

Theme: Remote Sensing

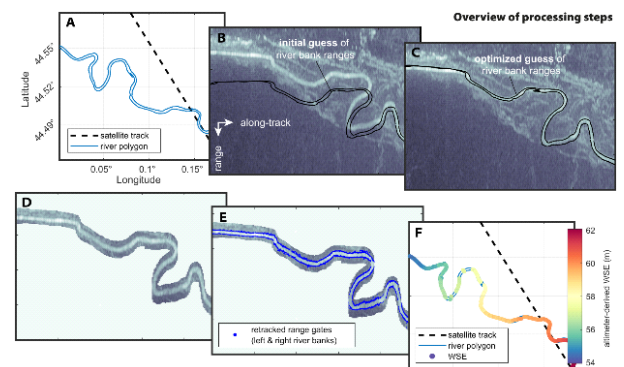
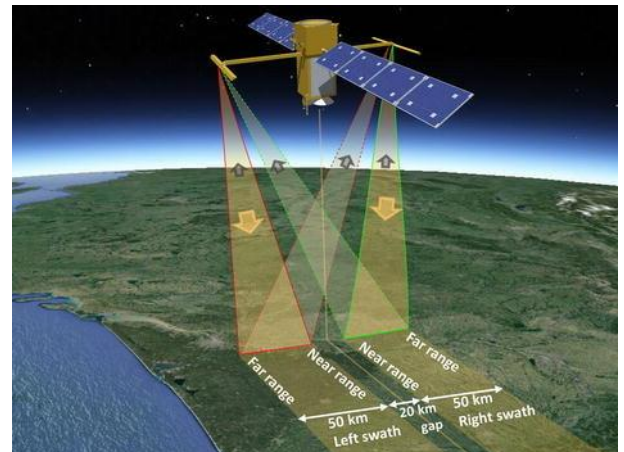
Mapping Dutch river level profiles from FFSAR & wide-swath altimetry

Background

With the advent of fully-focused SAR (FFSAR) processing and the launch of the first wide-swath altimeter SWOT, a new era has begun for monitoring river water levels and discharge based on remote sensing techniques. The first results look phenomenal and show enormous potential. We no longer only obtain a time series of water levels at those few locations where the satellite ground track intersects a wide river, we now even manage to measure entire profiles of small rivers, even if they are located next to the satellite ground track. Such data are invaluable for calibrating and validating river discharge models, which in turn are used to determine flood risks, etc. These data can also represent a major step forward for the Netherlands.

Purpose of the research

The main goal of this study is to determine the potential of these techniques for the Dutch context. Which rivers can we map based on this data and what do the time series show? In particular, we want to look at the Meuse river and its tributaries that enters via France and Belgium our country in the province of Limburg. Based on in-house developed processing software we will generate FFSAR for the data from the Sentinel-6 satellite. We also use the SWOT-based pixel cloud data. For validation, we primarily look at in-situ measurements. Together with hydrologists, we identify which derived quantities are most relevant to them and how we can best extract them from the data.



Supervision

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For students of Geoscience and Remote Sensing