

PROJECT. CLM Urban Model

CLM Urban Model

Keith Oleson has done a substantial amount of work on a development branch of CLM to develop code to model urban surface environment hydrology and radiative characteristics. This branch needs to be updated to the latest CLM model and put on the CLM trunk, along with tests to validate that it continues to function correctly.

Mission Statement:

Port Keith Oleson's Urban model work to the latest CLM model, verify and validate it and move it on as a new configuration for the latest CLM model to be used in CLM4 and for CCSM4.

Project Plans/Charter and High Level Information:

- Authority: Gordon Bonan and David Lawrence
- Project Lead: Mariana Vertenstein and Keith Oleson
- Scientific Lead: Keith Oleson
- Software Engineering Lead: Erik Kluzek
- [CLM Urban Requirements](#)
- [CLM Urban Risk list](#)
- [CLM Urban -- nature of changes](#)
- [CLM Urban -- Changes to checkin to trunk](#)

Design

- CPP vars: MEXICOCITY, VANCOUVER, GRANDVIEW
- Input: furbdat
- 3 modules: UrbanInitMod.F90, UrbanInputMod.F90, and UrbanMod.F90

Urban model improvements

- clm3_6_??? – urban1 – restarts
 - Get restarts working
 - Get read from finidat files working
 - Make sure all constants are kept as variables rather than magic numbers (0.61, 0.0098, 0.66666, beta, zii, 0.97)
 - Fix GRANDVIEW CPP
 - Remove any debugging code changes no longer needed
- clm3_6_??? – urban2 – global
 - Create a dummy global dataset in format needed for future work
 - Keith – extensive check of ALL output vars
 - New read format from work with Johann
- clm3_6_??? – urban3 – improved
 - Convert urban input datasets into NetCDF
 - Encapsulate – specific city changes into input datasets (displacement height, roughness length, qaf, taf, t_building_max/min, initialization: z_urb_wall, t_soisno, thk, cv in SoilTemperature)
 - Organize new urban datasets.
- clm3_6_??? – urban4 – best
 - Engineer any changes that will improve the design, make more modular and make the merge easier
 - Work on design of Urban for moving forward (thinking about GLIMMER and other such future improvements).