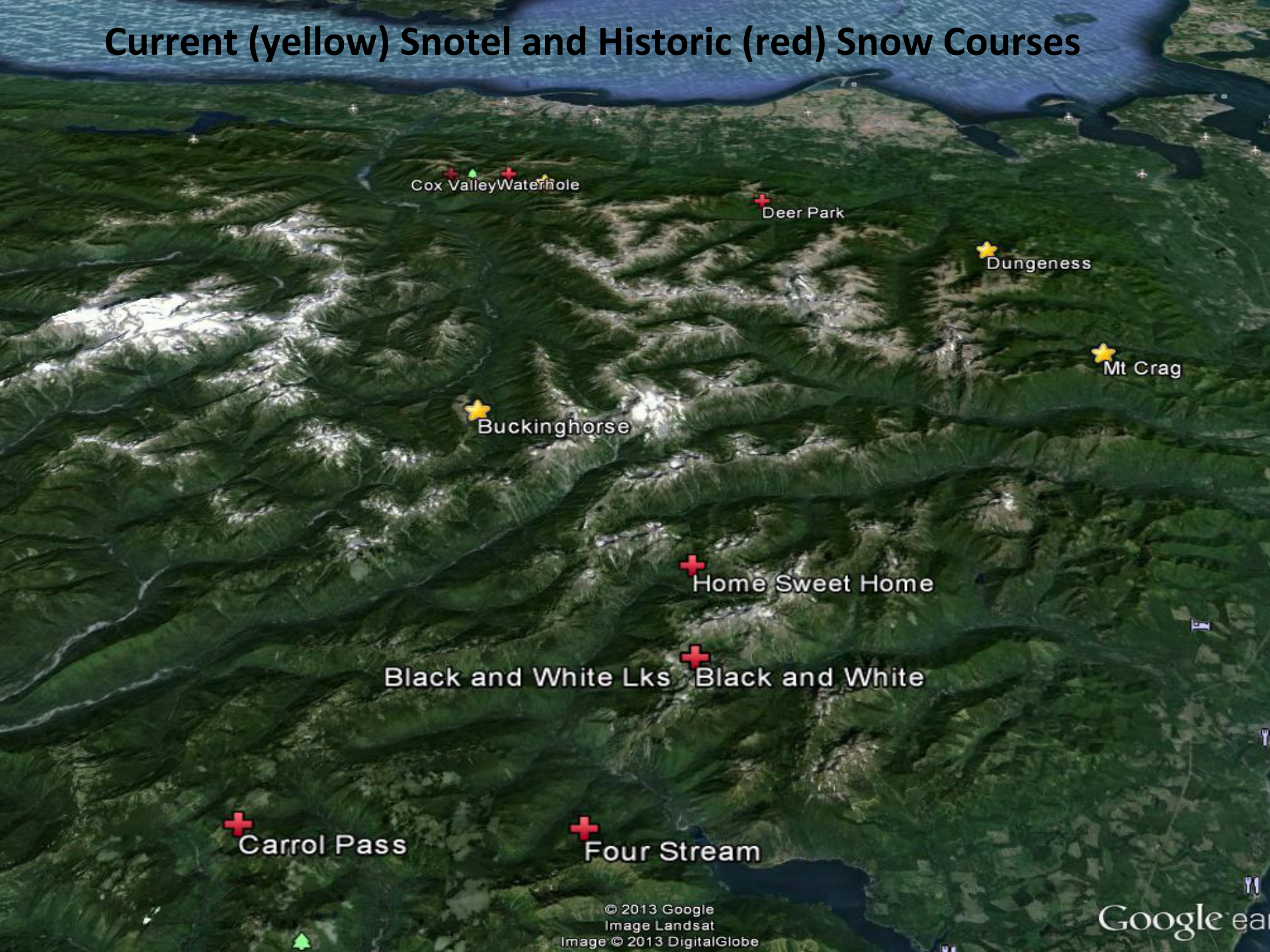
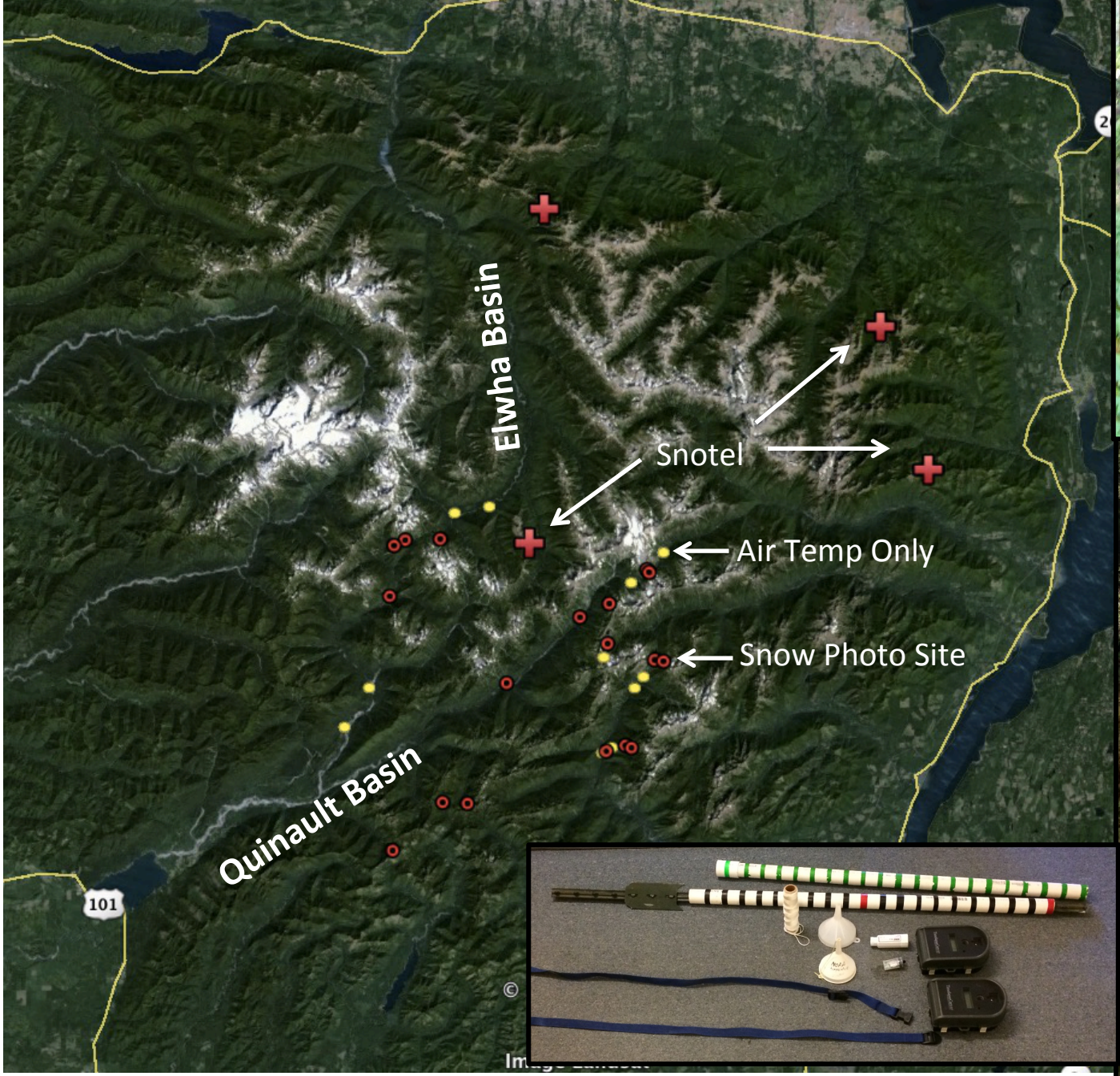
Olympian Efforts to Measure Olympex Snow

