



## Engela Sthapit

City College of New York

Thursday, December 3, 2020  
2:30–3:30 pm MST

**GoToMeeting:**

**Web:** <https://global.gotomeeting.com/join/343392437>

**Phone:** <https://global.gotomeeting.com/343392437/numbersdisplay.html>

**Access Code:** 343-392-437

## Understanding Snow Representation in the Noah-MP Model

### Abstract

This talk will examine uncertainties in atmospheric forcing variables to predict snowpack properties such as snow water equivalent (SWE) and snow depth (SD). The project focused on understanding snow representation in the Noah-MP land surface model, through a single column experiment. Noah-MP simulated SWE and SD from two forcing datasets - North American Land Data Assimilation System version 2 (NLDAS2), and in-situ station measured meteorological variables - were compared with the SWE and SD observed at the in-situ station in Caribou, Maine (Station). The higher SWE and SD simulated with NLDAS2 forcing compared to the ones with Station forcing, were consistent with the lower near-surface temperature and outgoing longwave radiation in NLDAS2 compared to the Station. Differences in total precipitation also influenced the snow variables in two model simulations. But the relation with incoming shortwave radiation was not clear. The SWE and SD observed at the site were significantly higher than those simulated by the models, possibly due to wind blown redeposition of snow, a process not considered in Noah-MP. Such understanding about the effect of forcing variables could benefit the NOAA's operational hydrologic model, the National Water Model.

### Speaker Bio

Engela Sthapit is a NOAA Educational Partnership Program graduate scholar at the Center for Earth System Sciences and Remote Sensing Technologies, City College of New York. She is working on a PhD in Civil Engineering, with focus on water prediction. She holds a Master's degree in Biological

Sciences (Aquatic Ecology focus), from the University of Mississippi and a Bachelor's degree in Environmental Science from Kathmandu University, Kathmandu, Nepal.



**NOAA Physical Sciences Laboratory (PSL) and  
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