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Search for a self-consistent solar wind model

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We describe a solar wind 1-fluid 1D model which is (1) time-dependent (2) includes transition region down to solar surface (3) uses a moderate number of grid points to enable further generalization to 2D/3D. The present model enables to study the response of the transition region and corona to photospheric pressure perturbations, including the solar wind up to several tens of solar radii. A simple chromosphere model with uniform temperature is used, in two different forms, either taking into account partial ionization or not.
We study in particular viscous heating and stability of the transition region oscillations when varying the parameters of the model.