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Ising-Type Models Applied to Geophysics

Abstract: The classical Ising model was used in ferromagnetism. It describes the behavior of atoms in a lattice. The atoms can interact only with it's neighbors, and have only two states called spins. When the atoms polarize their spins the material evidences a net magnetization. A similar model has been used before in financial math: each trader can buy or sell and the analogy is that the market crash happens when all the traders in the market start to sell. In this work we present extensions and applications to Geophysics.