How to collaborate with the crowd:
a method for “publishing” ongoing work

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Fractional snow-covered area, Sierra Nevada (MODIS images available daily)

MODIS, 19 Jan 2008
Reconstructed SWE, dry and wet years
What patterns can we discover in these 3 images to give us this image? And then how do we fix this model?
Pattern discovery problem: can experience with reconstructed SWE help improve forecasts?
Maximum SWE from SNODAS & Reconstruction 2011
Algorithmic problem: viewshed for all points

- Elevations of western US at 3 arc-sec resolution, 720M pixels
- Better topographic radiation calculations need viewsheds for every point
Viewshed for Dana Meadows snow pillow
Remote sensing problem: snow-cloud discrimination

- Straightforward with thick clouds (Landsat Thematic Mapper example)

Bands 3 2 1 RGB (0.66, 0.57, 0.48 μm)

Bands 5 4 2 (1.65, 0.83, 0.57 μm)
Snow-cloud discrimination, a harder example

• MODIS, Hindu Kush, 2011-04-10

Bands 1 4 3 RGB  
(0.645, 0.555, 0.469 µm)  

Bands 6 2 4  
(1.640, 0.858, 0.555 µm)
Finding snow in the forest

(M. Raleigh & K. Rittger)
Other examples . . .

• Error propagation: how does uncertainty in the whole processing chain create the statistical distribution of errors in the final result?
  – e.g., How does sub-grid topography affect the answer?

• Improved presentation
  – Integration with Layerscape, Bing Maps

• Your good idea goes here . . .