



Airborne SAR systems for infrastructures monitoring

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The present contribution is aimed at showing the capabilities of Synthetic Aperture Radar (SAR) systems mounted onboard airborne platforms for the monitoring of infrastructures.

As well known, airborne SAR systems guarantee narrower spatial coverage than satellite sensors [1]. On the other side, airborne SAR products are characterized by geometric resolution typically higher than that achievable in the satellite case, where larger antennas must be necessarily exploited. More important, airborne SAR platforms guarantee operational flexibility significantly higher than that achievable with satellite systems. Indeed, the revisit time between repeated SAR acquisitions in the satellite case cannot be freely decided, whereas in the airborne case it can be kept very short. This renders the airborne platforms of key interest for the monitoring of infrastructures, especially in case of emergencies. However, due to the platform deviations from a rectilinear, reference flight track, the generation of airborne SAR products is not a turn of the crank procedure as in the satellite case. Notwithstanding proper algorithms exist in order to circumvent this kind of limitations.

In this work, we show how the exploitation of airborne SAR sensors, coupled to the use of such algorithms, allows obtaining high resolution monitoring of infrastructures in urban areas.

[1] G. Franceschetti, and R.Lanari, Synthetic Aperture Radar Processing, CRC PRESS, New York, 1999.