View from Twin Otter while measuring with LiDAR September 2014

Jessica Lundquist, Teddy Thorson, Derek Beal, Ryan Currier, Colin Butler, and Brad Gaylor

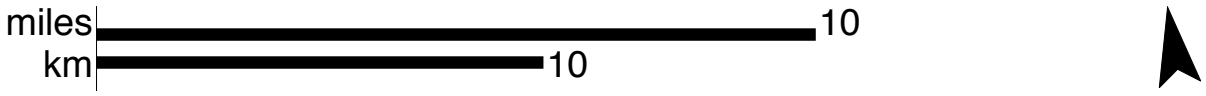
Current (yellow) Snotel and Historic (red) Snow Courses





Google earth

miles 20
km 40


miles
10
km
10

Summary Stats and Timeline

- 2013-14: Tested set-up at 3 Olympic SnoTEL sites – it works: depth is great, snow water equivalent (SWE) is reasonable; picked best camera
- 2014-15: Deployed 18 snow pole sites, plus 11 air temp only sites (some with RH), Clocked in 163 miles on 4 trips, carrying ~60-lb packs; Flew snow-off LiDAR
- 2015: One winter snow-on LiDAR (Feb or Mar); Testing snow depth to SWE algorithms; Summer = retrieve all data and reinforce sites
- 2015-16: Main field campaign, 3-4 LiDAR flights, plus manual snow courses for density
- 2016: Summer = Remove all equipment from park

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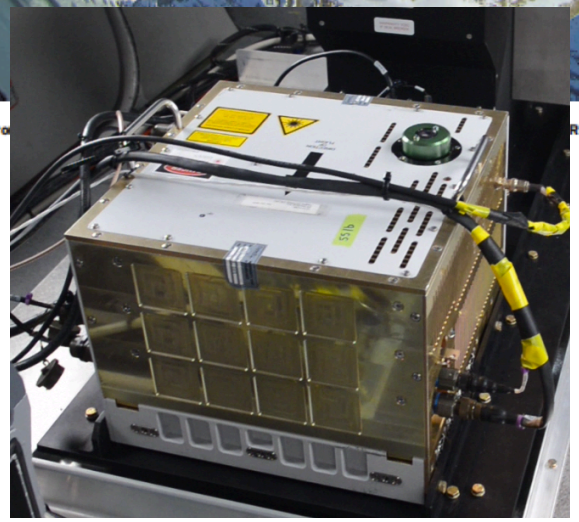
"The prediction for the end of the 21st century is for as much as a 90 percent reduction in the snowpack."
JAY FAMIGLIETTI
UC IRVINE EARTH SYSTEM SCIENCE PROFESSOR

