WORKING GROUP 1: TEST BEDS AND EXPERIMENTS
Current WG1 members and affiliations

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- Petra Doll  Frankfurt
- Hannes Muller Schmied  Frankfurt
- Paul Houser  George Mason
- Cedric David  JPL
- JT Reager  JPL
- Jessica Keune  Bonn
- Luis Samaniego  UFZ
- Eric Wood  Princeton
- Tim Trautmann  Frankfurt
- Rohini Kumar  UFZ
- Stephanie Eisner  Kassel

<table>
<thead>
<tr>
<th>Model</th>
<th>Groups</th>
</tr>
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<tbody>
<tr>
<td>TOPLATS</td>
<td>Wood</td>
</tr>
<tr>
<td>CLM</td>
<td>Famiglietti</td>
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<tr>
<td>WRF-Hydro</td>
<td>Gochis</td>
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<tr>
<td>ParFlow</td>
<td>Maxwell, Kollet</td>
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<td>WaterGAP</td>
<td>Doll, Florke</td>
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<td>PRC-GLOBWB</td>
<td>Bierkens</td>
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<td>mHM/MPR</td>
<td>Samaniego</td>
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<td>HydroGeoSphere</td>
<td>Sudicky</td>
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<td>eWaterCycle</td>
<td>Bierkens, Hut</td>
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<tr>
<td>Grid-to-Grid</td>
<td>Bell</td>
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<td>LISFLOOD</td>
<td>de Roo</td>
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WG1 Objectives

Setting up testbeds for comparing different large-scale models at high resolution

Domains:

1. Initial test cases: Rhine + Illinois + California

2. Medium term goals: CONUS, CORDEX Europe at 1 km

3. Long term vision: Global at 5 minutes (long-term goals: global at 1 km)

Initial goals:

4. Set-up server

5. Host model input data sets for test cases

6. Begin runs on test domains
## Proposed test cases (Feb. 2014)

<table>
<thead>
<tr>
<th>Location</th>
<th>Rhine river</th>
<th>California</th>
<th>Illinois</th>
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</thead>
<tbody>
<tr>
<td><strong>Simulation time</strong> (depends on data availability)</td>
<td>2008-2013</td>
<td>2008-2013</td>
<td>2008-2013</td>
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<tr>
<td><strong>Resolutions</strong></td>
<td>0.5 deg 0.25 deg, 10km 5km, 1km, 500m</td>
<td>0.5 deg, 0.25 deg, 10 km, 5 km, 1km, 100m</td>
<td>0.5 deg, 0.25 deg, 10 km, 5 km, 1km, 100m</td>
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<tr>
<td><strong>Model surface data</strong></td>
<td>HydroSHEDS (3”) FAO soil Gleeson permeability Landuse MODIS</td>
<td>USGS 1/3” DEM STATSGO @ 30” NLCD @ 1”</td>
<td>USGS 1/3” DEM SSURGO @ 1/3” NLCD @ 1”</td>
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<tr>
<td><strong>Model forcing</strong></td>
<td>COSMO-DE, hourly forcing @1km (2008-2013)</td>
<td>NLDAS 1/8 deg hourly PRISM month@ 800m</td>
<td>NLDAS 1/8 deg hourly PRISM 800m</td>
</tr>
<tr>
<td><strong>Observation data</strong></td>
<td>TERENO/PALSAR soil moisture Discharge Groundwater head (MODIS) temp Eddy covariance fluxes (TR32)</td>
<td>Fluxnet sites DWR/USGS wells SNODAS 1km GRACE @ 1-deg USGS reservoirs &amp; streamflow MODIS temp</td>
<td>USGS Illinois water science center: Stream gages GW wells MODIS temp.</td>
</tr>
</tbody>
</table>
Hyper-hydro data server now

Login: hyper@data.ucchm.org
Password: hydro

**sftp only (no ssh)

 incoming

 CONUS

 CALIFORNIA

 ILLINOIS

 RHINE

 Forcing

 Grid

 Surface

 Validation

 NLDAS

 PRISM

 ..

 nldas_fora0125_2008_illinois.nc
 nldas_fora0125_2009_illinois.nc
 nldas_fora0125_2010_illinois.nc
 nldas_fora0125_2011_illinois.nc
 nldas_fora0125_2012_illinois.nc
 nldas_fora0125_2013_illinois.nc

 ..

 prism_2008_illinois.nc
 prism_2009_illinois.nc
 prism_2010_illinois.nc
 prism_2011_illinois.nc
 prism_2012_illinois.nc
 prism_2013_illinois.nc
 readme.txt

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Progress

(March 2014 to April 2015)

Server is fully functional

All test cases now have grid and surface data available:
  • California, and Illinois have NLCD, gssurgo, NED (1/3”)
  • Rhine has Hydrosheds, land cover, soils
  • CA has ready-made \( f_{\text{max}} \), fract. LC and aerosol dep. (CLM)

Forcing:
  • Illinois has clipped & aggregated forcing (NLDAS, PRISM)
  • Rhine has a ready forcing data set from COSMO and 5-km EFAS for Rhine-meuse

Validation
  • Illinois also has stream gauge data for validation
  • Rhine has groundwater head for validation

Full Continental US data sets added:
  • Forcing data: NLDAS (1/8 deg); PRISM (4km) and DAYMET (1km) added
  • Surface data: NLCD; GSSURGO soils (30m); and Elevation (30m)
  • Continental runs should now be possible as well

*Thanks to Tim Trautmann, Jessica Keune and Edwin Sutanudjaja for their hard work on this*
Proposed schedule of tasks for WG1 2nd year

(May 2015 to April 2016)

**Summer, 2015:**
- Work out data sets in the server
- Workshop in Utrecht
- Begin running on test cases with several models
- Possible working “vacation” in Utrecht to get runs started
- Some “adjusting” may be required to fit data sets to models

**Fall & winter, 2015:**
- Continued model simulations

**2016 (or AGU 2015?):**
- Work to share and summarize work-to-date, including preliminary model outputs
- Begin discussing metrics or outputs for model intercomparison
- Have another meeting with the larger group
Remaining discussion points

1. Has anyone started running new test cases, other than those who had run the domains previously? (e.g. Has WaterGAP, PCR-GLOBWB run everywhere?)

2. Are people willing to try to run on domains that they don’t normally run on? It may take some spin-up time, so a summer workshop is a useful idea.

3. What else should we be doing to facilitate model runs on different test cases?

4. Other thoughts?