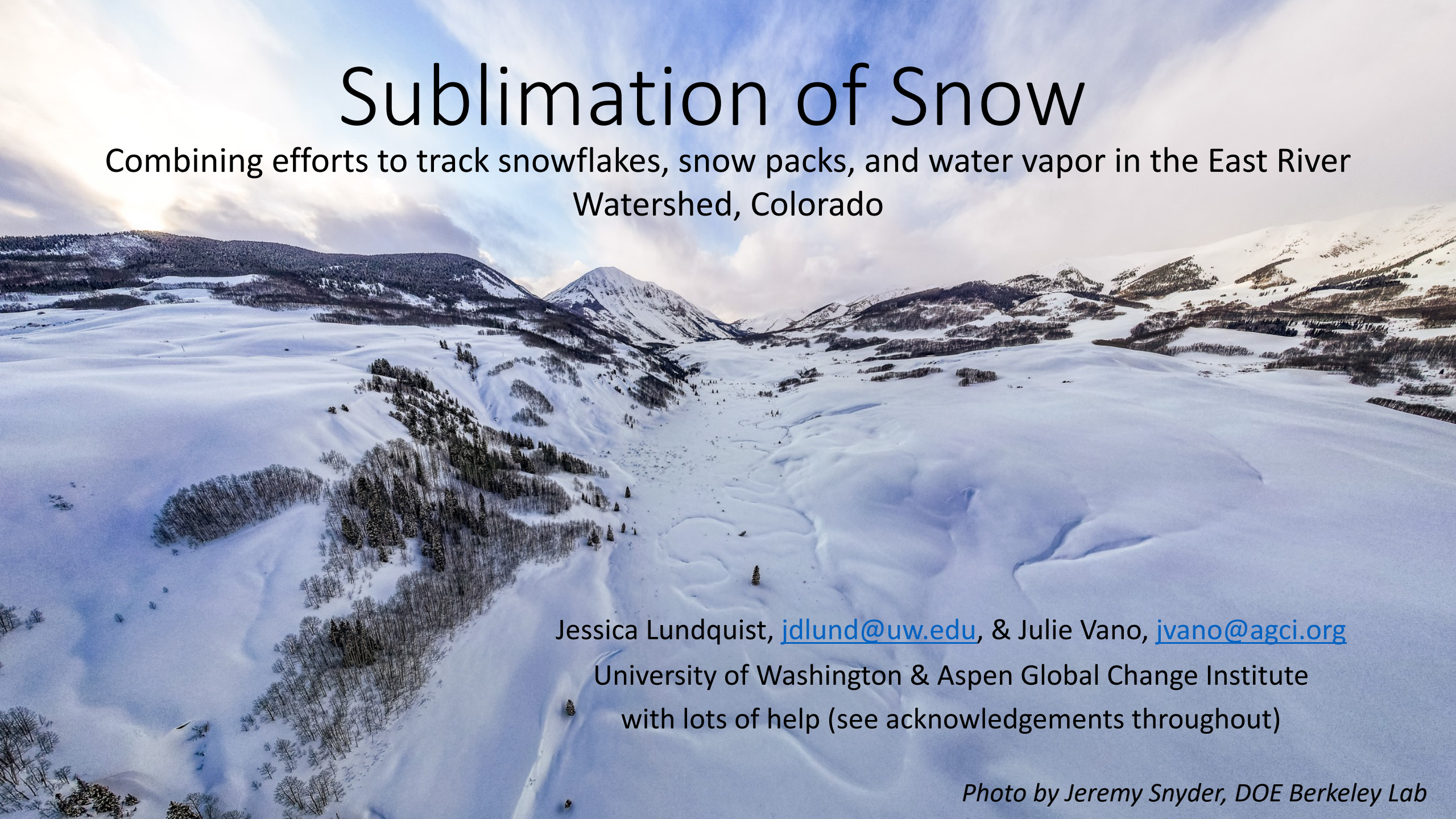
Sublimation of Snow

Combining efforts to track snowflakes, snow packs, and water vapor in the East River Watershed, Colorado



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University of Washington & Aspen Global Change Institute

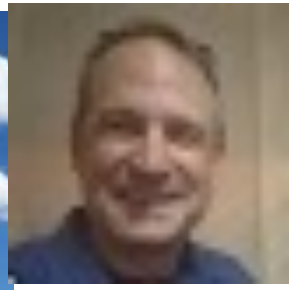
with lots of help (see acknowledgements throughout)

