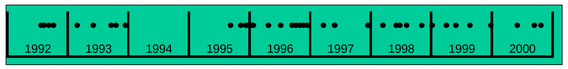
Advantages of Time Series Interferometry

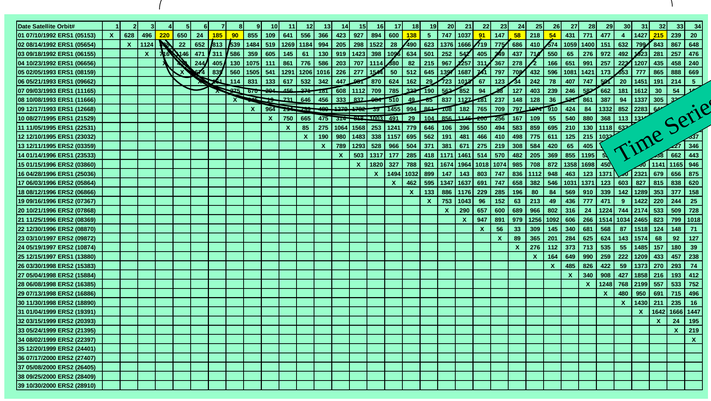


Question: How best to make use of large number of datasets available?

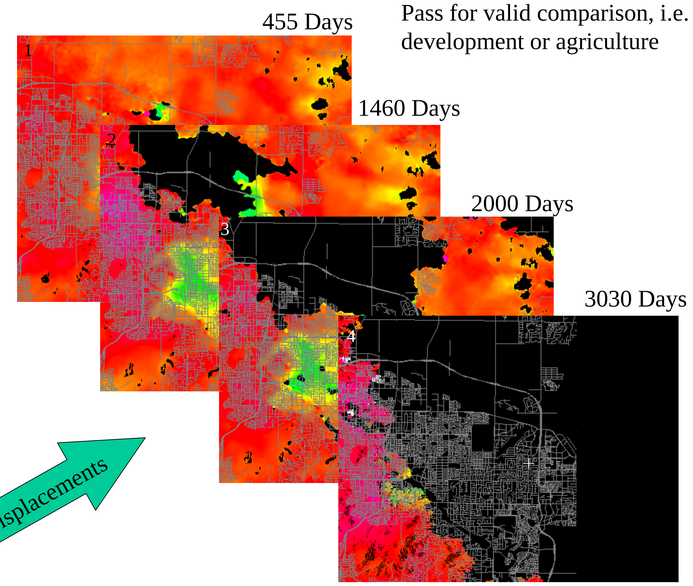
- With, e.g., 39 data sets, there exist 741 potential IFSAR pairs.
- Useful pairs constrained by satellite baseline and by temporal separation.

One way of representing the SAR data is to create a matrix (below) with all data sets listed chronologically on both the X- and Y- axes. Each entry then represents an IFSAR pair. The number in each entry is the baseline.

