

Fall 2009 CSDMS WG Update

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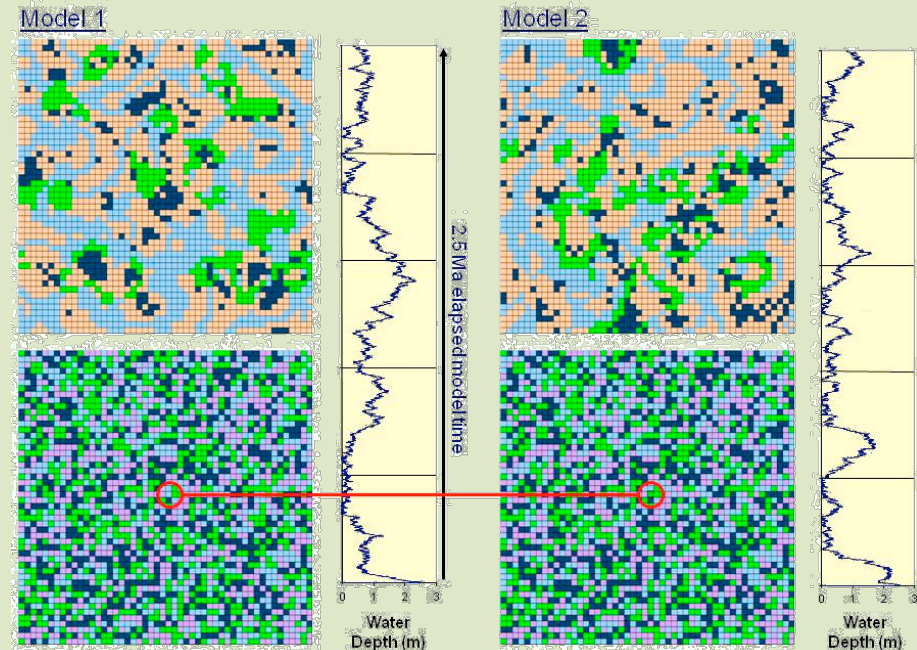
CSDMS Updates

- Community: 310+ members

Terrestrial	147
Marine	76
Coastal	93
EKT	28
Cyber	59
Carbonate	22
Chesapeake	13
Hydrology	53

