

On the impairment of SAR images caused by propagation through clouds

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Imaging of the earth surface using space- and airborne SAR systems is generally considered to be independent of weather conditions. However, cloud systems are "active" media when it comes to microwaves propagating through them.

The "activity" is capable of generating attenuation, phase-shifts and depolarisation. These features are, in turn, capable of distorting the SAR images generated from radar signal propagating through such cloud media. In this paper, we shall quantify the magnitude of these propagation effects that can typically arise from precipitating cloud systems. The proposed analysis will exploit weather radar observations for this purpose. The changes in the SAR images resulting from such propagation impairments will be highlighted.