

Advanced ice sheet modeling: Lagrangian particle models for ice sheet and ice shelf dynamics

Alexandre Tartakovsky[†]; Wenxiao Pan; Zhijie Xu

[†] PNNL, USA

Leading author: alexandre.tartakovsky@pnl.gov

Novel Lagrangian particle models for coupled ice sheet and ice shelf dynamics are developed. Smoothed Particle Hydrodynamics model is used to simulate flow of ice sheet and ice shelf. Discret Element Method model is used to simulate fracturing of the ice shelf. Comparison with analytical solutions and experimental results confirms the accuracy of the models.