Photo by Jeremy Snyder, DOE Berkeley Lab

Our Team

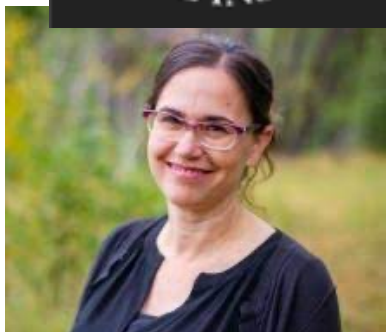
UW Mountain Hydrology

Steve Oncley



Chris Roden

EOL Technicians



Julie Vano

Antonio

Elise Osenga

Liz Carver

Rebecca Mott, SLF

Emilio Mateo

Michi Haugeneder, SLF

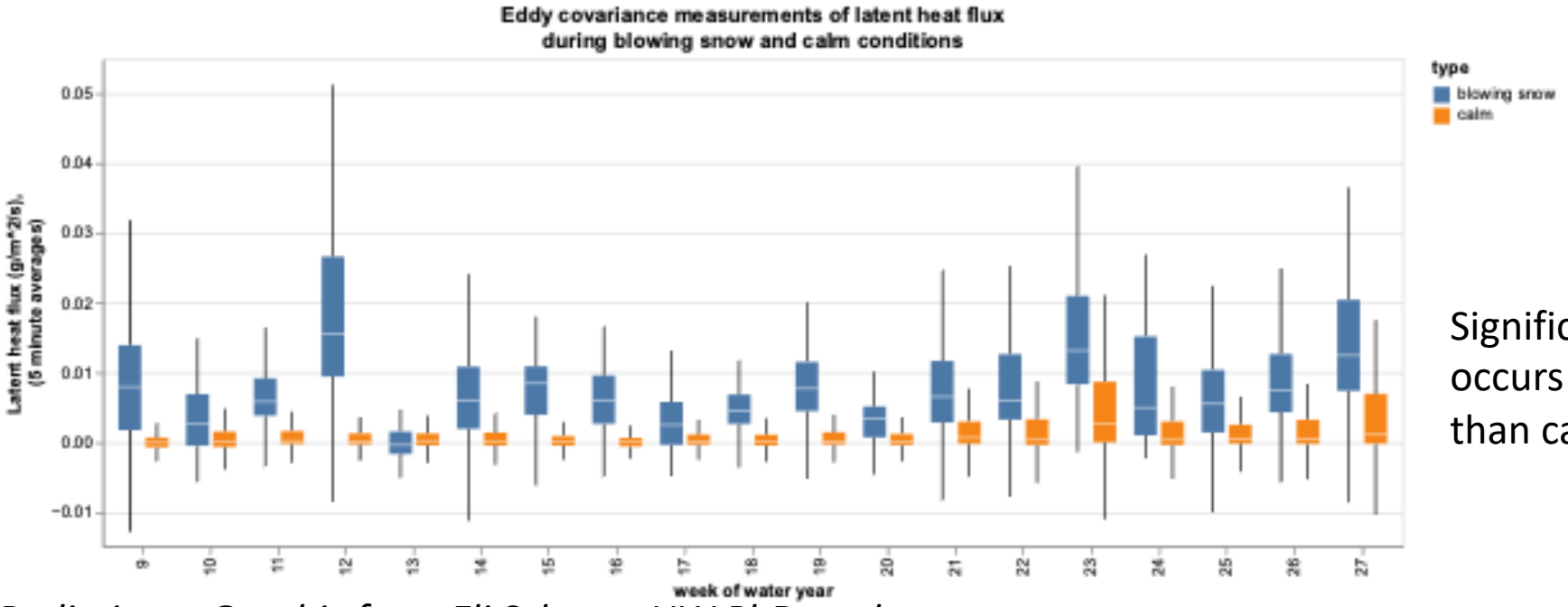
Ethan Gutmann,
NCAR

Eli Schwat

Danny Hogan

Overview & What we're doing now:

- Field deployment went great – data being QC'ed for archiving
- Project overview paper in preparation for BAMS
- Danny Hogan Master's Thesis defense "Missing Mountain Water" at 10 am Pacific time 7 September (https://washington.zoom.us/j/93127303603)
- PhD student Eli Schwat working on sublimation analysis
- Look for presentations by Danny and Eli at special SAIL-SPLASH-SOS session at AGU



Significantly more sublimation occurs during blowing snow events than calm events.

