ES-DOC

Earth **S**cience **Doc**umentation

OBJECTIVE	Generation & exploitation of standards (e.g. CIM) based metadata
HISTORY	Started 03 / 2012 Extension of Metafor WP4
HOW	Development of open source tool and web services
LICENSE	GPL / CeCILL

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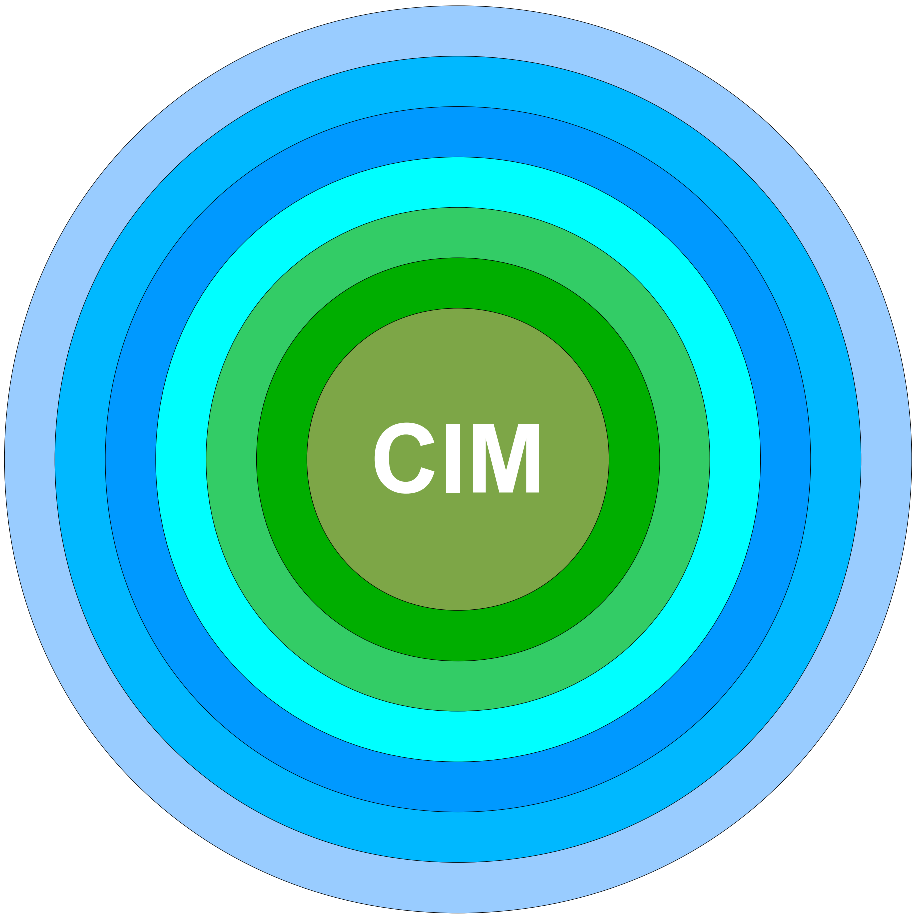
Community



Modellers

Scientists

Students

Impacts Community

Politicians

Media

Public

Targeting CIM documentation to a diverse community

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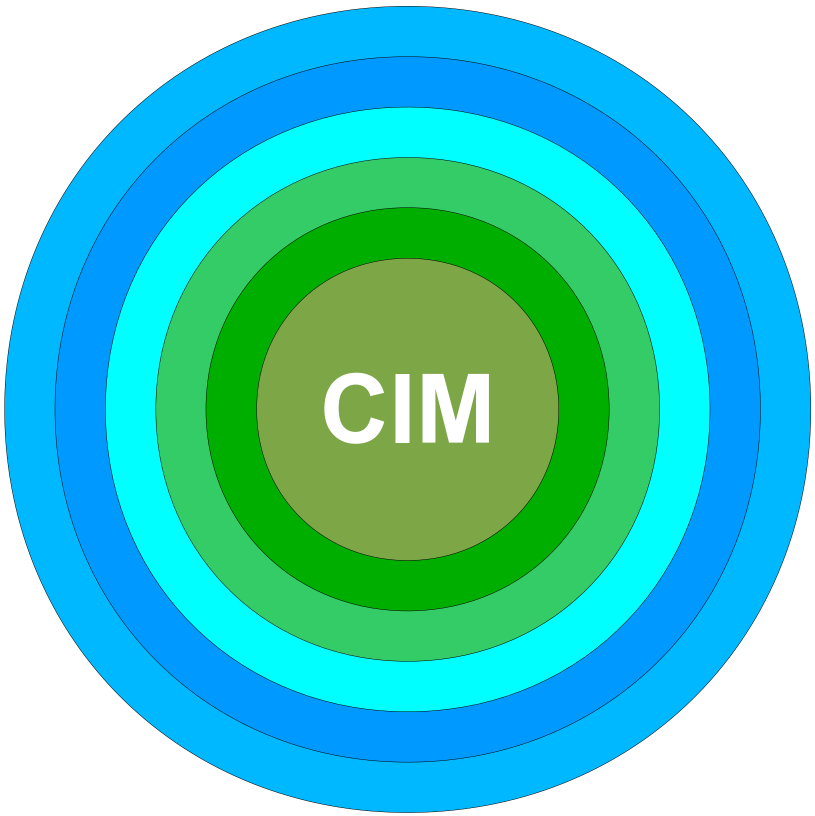
Development



