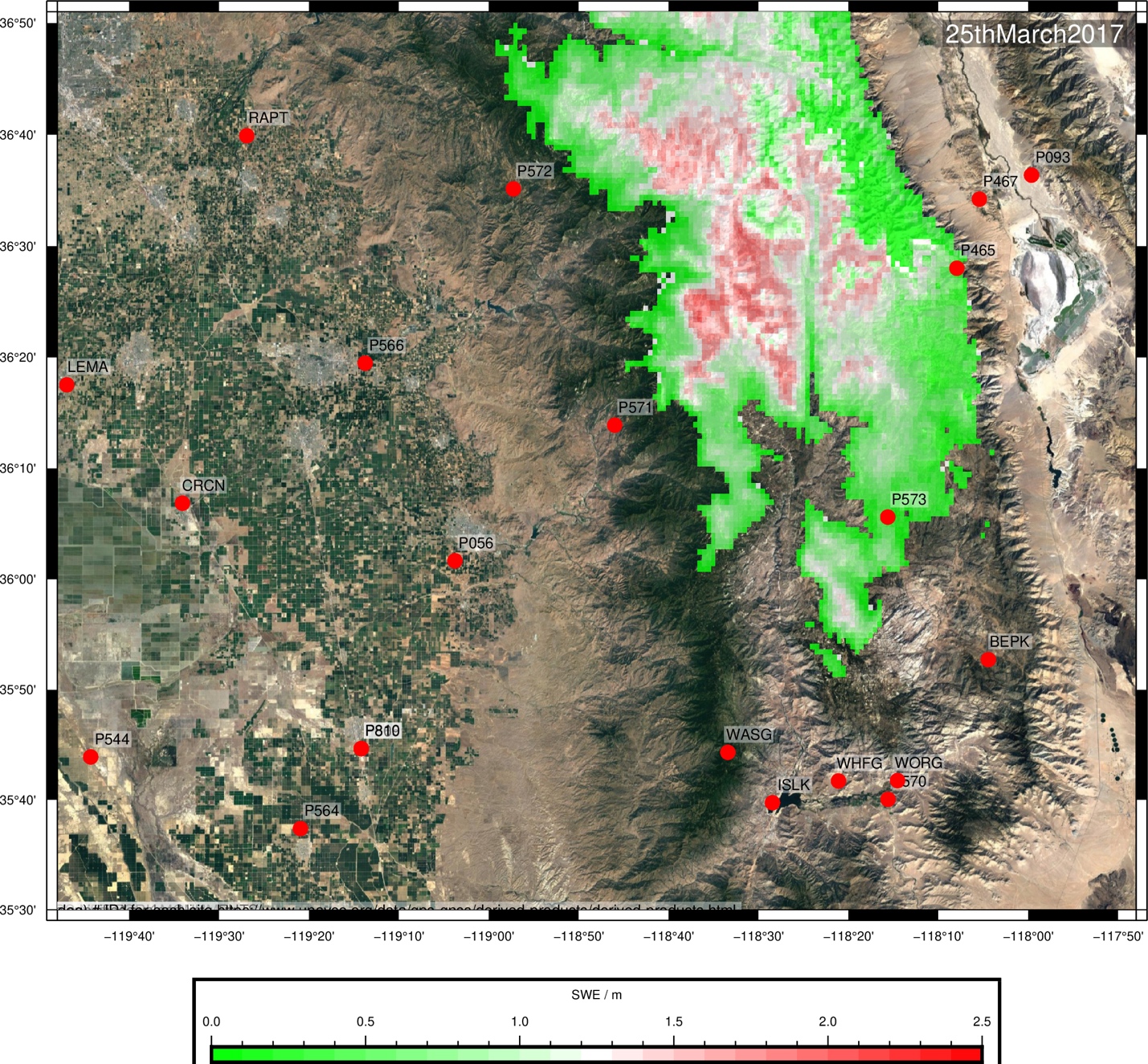
**Proposed Initial “Proof of Concept” Inversion**

The real World picture looks like this:



Red circles are GPS stations. The green-red coloured grid are ‘truth’ from the SNODAS SWE model.

Inversion

Three steps:

1. Toy problem.
   1. Create a known cylinder of a given mass and calculate deformation field. Then create 3,4,5(?) GPS stations around the cylinder and try to invert for the mass of the cylinder.
   2. Add a second cylinder and explore how well the inversion works.
2. Highly simplified real world problem.
   1. Take the minimum and maximum snow mass for the hydrologic year 2017. (Maximum is approximately shown in picture above; minimum is zero). Model the maximum snow as a single cylinder centred on the ‘centre of mass’ of the snow. Can we use stations P572, P572, P573 and P465 to invert for this mass of snow?
   2. Consider modelling the snow as two or three cylinders?
3. More realistic real world problem.
   1. Discretize the snow into a mesh?
   2. Bring in InSAR data.
   3. Full time series rather than just maximum extent?