Carbonate Discussion page Example

I agree that it is the challenge, But check out this model result

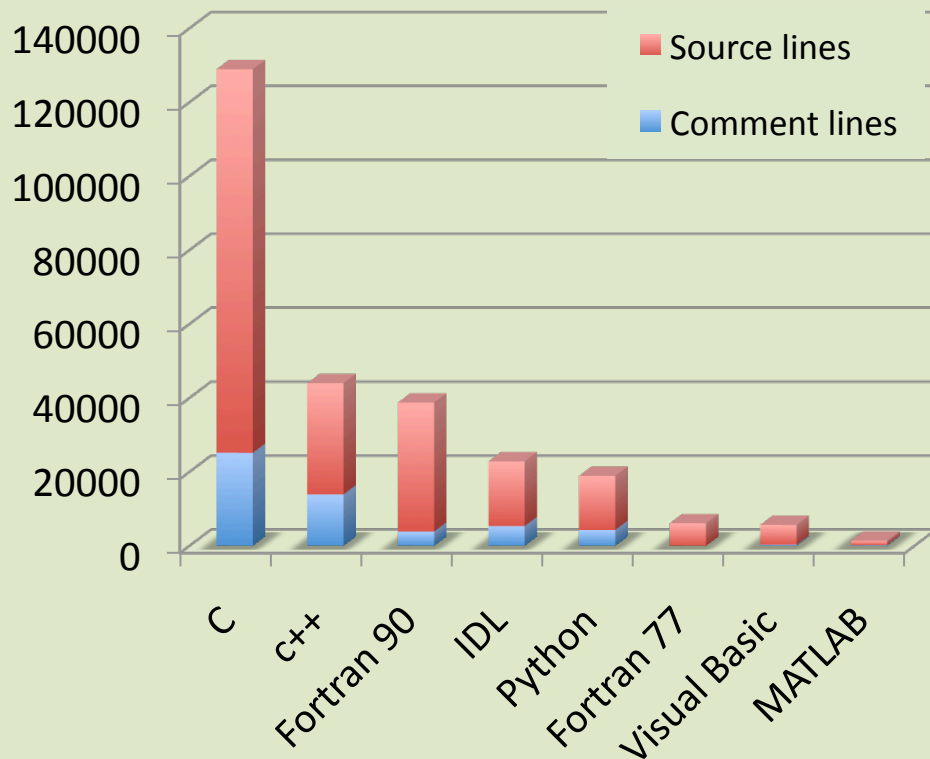


The image shows output from two runs of my carbonate cellular automata. The two models start off with the same random distribution of three facies in map view (lower images) differing only in one cell in the 50x50 grid, highlighted by the red circles. The upper map shows ...



CSDMS Updates

- Repositories: 123 models (268,000 lines of code)
230 downloads/mo



Top model downloads

<i>child,</i>	135
<i>sedflux,</i>	89
<i>topoflow,</i>	86
<i>midas,</i>	80
<i>2dflowvel,</i>	52
<i>bing,</i>	49
<i>Gc2d,</i>	44
<i>adi-2d,</i>	41
<i>Plume,</i>	27
<i>Storm,</i>	25
<i>lithflex,</i>	25
<i>Waveref,</i>	24
<i>Bedrock-Er,</i>	24



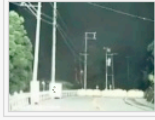









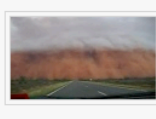
CSDMS Updates

- Repositories: 61 (global) databases for model initializations; >100 ppt presentations, lecture materials, movies & simulations.

Database	Number
Topography	11
Bathymetry	3
Climate	6
Hydrography	5
River discharge	3
Cryosphere	3
Geology	2
Soils	2
Sea level	2
Land Cover	2
Population	3
GIS Tools	12
Network Ext	7

CSDMS Movie Gallery

Page: 1

 <p>Info: Landslide Japan Credit: Unknown DOWNLOAD & PLAY</p>	 <p>Info: Arctic Erosion Credit: Irina Overeem DOWNLOAD & PLAY</p>	 <p>Title: Thaw Lake Erosion Credit: Irina Overeem DOWNLOAD & PLAY</p>	 <p>Info: TidalBore, AK Credit: Lynn L'Archeveque DOWNLOAD & PLAY</p>
 <p>Info: Flash Flood Credit: Doug Jerolmack DOWNLOAD & PLAY</p>	 <p>Info: DebrisFlow, Chile Credit: Werner Keller DOWNLOAD & PLAY</p>	 <p>Info: Braided river, Greenland Credit: Joep Storms DOWNLOAD & PLAY</p>	 <p>Title: Debris Flow California Credit: Mr. Devore DOWNLOAD & PLAY</p>
 <p>Title: River Ice BreakUp Credit: Tyler Grosshuesch DOWNLOAD & PLAY</p>	 <p>TidalBore, China Credit: Unknown DOWNLOAD & PLAY</p>	 <p>Title: Dust Storm Credit: Unknown DOWNLOAD & PLAY</p>	



CSDMS protocols for contributed compliant code:

- 1) Properly licensed (GPL2 compatible; OSI approved);
- 2) Community vetted (e.g. Working or Focus Research Group);
- 3) Open source and stored in the CSDMS Model Repository;
- 4) Written in a CCA supported open-source language (C, C++, any Fortran, Java, Python), (Note: IDL & Matlab can be made compatible)
- 5) Refactored with a programming interface compatible with CSDMS (e.g. initialize, run, finalize),
- 6) Source code annotated using special keywords within comment blocks to provide basic metadata for the model and its variables.
- 7) Model description with test files (input, output),
- 8) Provides all input & output *exchange items*
- 9) Clean code that is properly documented.



