New York State Mesonet Snow Network

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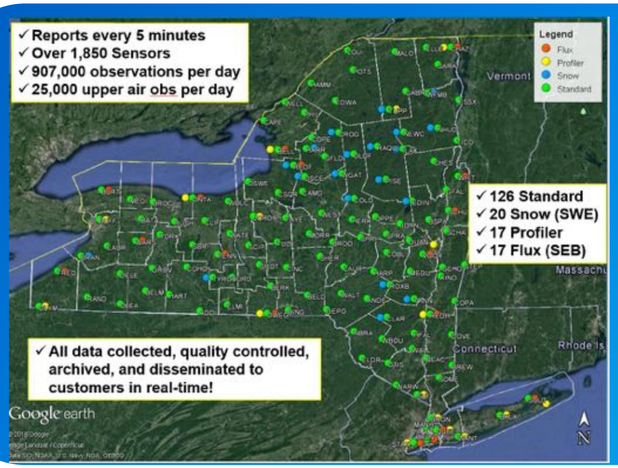
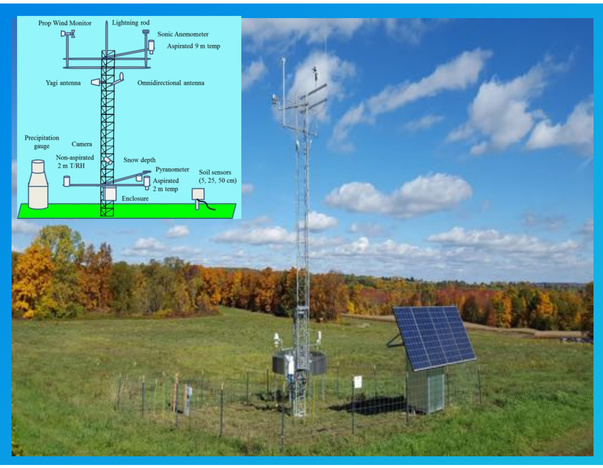




First 3-D Profiler Network – 17 sites

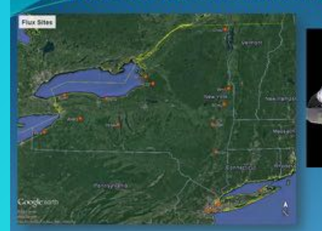
- Generally placed within 500 m of a Standard Site

LIDARs
- Vertical wind profiles up to 3 km AGL
- RNRG/Leosphere 100S

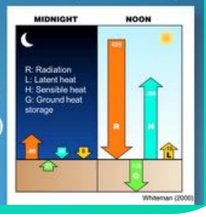
Microwave Radiometers
- Vertical temperature and moisture profiles up to 10 km AGL
- Selected Radiometrics MP-3000A

Mobile radiosonde system for calibration and special operations (InterMet system)

First Flux Network (17)

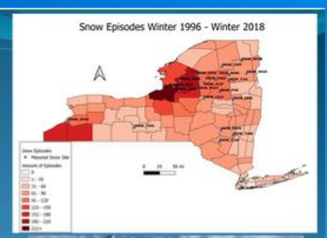


- Four-component radiation (K&Z CNR4)
- 3D Sonic and gas analyzer (CS Irgason)
- Ground heat flux plates (Hukseflux)

