Machine learning in Geophysics

A major future challenge in geophysics will be the big amount of data describing complex systems. However, the evaluation of complex correlations is demanding and needs to be done in an appropriate way. Even though a link of observed events and certain factors is likely the correct evaluation is often challenging. To tackle this problem sophisticated machine learning approaches have been successfully applied in many other research fields (e.g. business analytics, speech recognition). Motivated by this, the group wants to to pave the way for a commonly accepted application of data science techniques to earth science related problems. We plan to adapt sophisticated data driven tools to master the flood of data while understanding and analyzing complex relationships. The application will range from the analysis of seismic data (e.g. event detection and characterization) to the use of so-called influence or relevance networks that allow to draw conclusions about system functionality and can help to identify potential driving and triggering factors.