

论文

微粒对多晶冰及冰川流变行为的影响——(I) 基于位错的弛豫模型

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摘要 为量化冰及冰川在流变过程中位错密度随流变应力的变化,发展了一个基于位错的非线性弛豫模型.模型的计算表明:在冰的指数蠕变阶段,滞弹性试验所形成的应力/应变滞后环的宽度与面积随流变应力的增加呈线性增加,位错密度随流变应力的增加呈平方增加;在冰的线性蠕变阶段,滞弹性试验所形成的应力/应变滞后环的宽度、面积和位错密度保持不变.

关键词 [冰与冰川](#) [位错](#) [弛豫](#) [流变](#) [非线性模型](#)

分类号

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Effect of fine particles on the flow behavior of polycrystalline ice and glaciers— (I) a dislocation based relaxation model

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Abstract A dislocation based nonlinear relaxation model has been developed to quantify the variations of dislocation density in ice and glaciers as a function of flow stress during flow processes. The calculation based on the model indicates that during the power law creep stage, the stress/strain hysteresis loop width and area increase linearly with the creep stress, and dislocation density increases as a second power with the creep stress; while during the linear creep stage, the stress/strain hysteresis loop width, area and dislocation density remain constant.

Key words [Ice and glacier](#); [Dislocation](#); [Relaxation](#); [Flow](#); [Nonlinear model](#)

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