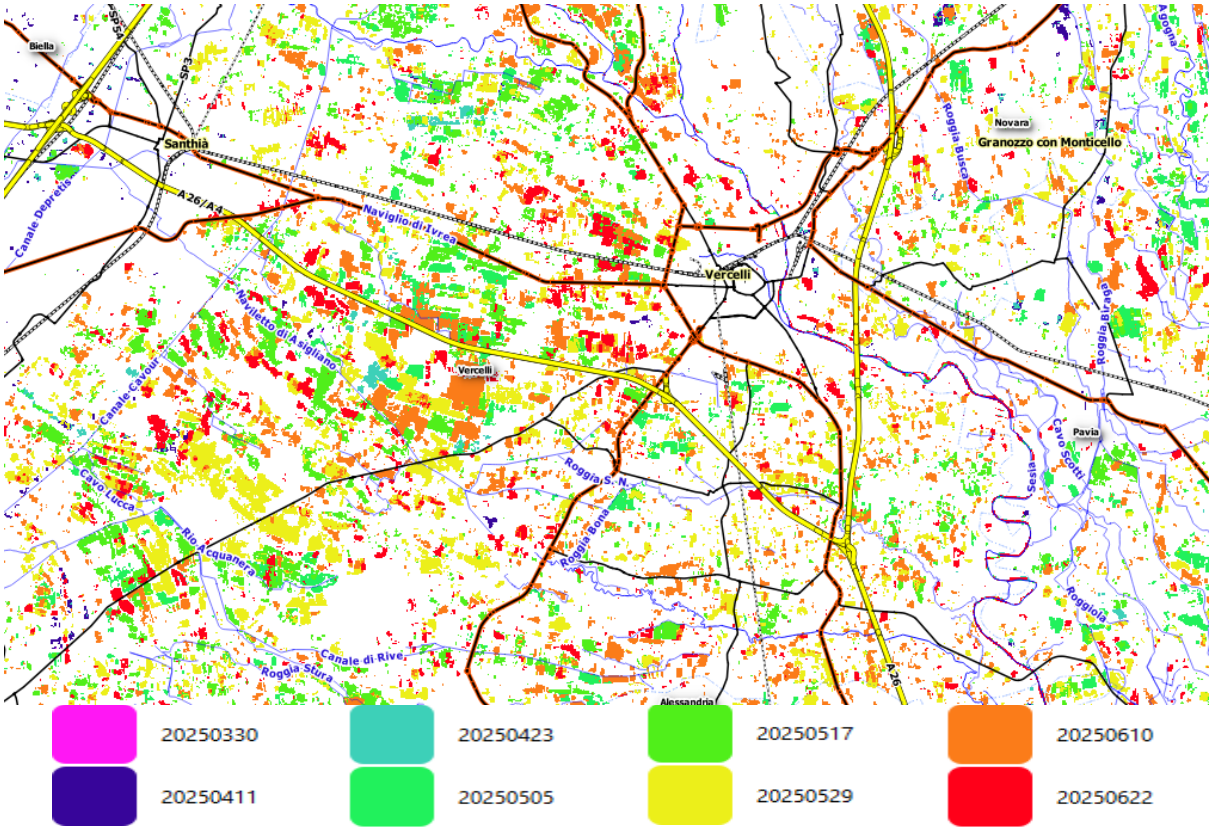
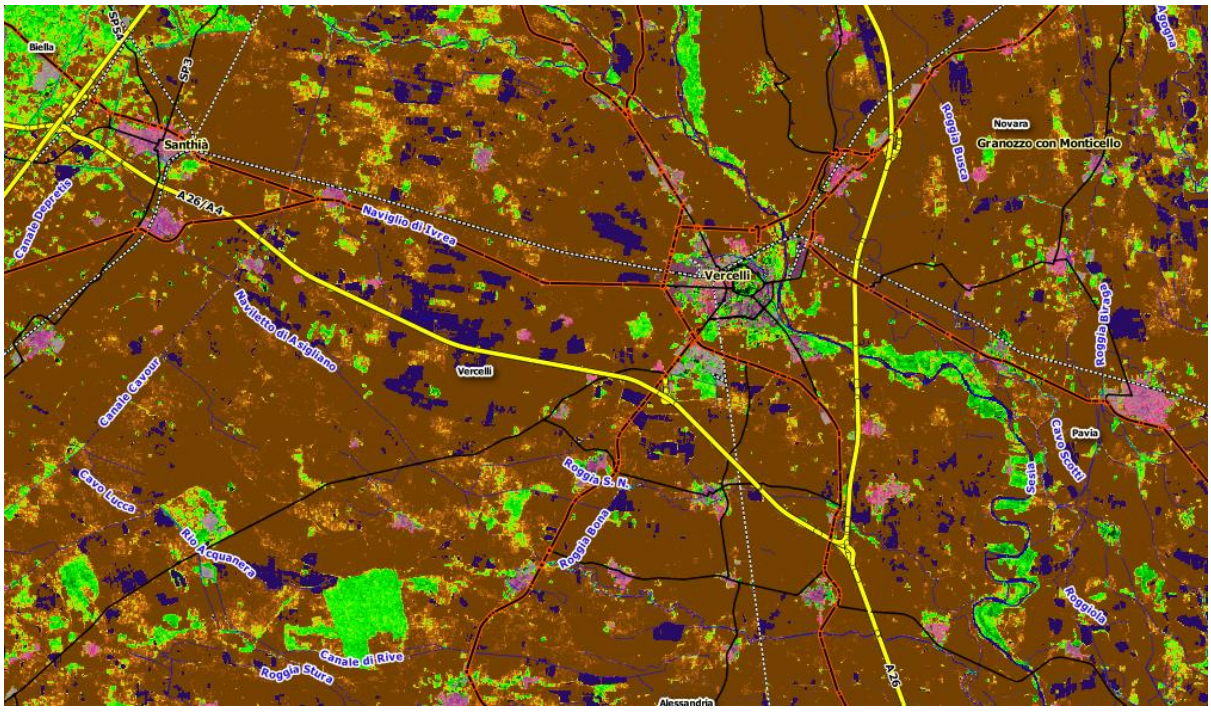
Flooding rice paddies in Vercelli

