



Subgrid approach to the simulation of solar plasma flows and instabilities

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Our model studies of the initiation of CMEs aim at a better understanding of the links between the evolution of the observable solar (photospheric) magnetic fields and flows and the resulting large scale heliospheric flows (Solar Wind, CMEs). This includes the consideration of plasma (micro-) turbulence in the source region, which is a subgrid process for our large scale (MHD) plasma simulation model. In particular the electric resistivity plays a key role. It influences to the amount of released magnetic flux and energy and triggers their dissipation. We have been studied the influence of different subgrid-resistivity models and their influence to the evolution of magnetic field and energy release solar active regions. For this sake we applied numeric 3D resistive MHD models. Initial conditions for simulations are set according to observations by SOHO and SDO spacecraft. Plasma and magnetic field parameters are derived from magnetograms and serve as input parameters for the code. First results of these investigations are presented.