



## **A methodology for Floods mapping based on radar images over the SOMME French catchment**

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In the context of river floods in the SOMME catchment in the North of France in 2001, a methodology to map floods using radar and optical remote sensing techniques was developed. The work was carried out with 5 radar ERS/SAR images, optical SPOT/HRVI and DEM data.

The principal of the developed approach is based on the high decrease of radar signal when the surface is covered with water. We go from a high radar signal for humid soils to a very low signal when surface is covered with water. In order to avoid errors due to vegetation dynamic behaviour, the developed algorithm is linked, firstly to the land surface use estimated with optical data classification, and secondly, to DEM to estimate low areas, able to be submitted to floods. The validation of floods mapping based on radar images is made using SPOT/HRVI optical data taken at three dates, using the NDWI index, very sensitive to the presence of water cover. A mapping of flooded areas was made for five dates between March and May 2001.