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EXTRACTION OF BUILDING SHAPE FROM TANDEM-X DATA

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Abstract. Large scale mapping and modeling of urban areas is requested in many fields, especially in planning of energy supply and for change detection. For this purpose, SAR systems are highly attractive due to their independency of daytime and weather. The new satellite configuration of TerraSAR-X and TanDEM-X provides single-pass 3D mapping of the earth with unprecedented geometric resolution, allowing for improved detection and extraction of building positions and shapes.

In this paper, single-pass interferograms of the TanDEM-X mission are utilized to automatically reconstruct buildings. To this purpose, first an interferogram is calculated from a TanDEM pair. Then, a new detector is applied that analyses phase ramps in the interferogram. Phase ramps being a pattern typically observable in layover areas of buildings, the detector is able to indicate building locations. Afterwards, the detected building areas are analyzed in more detail to extract width, length, and height of the buildings. Last, an edge detector is applied to deduce the building shapes. The reconstruction results are compared with reference data.

[Conference Paper](#) (PDF, 2937 KB)

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