Potential Time Series

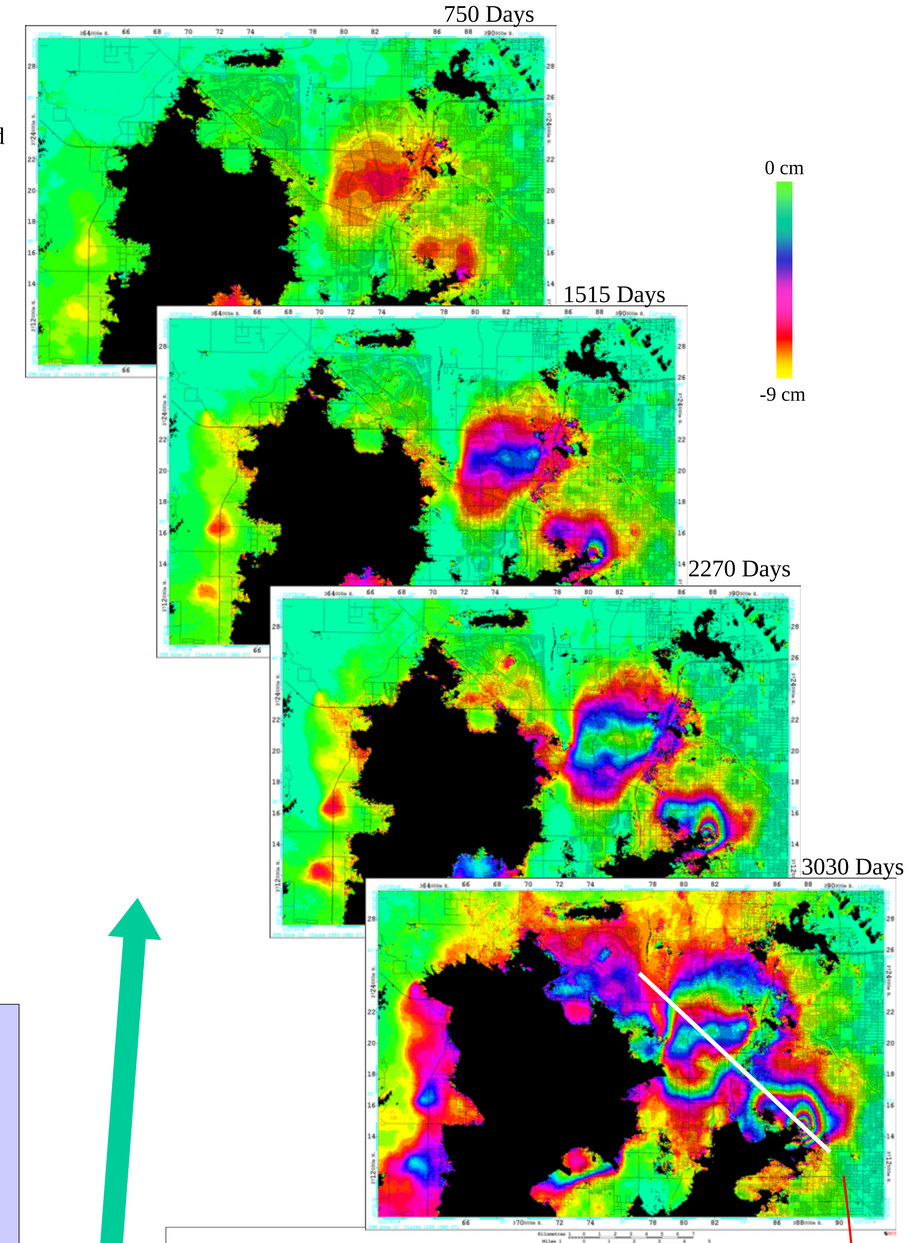


Time Series Displacements

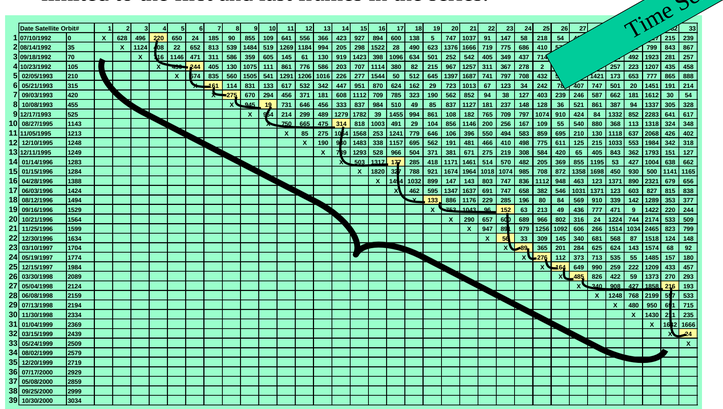
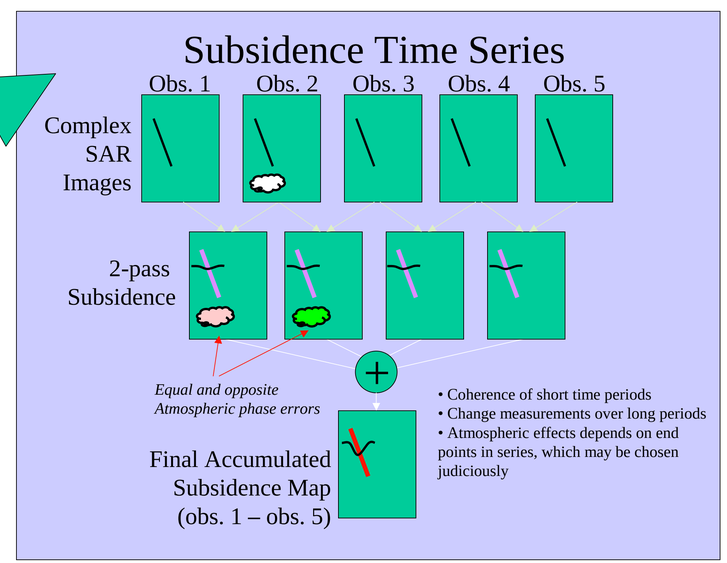
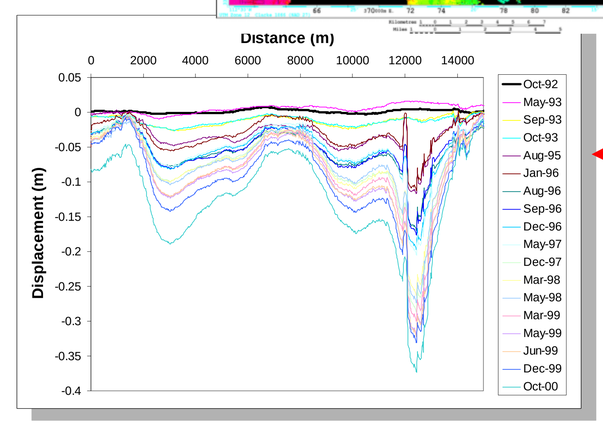


■ = decorrelation: areas where radar scattering characteristics changed too much from First Pass to Second Pass for valid comparison, i.e. development or agriculture

=> Long time baselines give poor results



Alternatively, can choose pairs with small temporal separations, then sum displacements. This generally gives good coherence due to short time steps. A byproduct of this processing is that atmospheric interference contributions are limited to the first and last frames in the series.



Time Series