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Title: Change detection in polarimetric synthetic aperture radar data

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Abstract: Based on an omnibus likelihood ratio test statistic for the equality of several variance-covariance matrices following the complex Wishart distribution and a factorization of this test statistic with associated p-values, change analysis in a time sequence of multilook polarimetric SAR data in the covariance matrix representation is carried out. The omnibus test statistic and its factorization detect if and when change occurs. Also, a measure of change direction is calculated. Using spaceborne dual polarization Sentinel-1 and full polarization Radarsat-2 data this contribution focuses on change detection based on the p-values, on visualization of change at pixel as well as segment level, and on computer software for local as well as cloud processing.