Session	IN015 - Enabling Better Science Through Improving Science Software Development Culture
Venue	San Francisco
Date	09th – 13th December 2013
Type	Talk

Authors

Mark Greenslade (1), Sylvia Murphy (2), Allyn Treshansky (2), Cecilia DeLuca (2), Eric Guilyardi (1), Sebastien Denvil (1).

1. CNRS, IPSL, Institut Pierre Simon Laplace, Global climate modeling group, Paris, France
2. NESII/CIRES/NOAA, Earth System Research Labaratory, Boulder, United States

Abstract

Earth System Documentation (ES-DOC) is an international project supplying high-quality tools & services in support of earth system documentation creation, analysis and dissemination. It is nurturing a sustainable standards based documentation eco-system that aims to become an integral part of the next generation of exa-scale dataset archives. ES-DOC leverages open source software, and applies a software development methodology that places end-user narratives at the heart of all it does.

ES-DOC has initially focused upon nurturing the Earth System Model (ESM) documentation eco-system and currently supporting the following projects:

- Coupled Model Inter-comparison Project Phase 5 (CMIP5);
- Dynamical Core Model Inter-comparison Project (DCMIP);
- National Climate Predictions and Projections Platforms Quantitative Evaluation of Downscaling Workshop.

This talk will demonstrate that ES-DOC implements a relatively mature software development process. Taking a pragmatic Agile process as inspiration, ES-DOC:

- Iteratively develops and releases working software;
- Captures user requirements via a narrative based approach;
- Uses online collaboration tools (e.g. Earth System CoG) to manage progress;
- Prototypes applications to validate their feasibility;
- Leverages meta-programming techniques where appropriate;
- Automates testing whenever sensibly feasible;
- Streamlines complex deployments to a single command;
- Extensively leverages GitHub and Pivotal Tracker;
- Enforces strict separation of the UI from underlying API's;
- Conducts code reviews.