Light is an essential feature to sustain life as we know it. However, since the industrial revolution, anthropogenic activities are altering light regimes in lakes with unknown consequences on ecosystems functioning. On one hand, brownification by dissolved organic matter dims the water and provides a surplus of organic matter favouring the proliferation of heterotrophic prokaryotes. At the opposite, city lights emitted to the night sky and scattered by clouds illuminate the surface of aquatic ecosystems. This light pollution reduces zooplankter dial vertical migration and favours the proliferation of autotrophic organisms. Therefore, to unveil the effects of light regime disturbances in lakes, Dr Fonvielle and his group reproduced brownification and light pollution in a series of large-scale enclosure experiments (www.lake-lab.de). They used ultra-high-resolution mass spectrometry to retrieve nearly-all metabolites dissolved in the water and inferred the so-call ecosystem metabolome. Using illumina amplicon sequencing at the DNA and RNA level they investigated how microbial communities responded to light at a sub-daily and weekly time scale. Their results emphasised the relevance of ecosystem metabolomics to unravel the consequences of multiple stress and highlight how light regime disturbances affect the entire functioning of aquatic ecosystems. They observed that small changes in the linkage between bacteria and dissolved organic matter can be channelled up to have consequences at the ecosystem scale. All, solely due to disturbances in light regimes.