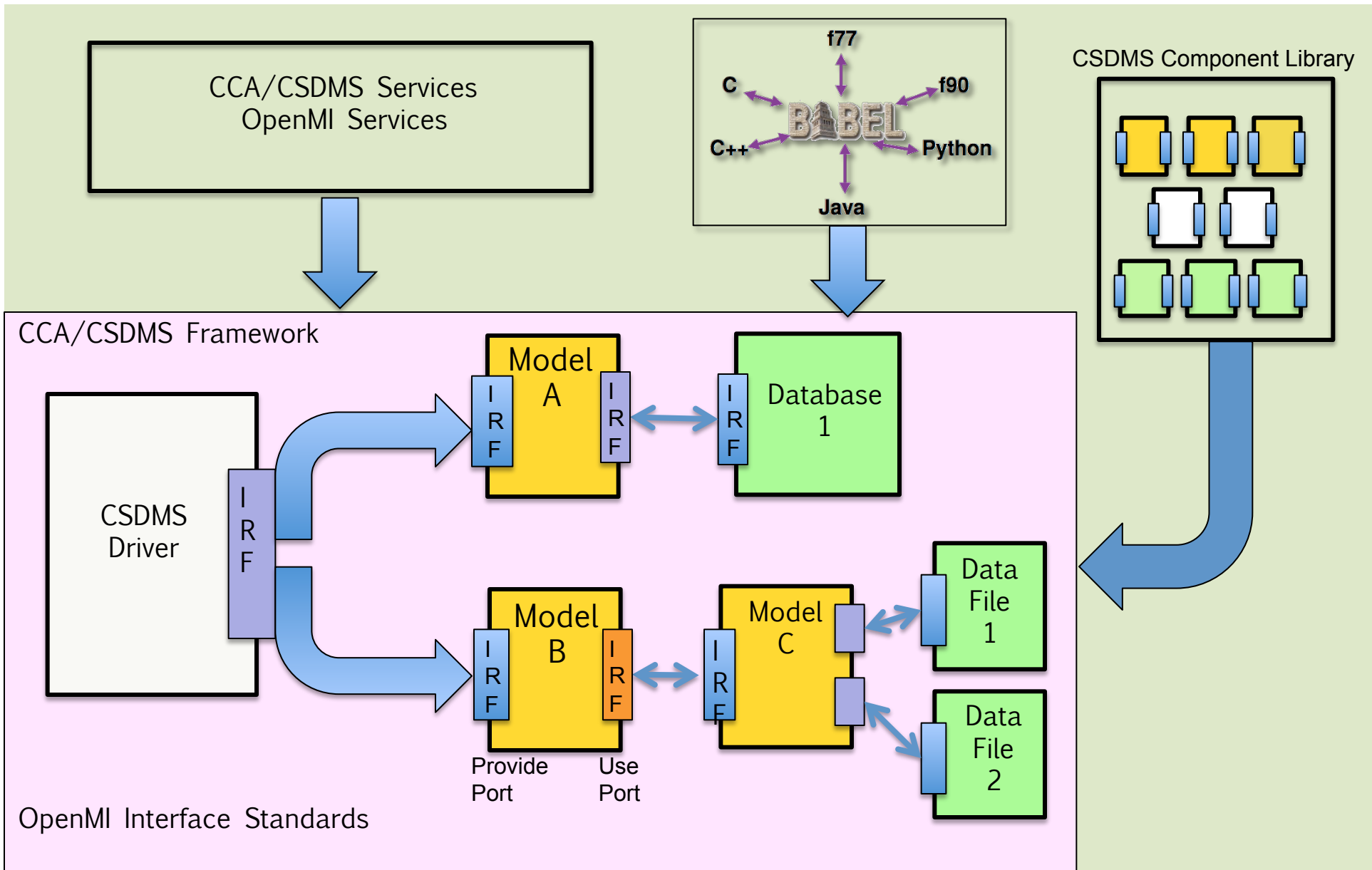
Automatic Interface Generation (or wrapping) via Annotation

