

Deformation parameter estimation in low-coherence areas using multi-satellite InSAR approach

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Multi temporal InSAR techniques such as PSI (Persistent Scatterer Interferometry) and SBAS (Small Baseline Subset algorithm) have been used to estimate time series of surface deformation with high precision. In areas with low coherence, and in the absence of sufficient PS, the estimation of reliable phase information can be very cumbersome. Here we report two methods to improve the feasibility and precision of deformation parameter estimation in low-coherence areas; adaptive multilook window and integrated use of data from several satellite missions. The adaptive multilook window may prevent underestimate of shallow subsidence due to deep foundations of buildings, seen in PSI results. Integration of multi-datasets can improve the precision and expand the temporal coverage. The estimated deformation using these methods for pasture on drained peat soils in the Netherlands shows distinct subsidence and periodic components.

Keywords: InSAR, Time series analysis, Coherence, Subsidence, Peat soil