Meiofauna in Antarctic sea ice - pack ice vs. fast ice

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This poster shows preliminary results from an Antarctic expedition with RV Polarstern from Dec 2014-Feb 2015 with the following:

**Study Area**
Pack-ice stations: 32, 35
Fast-ice stations: 40-1, 40-3, 40-5, 46, 58

**Objectives**
- Analysis of the community composition and abundance of sea-ice meiofauna
- Comparison of the results with state of the art molecular techniques

**Materials and methods**
Ice cores from 7 ice stations were taken with a driller (\textdegree 9cm). The bottom 10cm of every ice core was cut off and analyzed by:

**Microscopy**
Ice cores were filtered through 10µm mesh. For determining and counting microzooplankton the sample was analyzed with the Utermöhl-method. For determining and counting bigger organisms the whole sample was put in a Bogorov counting chamber for microscopy.

**Molecular biology**
The samples were filtered through 0.4µm and DNA was isolated. A PCR amplification of target DNA fragments (V4 region of 18S rDNA) library preparation and next-generation sequencing (MiSeq, Illumina) was performed. The sequence data were analyzed using the bioinformatic pipeline QIME. As a taxonomic reference the SILVA data base was used.

**Preliminary results**
- With microscopy 23 taxa of Meiofauna could be identified for all 7 ice stations.
- The pack-ice stations are more diverse and abundant than the fast-ice stations, except station 58 which stands out. Within fast-ice stations there is a correlation between the abundance of Meiofauna and Chl a concentration.
- Ciliophora and Foraminifera dominated the pack-ice stations whereas fast-ice stations were dominated by Ciliophora and Copepoda.
- The same classes of Ciliophora were found with microscopic- and molecular analysis. The pack-ice stations were more diverse than the fast-ice stations. The most dominant classes were Spirotrichea and Litostomatea.

**Conclusion**
The results of the microscopic- as well as of the molecular analysis categorized the meiofauna into two ecotypes which are associated with the ice types (pack ice and fast ice).