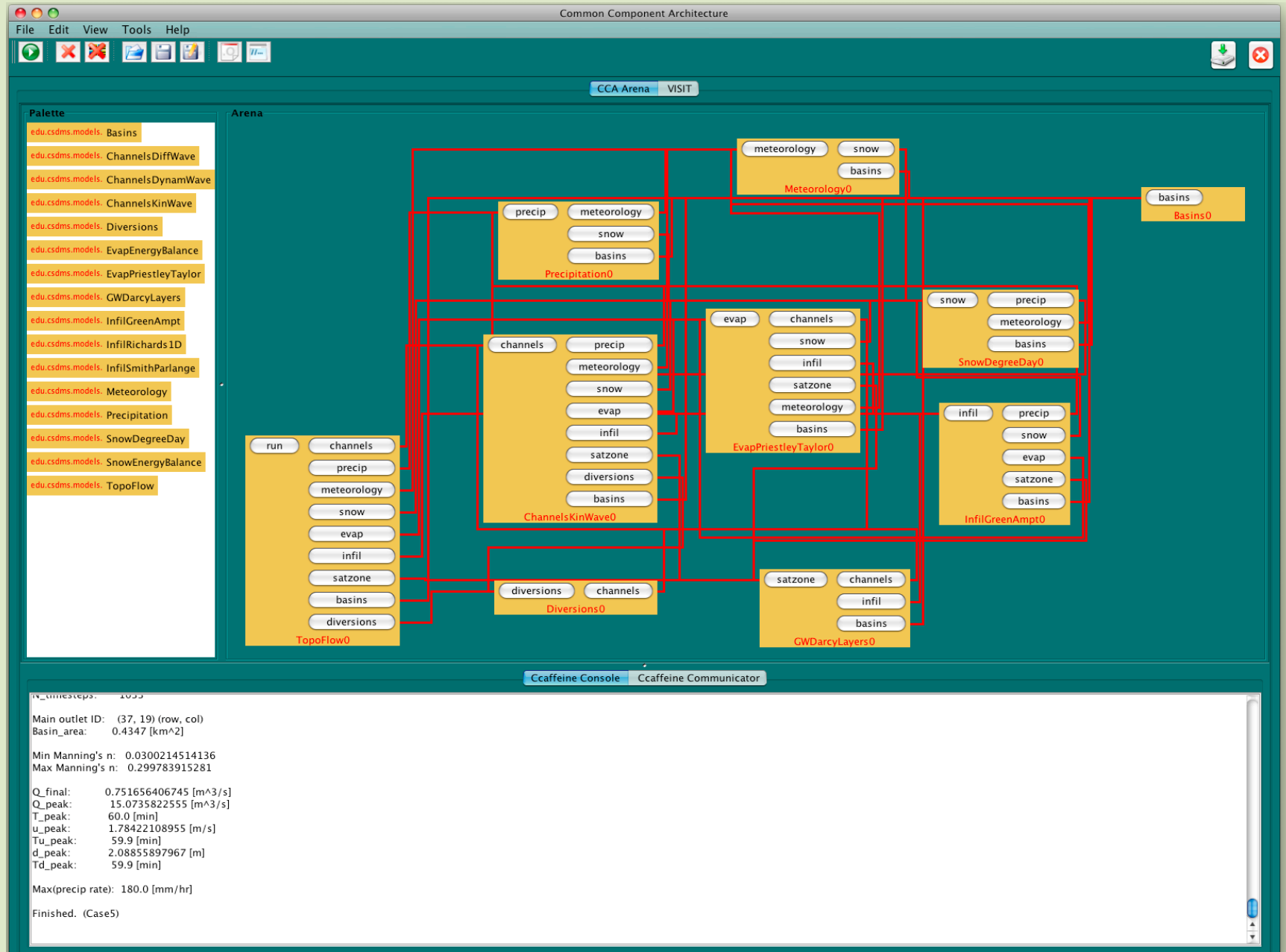
Doxygen a multi-language code parsing tool that supports all of the Babel-supported languages (C, C++, Fortran, Java, Python).

OnRamp a new CCA tool that parses annotated source code to help convert it to a CCA component.

Modelers to add standardized *annotations* (defined by CSDMS) to their source code that provide needed metadata, so as to automatically generate code for the interface functions







Goals:

1. Interface Standards (done but ongoing)
2. CHILD & SedFlux (90% done)
3. GC2D & TopoFlow (done)
4. HydroTrend & CEM (done)
5. ROMS, WWIII, Delft3D (unique licenses); CSTMS (ongoing)
6. NCED/CCED & RCEM Training Courses (done)
7. HPCC support (done but ongoing: PETSc, VisIt, Torque, MPI)
8. Wiki/RSS (done but ongoing)
9. Sponsorship: TCW; IAMG; RCEM; SediBud; AGU, AAPG; IAS
10. CSDMS proposals (ongoing)
11. Ccaptive GUI (done & ongoing)
12. Repositories (ongoing)
13. Industrial Consortia & Interagency Committee



