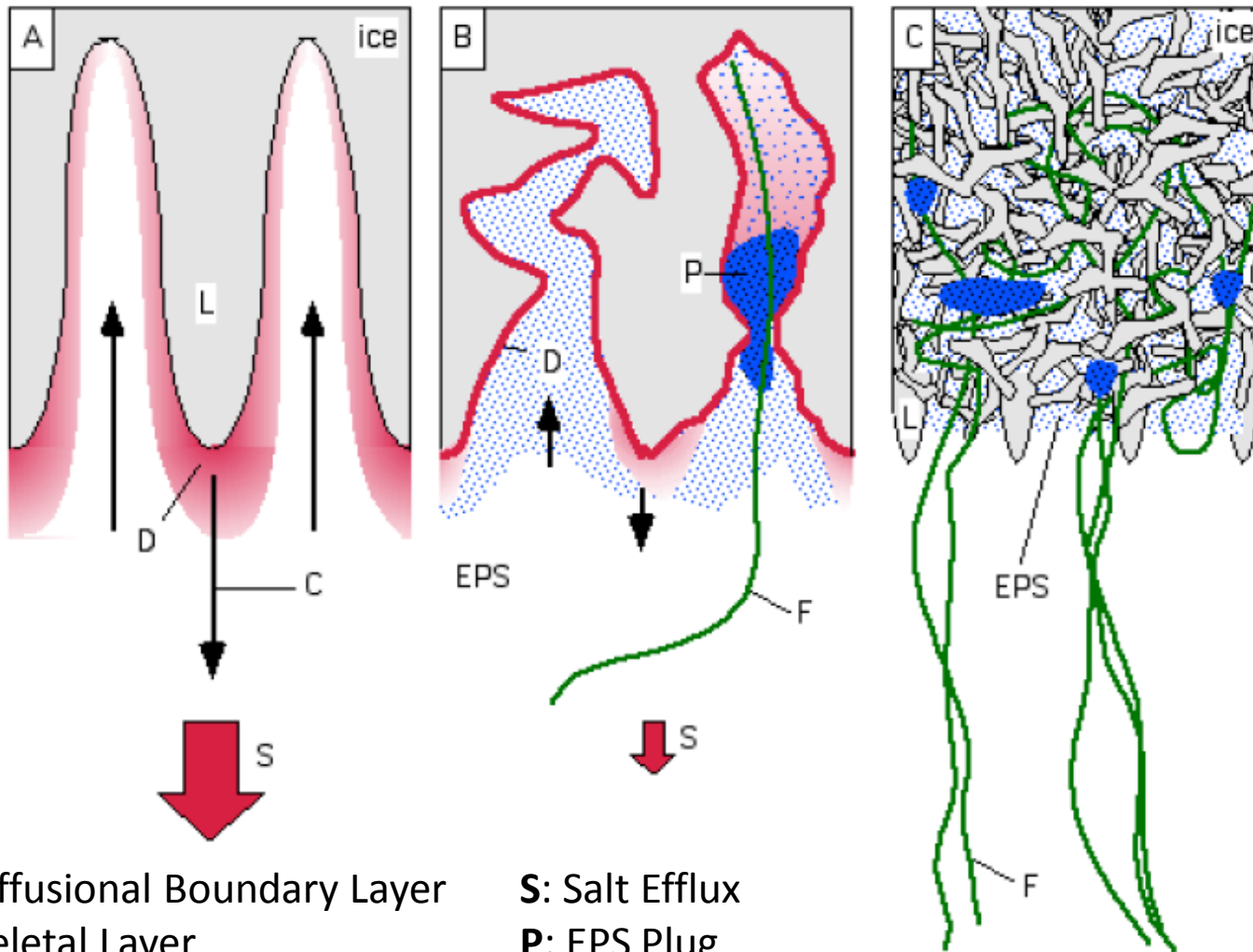


Fig. 1 Krembs et al.

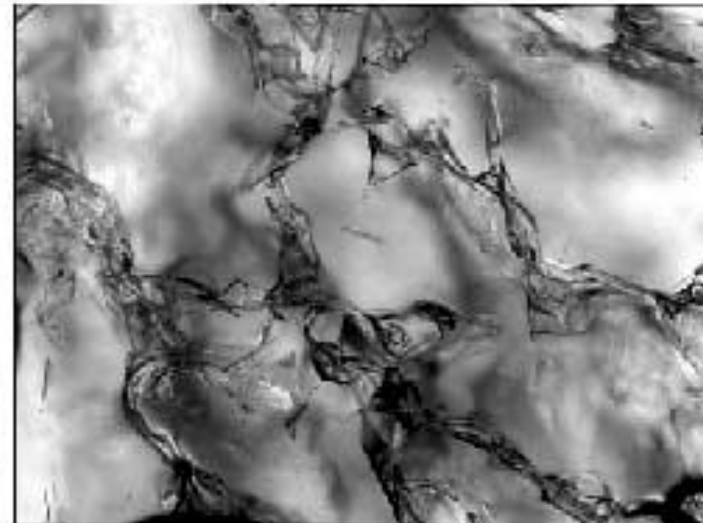
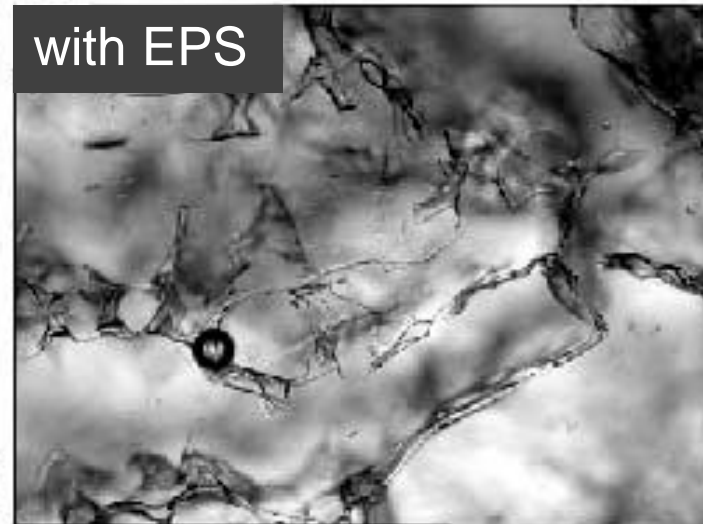
EPS changes the microstructure of sea ice.



