

Glossary

ACPI	Accelerated Climate Prediction Initiative
ANSI	American National Standards Institute
API	Application Programming Interface
ARPEGE	Action de Recherche Petite Echelle Grande Echelle
ASCII	American Standard Code for Information Interchange
AWI	Alfred Wegener Institute
BFG	Bespoke Framework Generator
BoM	Bureau of Meteorology
CCA	Common Component Architecture
CCSM	Community Climate System Model
CDAS	Coupled Data Assimilation System
CERFACS	Centre de Recherche et de Formation Avancée en Calcul Scientifique
CIAS	Community Integrated Assessment System
CICE	Los Alamos Sea Ice Model
CINES	Centre Informatique National de l'Enseignement Supérieur
CNRS	Centre National de la Recherche Scientifique
CORBA	Common Object Request Broker Architecture
cpu	Computing processor unit

CSIRO	Commonwealth Scientific and Industrial Research Organisation
DKRZ	Deutsches Klimarechenzentrum GmbH
ECMWF	European Centre for Medium range Weather Forecasts
ENEA	Ente Nazionale per le Nuove tecnologie, l'Energia e l'Ambiente
ERMITAGE	Enhancing Robustness and Model Integration for The Assessment of Global Environmental Change
ESM	Earth System Model
ESMF	Earth System Modeling Framework
EU	European Union
FAQs	Frequently Asked Questions
FCA	Flexible Coupling Approach
FLUME	Flexible Unified Model Environment
FMS	Flexible Modeling System
FOAM	The Fast Ocean Atmosphere Model
GAMS	General Algebraic Modeling System
GEMS	Global and regional Earth-system (Atmosphere) Monitoring using Satellite and in-situ data
GENIE	Grid ENabled Integrated Earth system modelling framework
GEOS-5	Goddard Earth Observing System Model, Version 5
GFDL	Geophysical Fluid Dynamics Laboratory
GPL	GNU Public Licence
GUI	Graphical User Interface
IFM-GEOMAR	Leibniz Institut für Meereswissenschaften an der Universität Kiel
IFS	Integrated Forecast System
INGV	Istituto Nazionale di Geofisica e Vulcanologia
IPSL	Institut Pierre-Simon Laplace
IS-ENES	InfraStructure for the European Network for Earth SystemModelling
JPL	Jet Propulsion Laboratory
KNMI	Koninklijk Nederlands Meteorologisch Instituut
LMD	Laboratoire de Météorologie Dynamique

LODYC	Laboratoire d'Océanographie Dynamique et de Climatologie
MACC	Monitoring Atmospheric Composition and Climate
MCT	Model Coupling Toolkit
METAFOR	Common Metadata for Climate Modelling Digital Repositories
MOM4	Modular Ocean Model version4
MPEU	Message Passing Environment Utilities
MPI	Message Passing Interface
MPI-M	Max-Planck Institute for Meteorology
MPMD	Multiple Program Multiple Data
NASA	National Aeronautics and Space Administration
NCAR	National Center for Atmospheric Research
NCAS	National Centre for Atmospheric Science
NEMO	Nucleus for European Modelling of the Ocean
NetCDF	Network Common Data Form
NLE-IT	NEC Laboratories Europe-IT Research Division
NOAA	National Oceanic and Atmospheric Administration
NSF	National Science Foundation
OASIS	Ocean Atmosphere Sea Ice Soil coupler
OPA	Océan PARallélisé
PALM	Projet d'Assimilation par Logiciel Multiméthodes
PIK	Potsdam Institut für Klimafolgenforschung
POSIX	Portable Operating System Interface
PRISM	Partnership for Research Infrastructure in Earth System Modeling
PSAS	Physical-space Statistical Analysis System
PSMILe	PRISM System Model Interface Library (OASIS coupler)
PVM	Parallel Virtual Machine
RIVM	Rijksinstituut voor Volksgezondheid en Milieu
SCI	Standard Component Interface
SCRIP	Spherical Coordinate Remapping and Interpolation Package

SMHI	Swedish Meteorological and Hydrological Institute
SVIPC	System V Interprocess Communication
TDT	Typed Data Transfer
UM	Unified Model
XML	Extensible Markup Language
XSLT	Extensible Stylesheet Language Transformations

Index

A

API, 20

B

Babel, 20

BFG, 12, 55

API, 57, 58–59

BFG1, 56–57

BFG2, 56, 59

DCD, 57, 59

Meta-Coupler, 56, 64–65

Spatial Grids, 63

C

CCA, 21

CCSM, 13

CERFACS, 23

CIAS, 58–59

Communication, 16

Component, 44

Component-based

design, 21, 34, 44

Conservative interpolation

D

Data assimilation, 40, 45

Direct coupling, 16, 53, 69

E

End-point data exchange, 26

Endianness, 5

ESMF, 20

Exchange grid, 34, 38

F

FCA, 56

FLUME, 55, 59

FMS, 65

G

GENIE, 59, 63, 65

Global search, 28

GPL, LGPL, 12

H

Heterogeneous coupling, 11, 44

I

Initialize, run, finalize, 16, 48, 49

Interoperability, 45

Interpolation, 7, 19, 39, 47

M

MCT, 13

Mediator, 45

MPEU, 4

MPI, 6, 15–16, 25–26, 57, 64

MPI_Comm_Spawn, 25

Globus, 57

MPI1, 16, 25

MPI2, 16, 25

M (*cont.*)

MPMD, 25

Mpp_io library, 26

Multigrid algorithm, 28

Multiple executables, 52

N

Neighbourhood search, 27

O

OASIS, 21

OASIS Transformer, 27

OASIS3, 24, 57

OASIS4, 24, 56

P

PALM, 65

Parallel communication, 26

Parallel decomposition, 39

Parallel redistribution, 40

PSAS, 14

R

Regridding, 24, 26–29, 37, 40

Remapping, 47

Repartitioning, 26

S

SCRIP, 19, 27, 29

Software sharing, 31

T

TDT, 57

Tight coupling, 43

U

Unix sockets, 6

W

Web service, 43, 57

X

XML, 7, 25, 27

XSLT, 58, 62