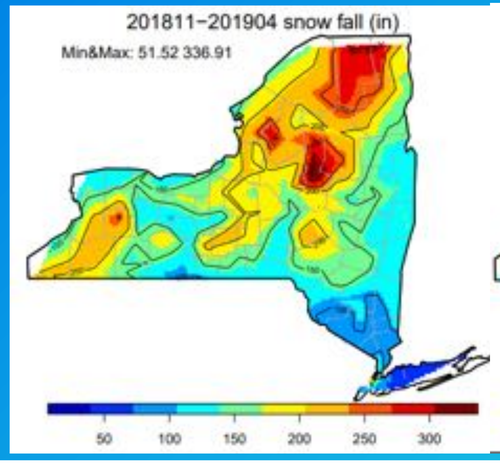


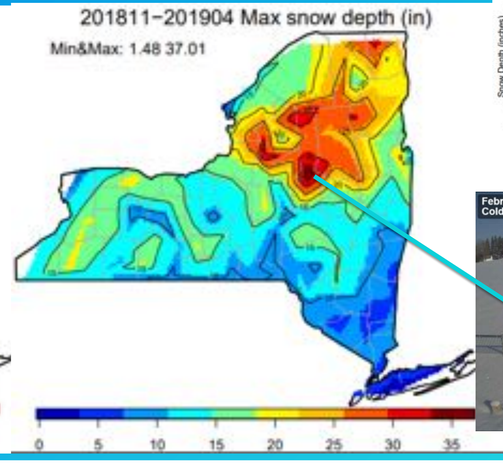
NYSM Snow Network

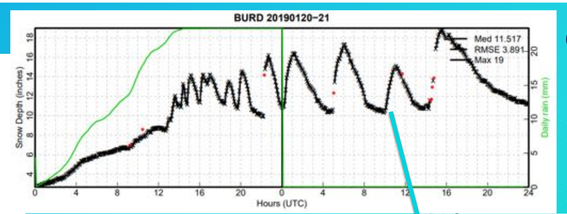
- Snow Water Equivalent
  - CS725 SWE (20)
- Snow Depth
  - CS SR50A (126)
- Heated Weighing Gauge
  - Ott Pluvio 2 & 2L with double-altershield (126)
- NYCDEP snow network in Catskills



2018-2019 Winter Snow Fall

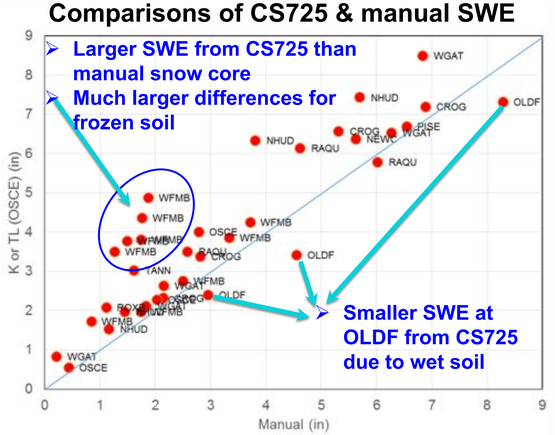




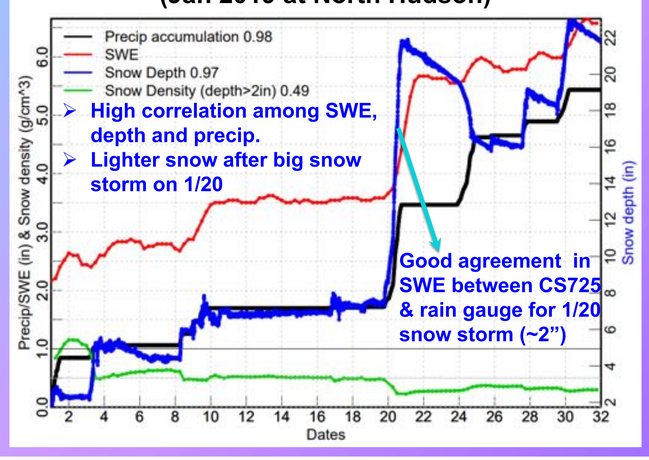


Challenges in Snow Depth:
- Snow drifting, blowing & Sastrugi …
- Horizontal inhomogeneity
- Changes in reference height
- …

Comparisons of CS725 & manual SWE

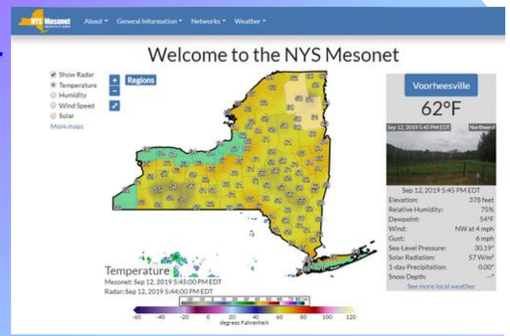


Snow depth, SWE, snow density, precipitation (Jan 2019 at North Hudson)



Conclusions

- NYS provides ideal locations for all types of winter storms over complex terrain (blizzard, lake-effect snow storms, snow squall, ice storms …)
- Given its complex terrain and diversity, NYS provides unique challenges and opportunities for satellite measurements.
- NYSM provides comprehensive snow measurements along with other surface and atmospheric measurements with unprecedented high spatial and temporal resolution.



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