

ESM-SnowMIP workshop – Meeting Actions

Fort Mason, San Francisco

10 December 2015

1. ESM-SnowMIP Experiment Timeline

2017: Site simulations

2017-2018: Global offline simulations

2018-2019: Global coupled simulations

2. Data Management/Observation Actions

- Inventory of snow products for analysis to be maintained at Env. Canada (C. Derksen)
- Investigate potential to run regional high resolution version of land surface analyses (Vionnet et al for instance?; C. Derksen)
- ftp site established for submission of reference site simulations (C. Derksen)
- Submission of global model results through ESGF will be pursued via formal endorsement of ESM-SnowMIP by WGCM (G. Krinner)
- Output variables and frequencies: follow LS3MIP
- ESM-SnowMIP wiki to be established via CliC

3. Reference Site Simulations

Potential additional sites: Summit (J. Burkhart); Valdai (PoC?); Bylot Is. (F. Domine); Norway/Sweden (J. Burkhart); Kenaston (A. Iveson); Niwot Ridge (M. Clarke)

Note the reference site requirements: downwelling shortwave and longwave, rainfall, snowfall, air temperature, specific humidity, wind speed, air pressure; complete annual cycles of data, hourly; netCDF or plain text

G. Krinner to follow-up with ISMIP re. potential reference site simulations at Summit and/or Dome C

Reference site simulation schedule:

1 February 2017: recruitment of non-committed snow modeling group (R. Essery)

1 March 2017: Submission of comments on instructions and datasets (All)

1 April 2017: finalized instructions and datasets (R. Essery)

1 July 2017; 1 October 2017; 1 December 2017: return of simulation results (All)

(Staggered release: tier 1 versus tier 2; additional sites as they are finalized)

Reference site analyses:

- evaluation of control simulations (R. Essery)
- interpretation of reference site fixed albedo, no thermal insulation, shallow soil experiments (R. Essery, P. Bartlett, others...)
- radiative forcing analysis (M. Flanner, J. Perket, J. Burkhart)
- performance of models in calibration; How best to use multi-physics models to understand behaviour of models? (R. Essery, M. Clarke)
- Process to develop benchmarking ideas for ESM-SnowMIP: i.e. for snow mass, what are the lower and upper limits to predictability? (M. Clarke, R. Essery)
- downscaled runs from GSWP3 focused on alpine sites (lead TBD)
- extract GSWP3 forcing for grid cells with in situ data and run in 1-D mode for comparison with observations (Env. Canada, H. Kim)

4. Global Simulations

- evaluate Slater diagnostic for snow insulation to potentially replace the no-snow insulation simulations (G. Krinner, C. Thackeray, C. Derksen)
- diagnose model behaviour at reference sites to understand global simulations and climate sensitivity (R. Essery, M. Clarke, G. Krinner)
- evaluate global offline simulations (H. Kim, C. Thackeray, A. Boone, Env. Canada)
- SRRE analysis (J. Perket, M. Flanner)
- define approach to prescribed SWE experiments: dataset(s), snow mass vs snowfall, canopy processes etc. (G. Krinner, A. Boone, C. Derksen, C. Thackeray)
- prepare for analysis of coupled simulations/LS3MIP experiments (G. Krinner)