Sedimentological Laboratory experiments

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Other than water levels and discharges on Flanders' waterways, we also study sediment transport and other physical parameters. Water samples are collected at fixed measurement locations at set intervals, or during regular measurement campaigns. Those samples are analysed in the sedimentological laboratory. The lab is also used for calibrating field equipment.

Measuring sediment parameters is growing importance and is relevant for planning dredging works, safeguarding access to ports, understanding the discharge behaviour of rivers and flooding risks. Contaminants can attach to sediment particles and be carried by the river flow. Based on the unique composition, shape or colour of the particles, we can create a sediment classification. Even when sediment is carried off, the origin of the particles can be traced.

For an overview of the analyses that we perform and the parameters that we measure, please refer to our 'Measurement techniques & instruments'.

Analyses performed in our lab:

- Grain size distribution;
- Rheological characterisation;
- Density measurements;
- Determination of calcium carbonate and organic matter content;
- Suspended sediment concentration;
- Calibration of measuring devices used in the field.





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Sedimentological Laboratory experiments

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Suspended sediment concentration (SSC) is determined using a fully automated filtration machine. This machine was in-house designed and built. It allows for a high throughput of processed samples in a pricecise and consistent way.

Dry matter content, organic carbon content and CaCO3 content are measured with the semi-automatic oven 'prepASH 229' through an automated analysis run of 29 samples and 1 reference sample. The analyses comply with the latest issued guidelines within a wide temperature range from 50 to 1,100 °C.

The samples are weighed continuously by an integrated balance as the temperature is raised. The weighing curves are stored digitally for each individual sample. Dry matter content is measured at 105°C, organic carbon content at 550°C and CaCO3 content at 800°C

Grain Size Distribution of the sediment samples is analysed using a particle size analyser 'Bettersizer 2600'. This device uses laser diffraction to measure grain sizes between 0.02 m and 2600 m. This method uses laser Mie scattering and measures the diffraction pattern, represented as histograms. These histograms are converted into grain-size digrams. This method can be applied to fluids in a range from 5% till 15% obscuration The analysis results in a complete grain composition of the sediment sample.





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