

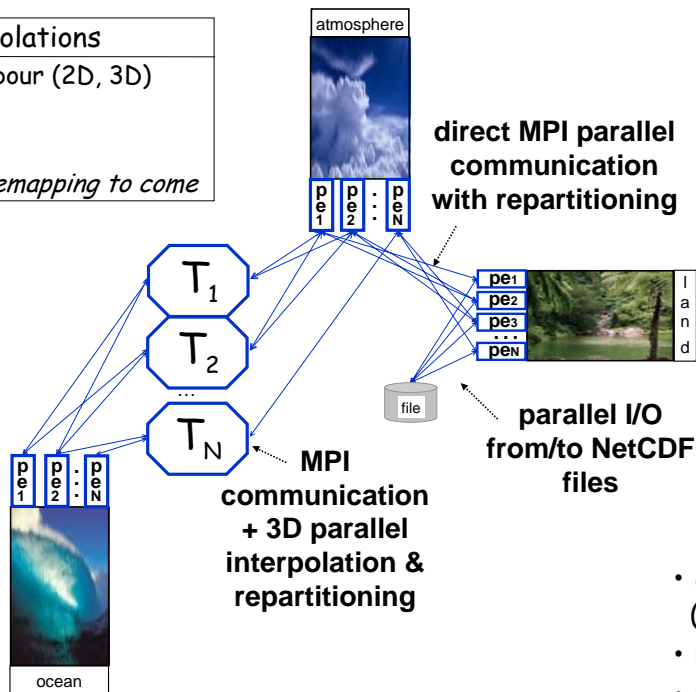
OASIS4: A code coupler for climate modelling

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OASIS4: parallel software, including Model Interface Library, for coupling & I/O of independent codes

Interpolations
<ul style="list-style-type: none"> • Nearest-neighbour (2D, 3D) • Bi/trilinear • Bicubic • <i>Conservative remapping to come</i>

Grids (3D)
Horizontally: <ul style="list-style-type: none"> • Logically rectangular (incl. regular and irregular lat-lon, stretched, rotated, etc.) • Gaussian Reduced • Unstructured (I/O)
Vertically: <ul style="list-style-type: none"> • Regular z(k)



Code adaptation
<pre> program example use PRISM ! Initialisation phase call PRISM_init_comp (comp_id, comp_name, ierr) call PRISM_get_localcomm (comp_id, local_comm, ierr) ! Grid definition call PRISM_def_grid (grid_id, grid_name, comp_id, shape, type, ierr) call PRISM_set_corners (grid_id, #corners, shape, « data », ierr) call PRISM_set_mask (msk_id, grid_id, shape, msk_array, new_msk, ierr) call PRISM_set_points (pts_id, pts_name, grid_id, shape, « data », new_pts, ierr) ! Coupling fields declaration call PRISM_def_var (var_id, var_name, grid_id, pts_id, msk_id, dims, shape, type, ierr) ! End of declaration call PRISM_enddef (ierr) ! Send and receive in time step loop do i=1,nbr_timesteps [...] call PRISM_put (var_id, date, date_bounds, array, info, ierr) call PRISM_get (var_id, date, date_bounds, array, info, ierr) enddo ! Termination phase call PRISM_terminate (ierr) end program example </pre>

➤ Tested and run with toy examples on:

- Intel Pentium 4 Workstation Cluster
- SGI O3000/2000 server (IRIX64)
- SGI IA64 Linux server Altix 3000
- NEC SX6
- AMD 2800 Cluster
- IBM Power 4

➤ Current beta-users:

- GEMS EU project: atmospheric dynamics & atmospheric chemistry coupling
- SMHI: regional coupling
- IFM-GEOMAR: high-res. interpolation
- GFDL: MOM4 & toy atmosphere coupling

- currently developed under the « PRISM Support Initiative » (<http://prism.enes.org>)
- main developers: CERFACS, CNRS, NEC CCRLE, NEC HPCE, SGI
- programming language: Fortran 90 and C
- open source license (LGPL)
- public domain libraries (vendor optimized versions may exist): MPI1/2, NetCDF, libXML, GFDL mpp_io, SCRIP

➤ Full public version planned for end 2006

Coupling configuration
1. Each code should come with an XML description of potential inputs/outputs (Potential Model Input and Output Description - PMIOD)
2. The user configures the global parameters and inputs/outputs in XML files (Specific Model Input and Output Configuration - SMIOC)
3. During the simulation, the Transformer and PSMILe automatically act according to user specifications.

Contact: oasis4_help@enes.org ; <http://www.cerfacs.fr/PRISM/prism.html>