Vercelli is one of the most important rice-growing regions in Europe. Depending on water availability, farmers flood their fields to a depth of approximately 5 cm and then sow the rice in the water at the beginning of May. The rice was soaked beforehand to ensure it sinks to the bottom.

The map below shows the chronological sequence of flooding.

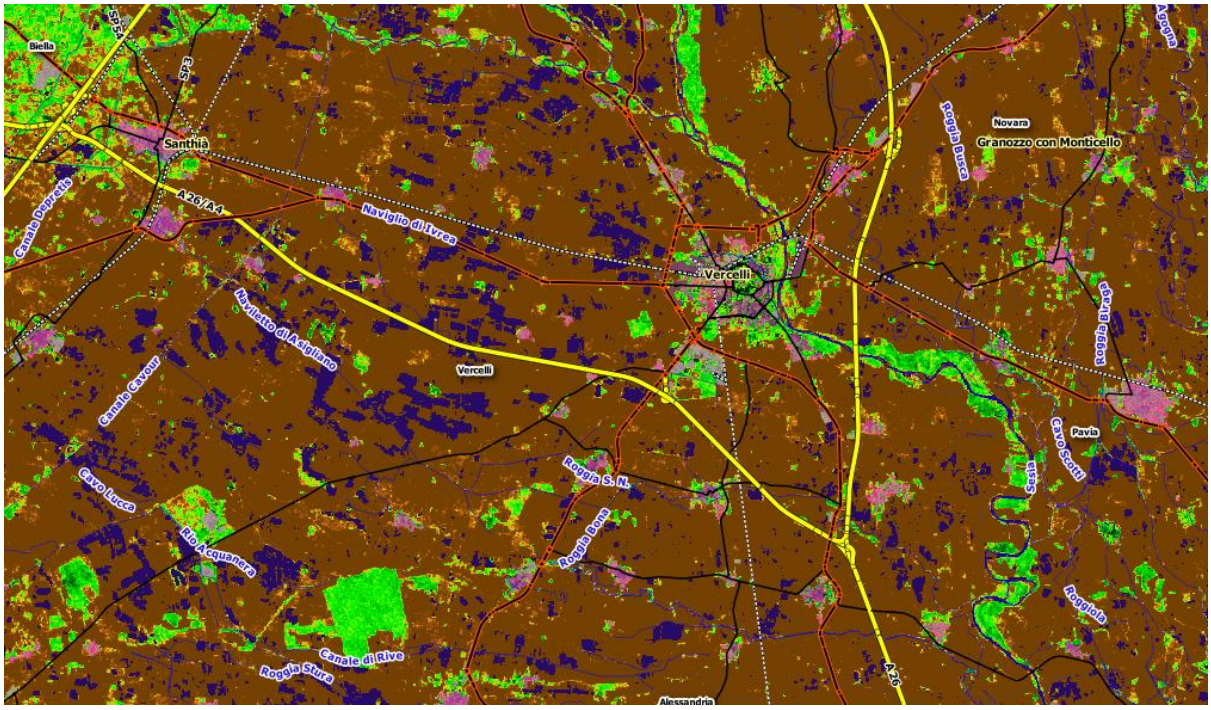


ESVI20250505 shows the flooded areas in blue, bare ground in brown and vegetation in yellow to dark green tones.

