Poster 2 Anuchin & Anuchin

Second order closure turbulence model (1D code MUZA), empiric constants fitting

Mikhail Anuchin & Maksim Anuchin

Russian Federal Nuclear Centre – Zababakhin All-Russian Institute of Technical Physics,
Snezhinsk, Russia
M.G.Anuchin@VNIITF.ru

A second order closure model for compressible turbulent flows is proposed. Closure hypothesis are based on the analogy to that for incompressible and stratified flows.

A short-cut variant of the model with algebraic equations for turbulent fluxes is formulated in local equilibrium approximation. In the frame of algebraic model the problem of turbulent mixing layer development on an interface between two fluids is considered for small density drop. Estimations of empiric constants values are fulfilled using experimental data on shear and gravitational mixing at the interface and atmospheric surface layer also.

The model is implemented in 1D hydrodynamic code “MUZA”. Raleigh-Taylor turbulence test simulations approved the model adequacy. Numerical optimization of empiric constants gives the values close to the estimated ones.