Versions	1.5, 2.0
Encodings	xml, json, yaml, base64
Languages	python, java, fortran, javascript
Representations	text, visual (2D/3D)
Formats	HTML, PDF
Devices	browser, command line

Delivering CIM documentation to an array of platforms

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Product 0 : Meta-Programming Framework

Problem 1	CIM schema
Problem 2	CIM XML Encoding
Solution	Meta-Programming Frmework
Result	Decoupled and agile in relation to CIM schemas, encodings and language bindings.

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Product 1 : Web Service API

REST - DOCUMENT	Publishing & retrieval of documents

QUERY – by ID	Search repository by project, id, & version
QUERY – by Name	Search repository by project, type, & name
QUERY – by Dataset ID	Search repository by project & dataset id
QUERY – by File ID	Search repository by project & file id
QUERY – by DRS	Search repository by DRS mappings

REPORT – Model Property	Return 2D matrix of model property values

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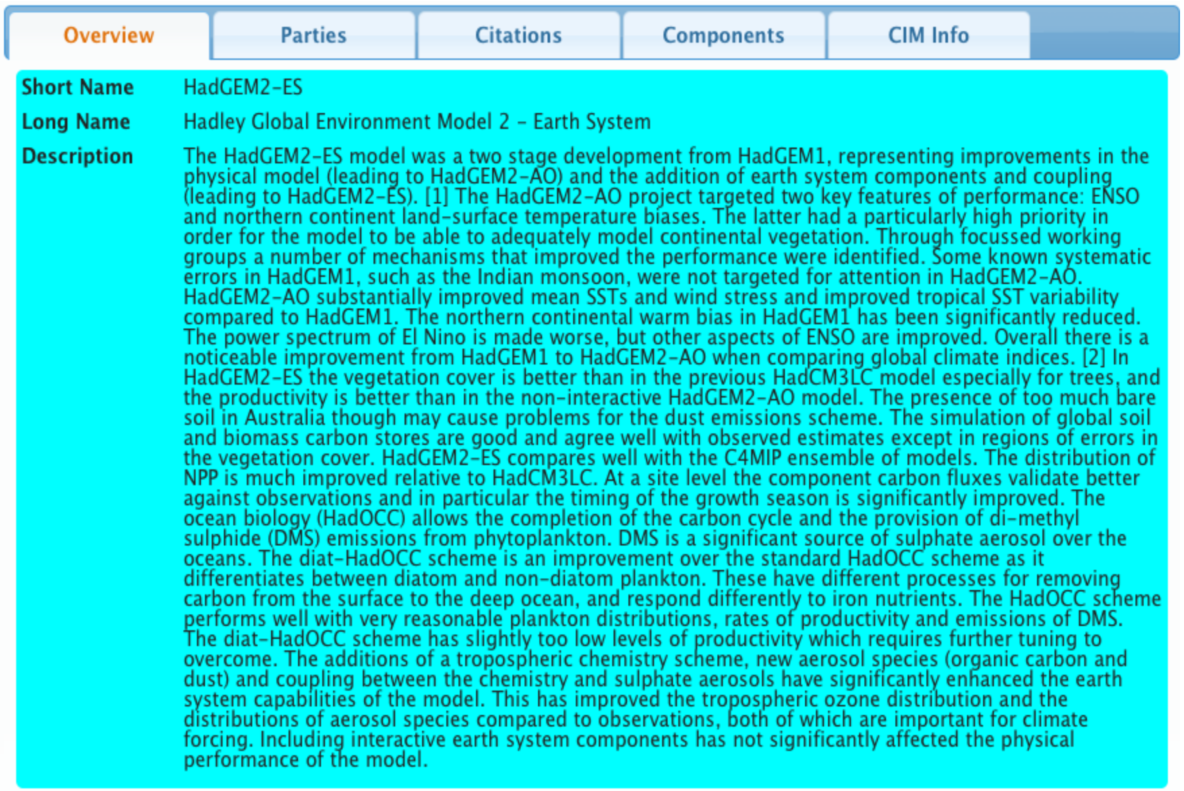
Product 2 : Document Viewer