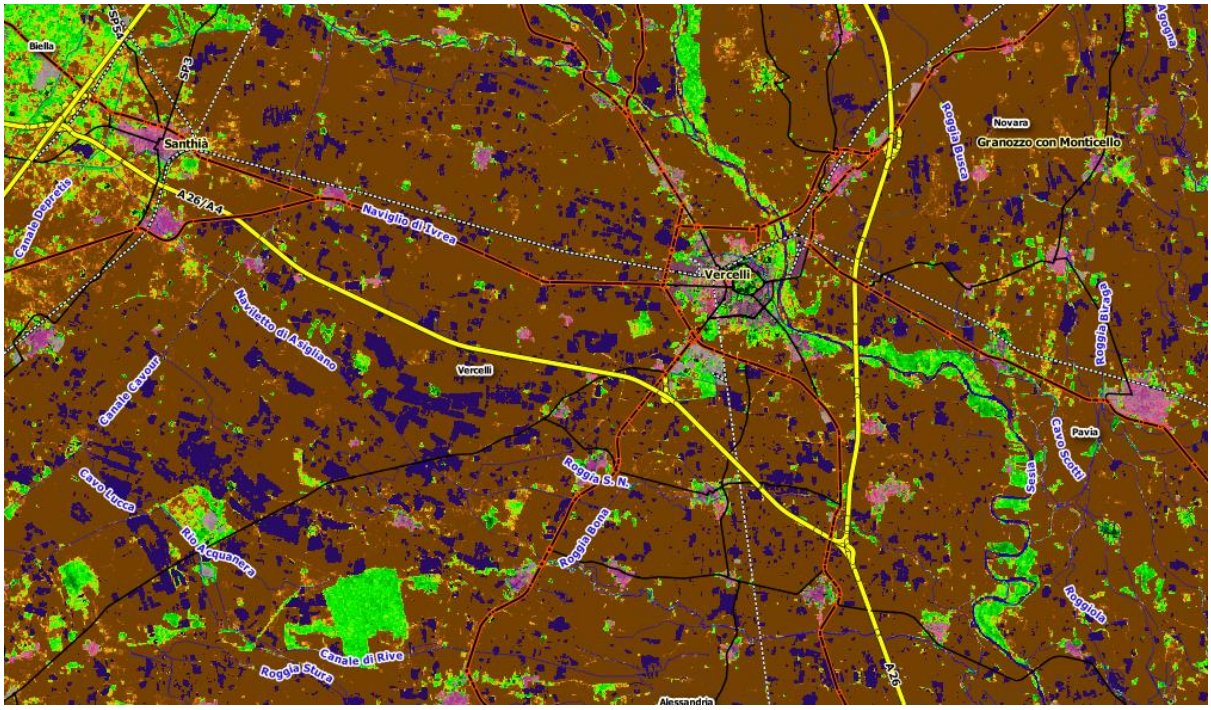


The ESVI (enhanced SAR Vegetation Index) shows both flooded areas and the transition from vegetation-free areas to fully developed biomass in arable crops. The scale is from 1 to 100, with light vegetation being measurable from 20 onwards.
SAR data from Sentinel-1 are independent of cloud cover and daylight. We therefore regularly have data of consistent quality every 12 days with a spatial resolution of 20x20 m.
In Europe, we have had data every 6 days since Sentinel-1 C became operational. The data have low measurement noise because the images are acquired from the same angle and with the same energy during each overflight.

ESVI20250517



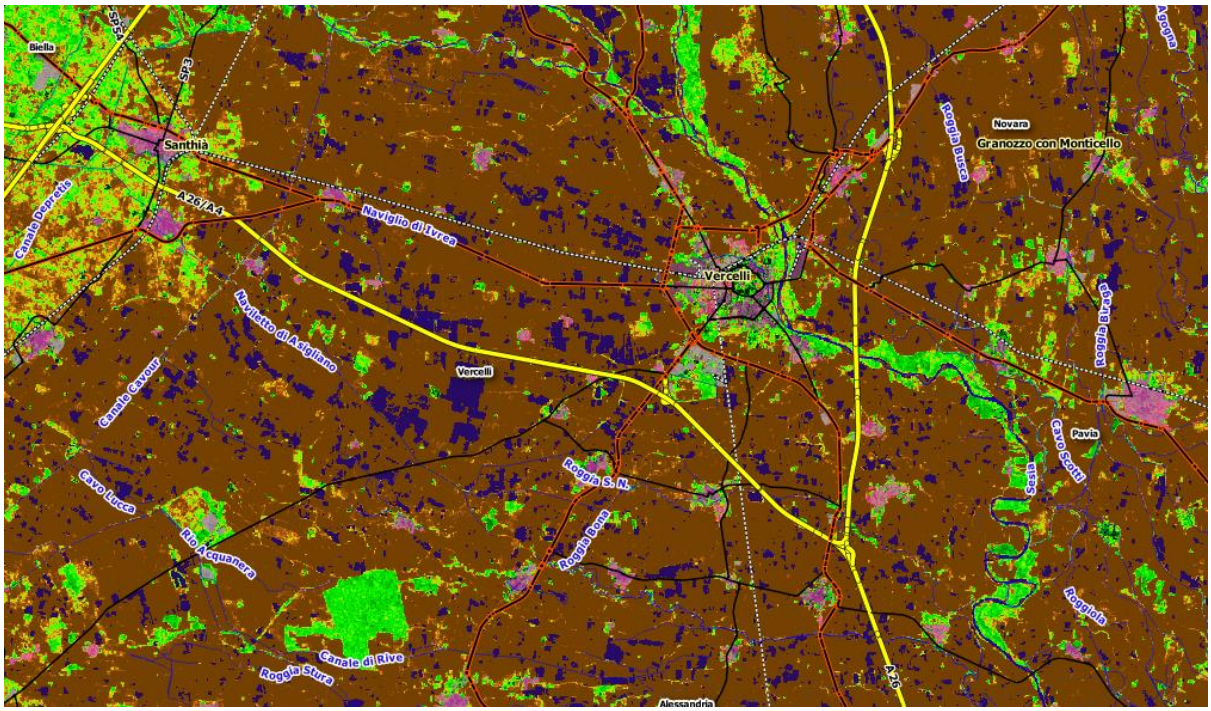
ESVI20250529



However, even SAR data is subject to imponderables. At the beginning of the season, the rice fields are leveled using precision equipment to ensure even drainage if necessary. The surfaces can then be so smooth that they appear like water on radar, even though they are not yet flooded.
However, they are then about to be flooded.

Another case, which occurs more frequently on non-flooded fields, is that plowed and thus rough surfaces appear like vegetation. They then appear green in the ESVI, even though they have no vegetation yet. This effect disappears in the time series because after plowing, the seedbed in which the crop will then grow is leveled again.

ESVI20250610



ESVI20250622

