Metadata: Describing Models and Techniques

Quantitative Evaluation of Downscaling 2013
NCAR Foothills Laboratory, Boulder CO

Allyn Treshansky
12 August 2013
NOAA Environmental Software Infrastructure & Interoperability Group

Outline

- Introduction
- What is Common Information Model (CIM) Metadata?
- Why should you care?
- What can you do with the CIM?
  - CIM Viewer
  - CIM Comparator
  - CIM Questionnaire
- What's next?

Introduction

- ES-DOC (Earth System Documentation) is an international collaboration that is developing standard tools to create, view, and compare metadata descriptions of climate system artifacts
- The ES-DOC partnership includes NESII, Institute Pierre Simon Laplace (IPSL), University of Reading, British Atmospheric Data Centre (BADC), German Climate Computing Center (DKRZ)
- Several partners overlap with CORDEX and NARCCAP
- One of NESII's roles has been to incorporate support of downscaling metadata into ES-DOC's tools

What is the CIM?

- The Common Information Model (CIM) is a metadata *standard* created by the international climate modeling community
- The CIM has structured and formalized descriptions of the many elements associated with climate information
  - Eg: software components, geographic grids, climate simulations, climate experiments, etc.
- The original focus for CIM Documents was CMIP5 (Coupled Model Intercomparison Project)
- NCPP/NESII have expanded the CIM for other projects – including QED and an atmospheric dynamical core intercomparison project

Why should you care?

- A **formal structured common standard** metadata language allows for:
  - a common interface to enable tool development
  - detailed inter-comparisons
  - allows provenance to be documented
  - faceted search / intelligent data discovery
  - shared understanding...
    - *The potential to interpret, compare and reuse climate information results is strongly related to the quality of their description*

What can you do?

- ES-DOC has built a set of tools to work with CIM Documents
  - CIM Questionnaire (create/edit)
  - CIM Viewer (display)
  - CIM Comparator (compare/report)
  - CIM Archive (search) [under development]

What tools are available?

- CIM Viewer

  http://prod.static.esdoc.webfactional.com/js_client/demo/prod/viewer.html

  - Allows CIM Metadata documents to be displayed in an intuitive format

- CIM Comparator

  http://prod.static.esdoc.webfactional.com/js_client/demo/prod/comparator.html

  - Enables CIM Metadata model properties to be compared and reports of their differences to be generated

What tools are available?

- CIM Questionnaire

  http://earthsystemcog.org/dcf/edit/modelcomponent/downscaling/1.8.1/?shortName=WRFG

  - NCPP has customized the CIM Questionnaire for regional climate models
  - It will allow entry of standard CIM metadata associated with regional climate models which can then be accessed in other ES-DOC tools

What's next

- NCPP is working with regional modelers to create CIM Documents
- NCPP is working with statistical downscalers to extend the CIM; we are seeking community involvement
  - Join the ongoing downscaling metadata project

    http://earthsystemcog.org/projects/downscalingmetadata
  - Talk to *Allyn Treshansky, Joe Barsugli, Galia Guentchev* during this workshop
- What you can work with currently
  - CMIP5 CIM Comparator
  - Regional Dynamical Model Questionnaire
- Provide feedback on the Questionnaire, Viewer, or Comparator
  - *es-doc-contact@list.woc.noaa.gov*