ransX framework

Developer's Guide

Date	Version	Person	Change
30/March/2019	1.0	Miroslav Mocak	Initial instructions

This guide serves as a knowledge base for anyone wanting to understand details of the ransX framework and develop it further.

ransX as a framework has two main computational parts:

- calculation of space-time averages at runtime of hydrodynamic code over time between two consecutive data dumps, where details of implementation will differ from code to code
- post-processing of these space-time averages over required time range (typically several convective turnover timescales) using python

Calculation of space-time averages in hydrodynamic code based on implementation in PROMPI

For more details, see ransXimplementationGuide.pdf, Section 2.

Structure of the Post-processing Python Code Repository

ransX\DATA\TSERIES - post-processed space-time averages from hydrodynamic code

ransX\DATA\RANSDAT - running averages from hydrodynamic code

ranxX\DOCS - documentation (theory/user/implementation/developers guide)

ransX\EQUATIONS - classes each dedicated to a specific RANS equation

ransX\PARAMS - parameter files for specific simulations

ransX\RESULTS - directory for result plots

ransX\UTILS - classes for calculus, data and parameter reads, plotting control

ransX\param.ransx - parameter file controlling output plots from ransX.py

ransX\param.single - parameter file controlling ransX_single.py

ransX\param.tseries - parameter file controlling ransX_tseries.py

ransX\ransX.py - primary plotting script

ransX\ransX_tseries.py - script for calculations of averages for a given time range

ransX\ransX_single.py - script for plotting mean fields from a single randat file

Script ransx.py

Script ransx_tseries.py

Script ransx_single.py

Class MasterPlot.py

Class Calculus.py

Class PROMPI_data.py

Class ContinuityEquationWithTurbulentMassFlux.py

Related Documents

RansXtheoryGuide.pdf

RansXinstallationGuide.pdf

RansXimplementationGuide.pdf

RansXdevelopersGuide.pdf

RansXuserGuide.pdf