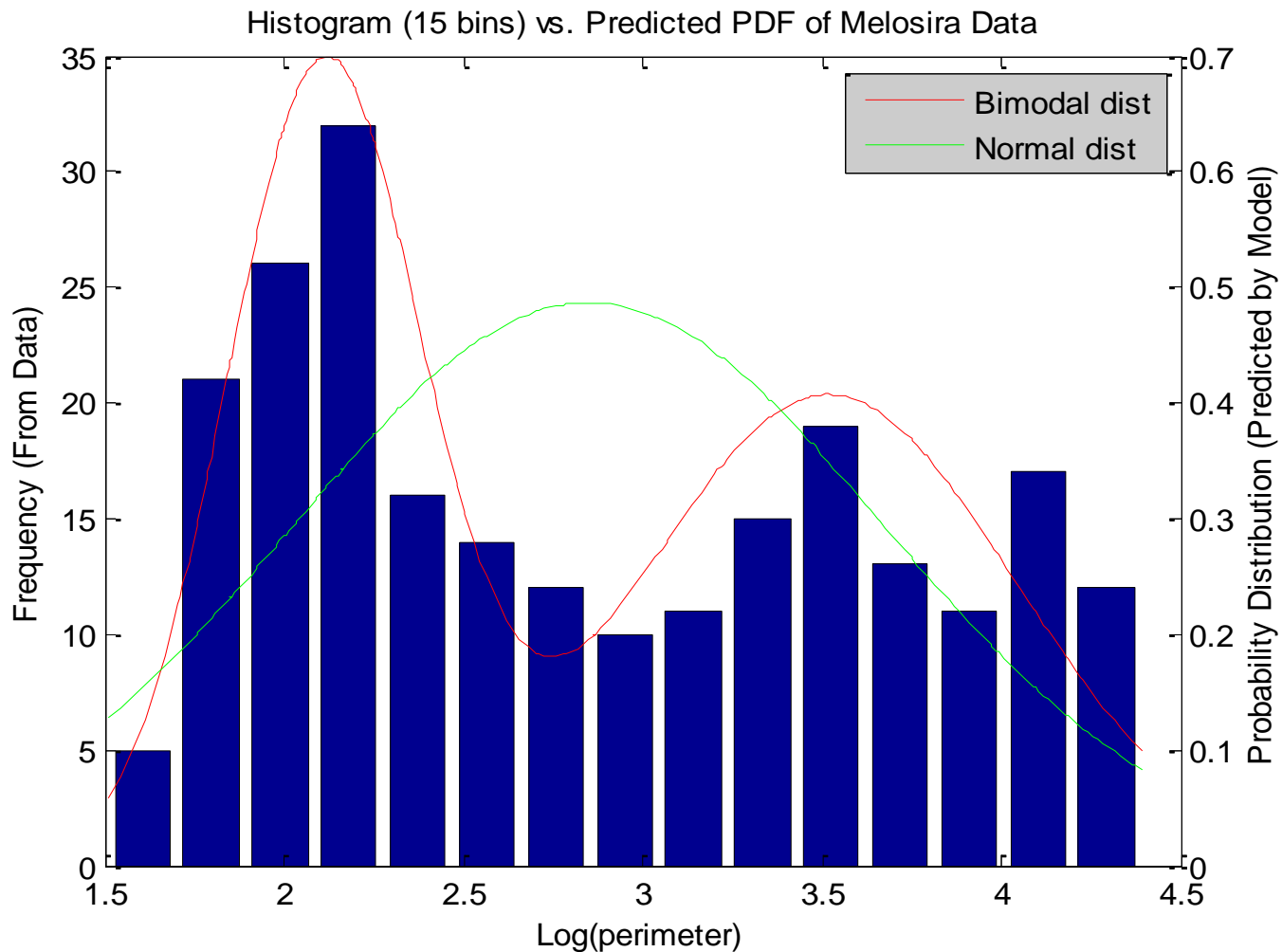
D: Diffusional Boundary Layer
L: Skeletal Layer
C: Brine Convection

S: Salt Efflux
P: EPS Plug
F: Diatom Filament

EPS changes the microstructure of sea ice.



Inclusion Distribution In Presence of EPS



A New Distribution

$c = 0.47$
 $\mu_1 = 2.113$
 $\sigma_1 = 0.272$
 $\mu_2 = 3.518$
 $\sigma_2 = 0.519$