InterpTools

Interpolation Tools

User's guide

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The purpose of InterpTools is to provide tools to localize data in grids and compute interpolation coefficients.

The tools are provided as a library of modules, which can be easily plugged in any existing software. This library includes:

- localization and interpolation in 1D grid;
- localization and interpolation in 2D grid in Cartesian coordinates;
- localization and interpolation in 2D grid on the sphere;

1 Description of the modules

In this section, the modules are described one by one, giving for each of them: the method that has been implemented, the list of public variables and public routines (with a description of input and output data), the MPI parallelization, and an estimation of the computational cost as a function of the size of the problem.

1.1 Module: interp

The purpose of this module is to localize data in input grids and compute linear interpolation coefficients.

Method

Public variables

None.

Public routines

grid1D_locate: localize data in a 1D grid;

grid1D_interp: compute interpolation coefficients in a 1D grid;

grid2D_init: define the type of grid;

grid2D_locate: localize data in a 2D grid (in cartesian or spherical coordinates);

grid2D_interp: compute interpolation coefficients in a 2D grid (in cartesian or spherical coordinates);

MPI parallelization

Computational cost