Aqueduct data

Line scan

I've tested out two very simple line scans at 30 µm and 100 µm resolutions. The spot sizes were both times around 30 µm in diameter. The 30 µm resolution in blue more accurately describes the shape of the peaks as waves, which increase and the drop abruptly. The shapes are less repetitive in the 100 µm resolution scan, presumably because some features of the peaks were not covered equally, so that some very high values were skipped and left out of the scan.
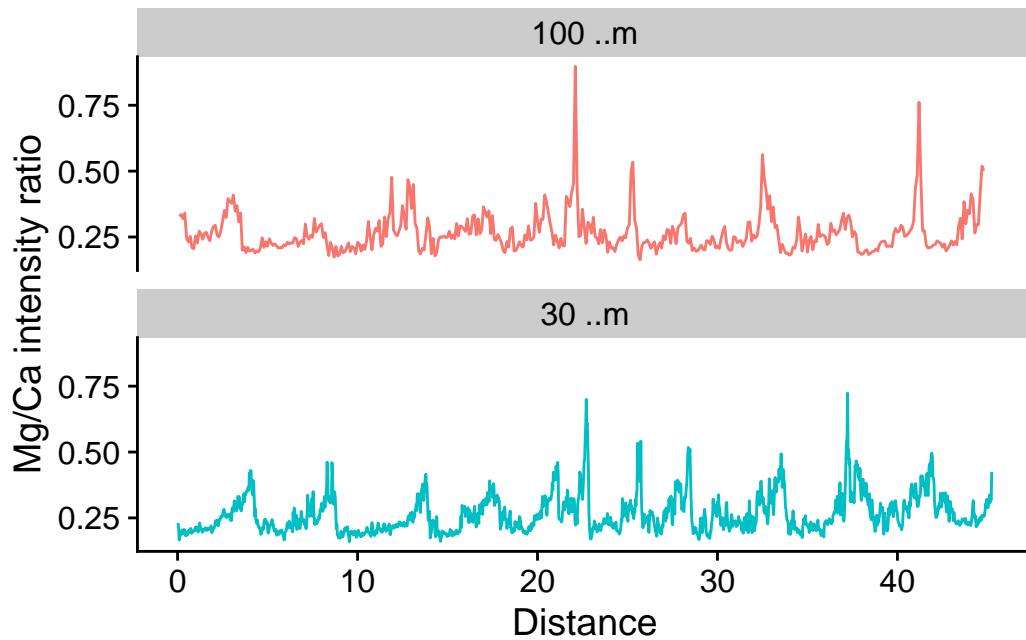

Figure 1: Two line scans at different resolutions.

2D maps

I also ran 2-dimensional scans at 150 μm. The resolution here should not be a big problem as it would be the case for a line scan, because the increments of the sample are covered multiple times by the less resolved samples spots. By working in two dimensions we can get a better idea of how the elemental ratios change across one increment.

The Mg/Ca again shows a clear patterning with higher values forming thin bands that gradually fade away. The Sr/Ca is less clear and I am pretty sure that it is just not abundant enough for LIBS to properly catch its variability. I'd also like to look at the phosphorus but need to find a good Ca peak to link it with. this is a problem with our current system, that I am working on at the moment.

The 2D map show a long white area at the bottom. This is a feature of the surface, which led to the laser not being focused accurately and no plasma being generated. We thus have elemental ratios of the **background data**, which produces erroneous results.