Thanks for your contribution to this paper. I have read your comments very seriously and responded as follows:

Reply to the comments 1: "I would like to suggest the authors add a short description of the used methodology with a particular emphasis on the estimation and removal of APS."

Add a short description of the used methodology with a particular emphasis on the estimation and removal of APS on Section 3.2.2. Such as:

Traditional atmospheric delay phase (APS) estimates are based on a single interferogram (Ferretti et al., 2001). The atmospheric phase in the interferogram is the difference in atmospheric phase delay between the sub-image and the main image. If one of the two images is used to generate other interferograms, the phase delay signal on the image is also passed to the other interferograms, which also makes a correlation between the two interferograms. In this paper, we will use the network method to estimate the atmospheric delay error of each image acquisition time, and then use these estimates to obtain the delay error of a single moment to reconstruct the atmospheric delay error of each interferogram.

After removing the DEM error and the deformation phase, it can be assumed that the residual phase is mainly caused by the atmosphere. Suppose $\delta\varphi_j(x,y)$ represents the residual phase value at (x,y) on the jth interferogram, and $\varphi(t_A,x,y)$ and $\varphi(t_B,x,y)$ represent the phase values of the imaging moments t_A and t_B at (x,y), respectively. Each interferogram can be expressed by equation (2).

$$\delta\varphi_j(\mathrm{x,y}) = \varphi(t_B,x,y) - \varphi(t_A,x,y) \tag{2}$$

Based on a short baseline set network, we can construct equations such as (3)

$$\boldsymbol{\delta\varphi} = \boldsymbol{A} * \boldsymbol{\varphi} \tag{3}$$

Where $\boldsymbol{A}$ represents the $M * N$ matrix. The element A_{kl} of the matrix $\boldsymbol{A}$ is defined according to the following rules: If $l = t_B$, then $A_{kl} = 1$; if $l = t_A$, then $A_{kl} = -1$; otherwise $A_{kl} = 0$. $\boldsymbol{\delta\varphi}$ is a known vector of M dimension, representing the number of interferograms are M; $\boldsymbol{\varphi}$ is an N-dimensional unknown vector representing the atmospheric phase values of N imaging moments. Equation (3) can be written as

$$\begin{bmatrix} \delta\varphi_1(x,y) \\ \vdots \\ \delta\varphi_k(x,y) \end{bmatrix} = \begin{bmatrix} -1 & 0 & 1 & & \\ & \ddots & & \ddots & \\ & & 0 & -1 & 1 \end{bmatrix} \begin{bmatrix} \varphi^{t_0}(x,y) \\ \vdots \\ \varphi^{t_k}(x,y) \end{bmatrix} \tag{4}$$

Where $\delta\varphi_k(x,y)$ represents the residual phase of interferogram k, and the corresponding position is (x, y).

Since the matrix $\boldsymbol{A}$ is the rank-deficient matrix, a unique solution cannot be obtained. Generally, the singular value decomposition (SVD) method can be used to solve the solution, and the atmospheric delay at each moment is obtained, and then the phase value of each interferogram is simulated by using equation (4). By calculating the variance of the residual phase of each interferogram, if the interferogram has the lowest atmospheric variance, the atmospheric phase of the interferogram is assumed to be zero. This constraint is added to equation (4) to calculate the atmospheric delay phase of all other image acquisition moments (Li Yongsheng, 2014).

Reply to the comments 2: "Some minor changes are required concerning English style."
When the next manuscript is uploaded, the English style of the full text will be revised.

Reply to the comments 3: "Reference to the literature is not adequate but it must be improved by searching for the most recent publications on the InSAR field. Also, the original SBAS paper of Berardino et al. has not been cited. Also, several other SBAS-like methods have been designed and presented in the literature."

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