Preliminary Graphic from Eli Schwat, UW PhD student

Outreach:

SUBLIMATION OF SNOW

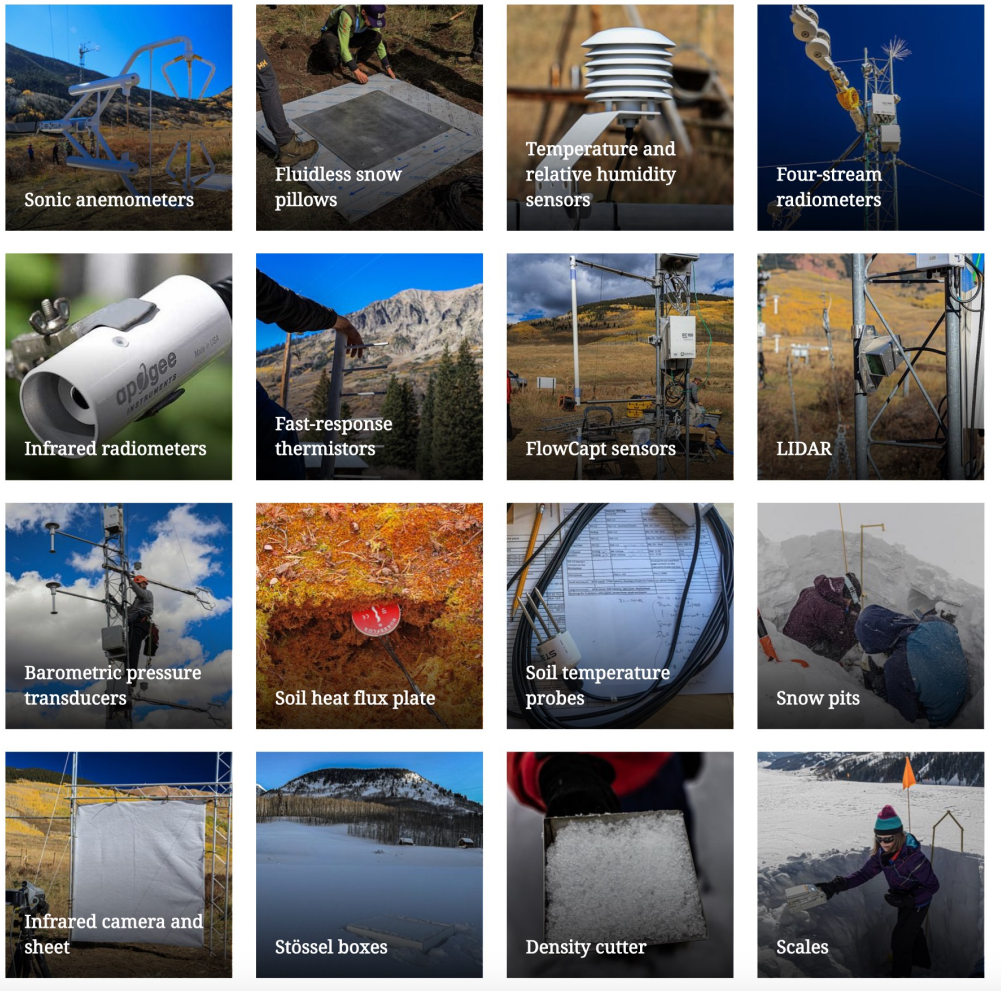
- Media: High Country News, WIRED, the Atlantic, NPR's Morning Edition, DOE ARM Feature, UW Feature, multiple blogs
- Working on 3 videos
- Emilio Mateo will present at AGU

check out our library at:
bit.ly/sublimation-of-snow

SOS Instrument Library

The SOS Project deployed over 100 instruments and 16 instrument types, pictured below. Together, these instruments collected approximately 10 million individual data points per hour, providing extremely high temporal resolution data at the Kettle Ponds study site in Gothic, Colorado, to better understand the phase transition from snow to water vapor.

Click on a square below to learn more about each instrument.



Education and if you want data now:

- Education
  - Building on outreach efforts and instrument library
  - SOS project was central focus of Spring 2023 grad level Snow Hydrology Class
  - https://mountain-hydrology-research-group.github.io/snow-hydrology/
  - Jupyter notebook labs and homework to study all aspects of snow mass and energy balance using our field campaign data, on github for other professors to clone
  - Currently updating based on feedback from initial class (some parts are still messy right now, so reach out to jdlund@uw.edu if you want to be a beta user)
- Jessica teaching online CUAHSI multi-university class this fall on snow modeling – future efforts to get this dataset as the master observational dataset for model evaluation