Overview | Parties | Citations | Components | CIM Info

Short Name	HadGEM2-ES
Long Name	Hadley Global Environment Model 2 - Earth System
Description	The HadGEM2-ES model was a two stage development from HadGEM1, representing improvements in the physical model (leading to HadGEM2-AO) and the addition of earth system components and coupling (leading to HadGEM2-ES). [1] The HadGEM2-AO project targeted two key features of performance: ENSO and northern continent land-surface temperature biases. The latter had a particularly high priority in order for the model to be able to adequately model continental vegetation. Through focussed working groups a number of mechanisms that improved the performance were identified. Some known systematic errors in HadGEM1, such as the Indian monsoon, were not targeted for attention in HadGEM2-AO. HadGEM2-AO substantially improved mean SSTs and wind stress and improved tropical SST variability compared to HadGEM1. The northern continental warm bias in HadGEM1 has been significantly reduced. The power spectrum of El Nino is made worse, but other aspects of ENSO are improved. Overall there is a noticeable improvement from HadGEM1 to HadGEM2-AO when comparing global climate indices. [2] In HadGEM2-ES the vegetation cover is better than in the previous HadCM3LC model especially for trees, and the productivity is better than in the non-interactive HadGEM2-AO model. The presence of too much bare soil in Australia though may cause problems for the dust emissions scheme. The simulation of global soil and biomass carbon stores are good and agree well with observed estimates except in regions of errors in the vegetation cover. HadGEM2-ES compares well with the C4MIP ensemble of models. The distribution of NPP is much improved relative to HadCM3LC. At a site level the component carbon fluxes validate better against observations and in particular the timing of the growth season is significantly improved. The ocean biology (HadOCC) allows the completion of the carbon cycle and the provision of di-methyl sulphide (DMS) emissions from phytoplankton. DMS is a significant source of sulphate aerosol over the oceans. The diat-HadOCC scheme is an improvement over the standard HadOCC scheme as it differentiates between diatom and non-diatom plankton. These have different processes for removing carbon from the surface to the deep ocean, and respond differently to iron nutrients. The HadOCC scheme performs well with very reasonable plankton distributions, rates of productivity and emissions of DMS. The diat-HadOCC scheme has slightly too low levels of productivity which requires further tuning to overcome. The additions of a tropospheric chemistry scheme, new aerosol species (organic carbon and dust) and coupling between the chemistry and sulphate aerosols have significantly enhanced the earth system capabilities of the model. This has improved the tropospheric ozone distribution and the distributions of aerosol species compared to observations, both of which are important for climate forcing. Including interactive earth system components has not significantly affected the physical performance of the model.

Clientèle @ 01/10/2012
ESGF-P2P Node Front End
DyCore 2012 Portal
IPSL Prodiguer Portal

Technology
Javascript / HTML
Web Services (CIM API)
JSON

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Product 3 : Reports Viewer

Step 1	Select : Models
Step 2	Select : Components / Properties
Step 3	Selection : Refine, Export, Import
Step 4	Report : Generate, View, Export (CSV)

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Open Source Projects @ 01/10/2012

Nom	Language	Description	Source Code
pycim-mp	python	Code Generator	https://github.com/ES-DOC/pycim-mp
pycim	python	Decoder / Encoder	https://github.com/ES-DOC/pycim
pylons-cim-api	python	Web Service API	https://github.com/ES-DOC/pylons-cim-api
pylons-cim-portal	html	Web Site	https://github.com/ES-DOC/pylons-cim-portal
jscim	javascript	HTML Viewer Reports Viewer	https://github.com/ES-DOC/jscim