LASERS CAST SNOWPACK IN NEW LIGHT

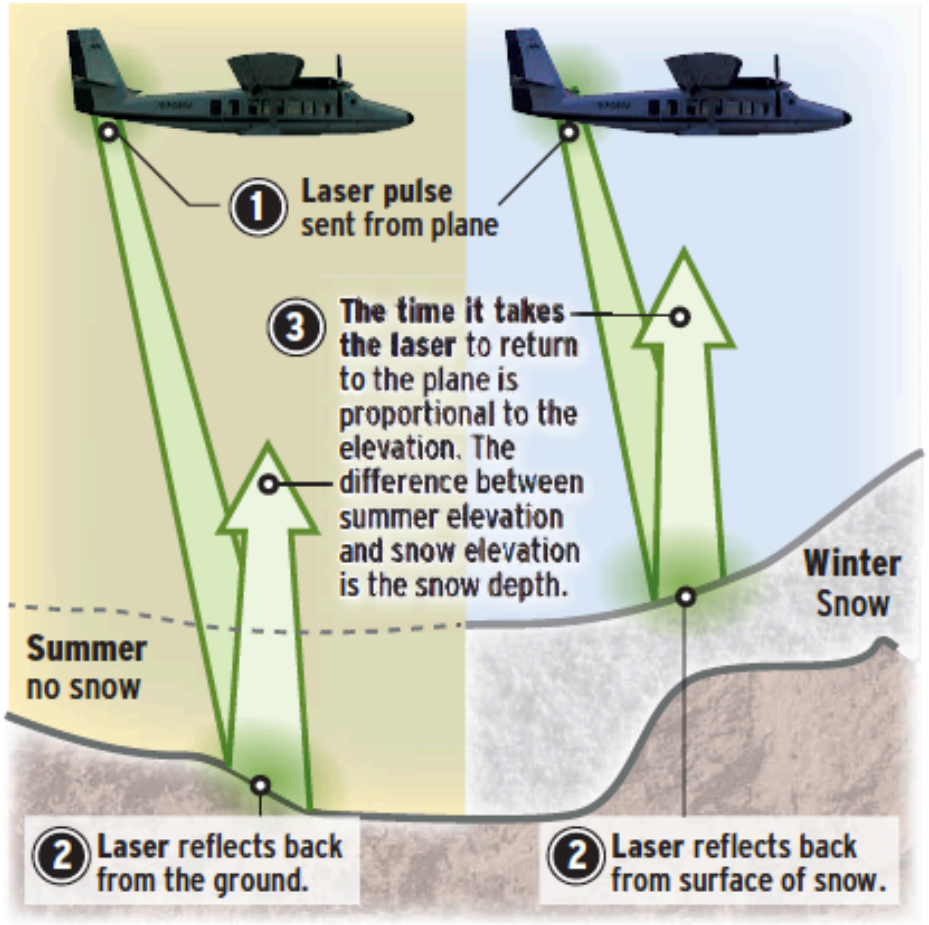


View fro

TOM PAINTER, JET PROPULSION LABORATORY
River basin north of Yosemite Valley.

How much snow?

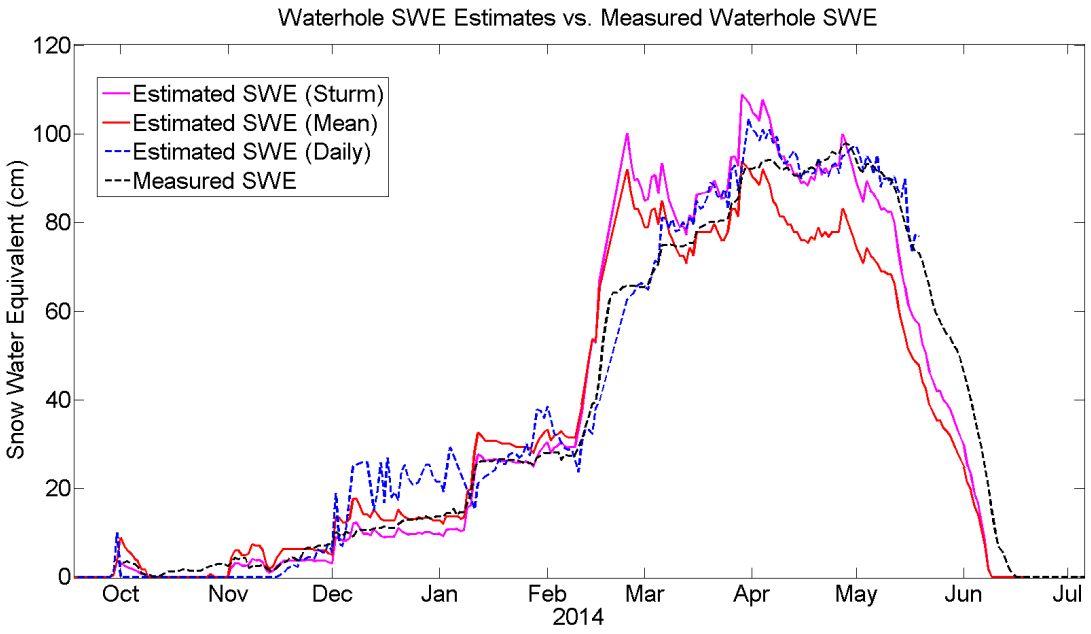
Using laser radar, known as Lidar, researchers measure the depth of snowpack in California.



Sources: Thomas Painter, Frank Gehrke, Optech Inc.

Flight completed 9/2014;
Processing done 3/2015

Flight planned for
Feb or Mar 2015

To consider in planning…

- Time series of snow evolution at 18 sites with snapshots of spatial snow depth on a few days
- All direct measurements are of snow depth
- Will need to rely on SnoTEL, models, and on human snow obs for density to convert to snow water equivalent (SWE) – work in progress
- Also, we do not have liquid precip measurments in these regions (may want some precip gauge supplements)