



Coherence Estimation for Tomographic Processing

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This paper is focused onto retrieving the coherency of the SAR data which is the measure of consistency of the geographical feature. The dataset used in this study is acquired by the RADARSAT 2 satellite and of quad pol nature. This study is done on the Dudhwa national park located in the Uttar Pradesh state of India. The study area is mainly covering the forest region. This study is done on the dataset acquired over an approximate period of 3 year. The measure of coherency is required for performing the tomographic process because the backscattering from the features present on the ground at various heights should not change during the course of data acquisition, so that the vertical height profile of the features can be measured correctly. For estimating the coherency of datasets, multi looking is done which filters the dataset by removing the inherent speckle noise. By doing so we get an image which have nominal image pixel size. Doing the radiometric calibration of the multilooked image is important in this case as this study has been done on the datasets acquired with same sensor but at the different times, this step produces the sigma naught images of the processed datasets. After performing the calibration of datasets, the subpixel Coregistration of the images is done which produces the output images which is the outcome of accurately alignment of the dataset with each other. This step produces the master and slave image and master image is selected by calculating the baseline of the datasets with each other. The coregistration in this study is done using the orbit file of the datasets with nearest neighbor resampling. Sinclair matrix of the dataset are produced to generate the coherency matrix.