Norway grants

29.11.2021-03.12.2022
2107-GOSars cruise
Post cruise meeting

PW and sediment sampling and analyses

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07-Feb-2022

Project is coordinated by:

Project is implemented in partnership with:

Sediment core overview

- *Northern Canyon- 20 sediment cores*
  - Purposes (# of cores):
    PW extraction- 5
    Meiofauna sampling- 5
    Macrofauna sampling- 1
    micro-electrode for O_2- 4
    gas/porosity- 3
    DNA- 2
    bulk sediment- 2
  - Habitats (# of cores):
    Bacteria mats- 6
    Worm tuff- 7
    Background- 4
- *Southern Canyon- 16 sediment cores*
  - Purposes (# of cores):
    PW extraction- 5
    meiofauna- 1
    macrofauna- 5
    micro-electrode for O_2- 2
    gas/porosity- 2
    DNA- 1
    bulk sediment- 3
    incubation- 1
  - Habitats (# of cores):
    Bacteria mats- 6
    Worm tuff- 10

Sediment sample work/plan overview

- $\delta^{13}C$-bulk carbonate in sediments
  - Sediment homogenizing/analysis of a first batch
- $\delta^{13}C$&$\delta^{15}N$-Total Organic Carbon/Total Nitrogen (including abundance)
  - Sediment homogenizing/will send samples to an external lab
- $\delta^{13}C$-Lipid biomarker
  - Analysis of a first batch (PC29)
- 14-C of bulk carbonate and TOC
  - To be measured in March
- Bulk sediment DNA
  - Will send samples to an external lab in two weeks
- Incubation (PC27)
  - A first 14-day incubation (with glucose) has completed
- Thermophilic bacteria
  - To be measured
- Hg in sediments
  - To be measured

Blue text: promised in the project

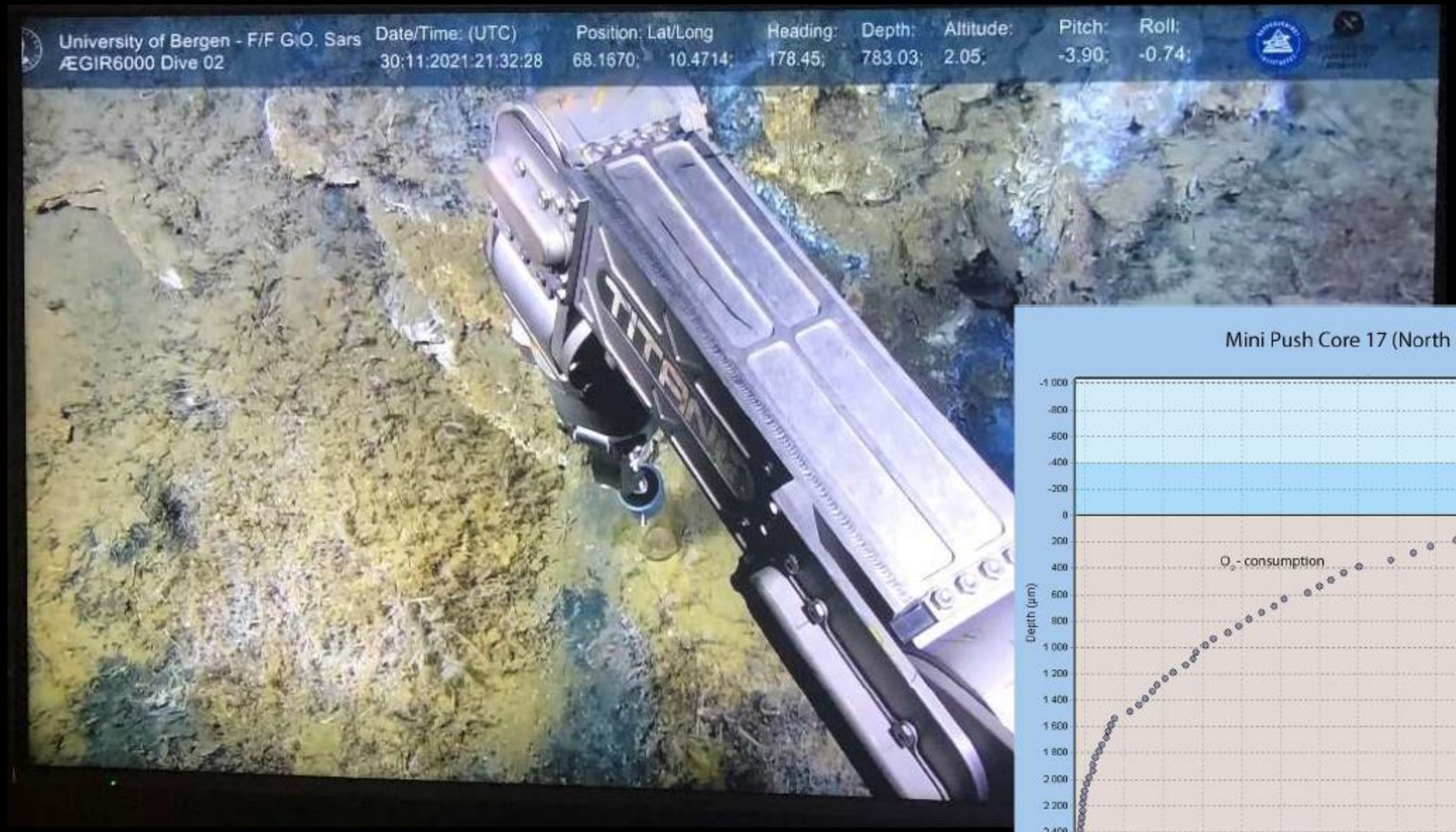
Porewater sample work/plan overview

- Total alkalinity and salinity
  - Onboard measurements completed
- Anion (SO4 and Cl)
  - Titrating Cl at the moment/SO4 will be analysed soon
- Cation (major and minor)
  - Analysed, waiting for data
- Water isotopes ($\delta^{18}O$ and δD)
  - Analysed (see later for results)
- $\delta^{13}C$-DIC
  - Waiting for instrument/to be analysed in May
- Concentration and $\delta^{13}C$-CH4 (headspace samples)
  - Analyses ongoing
- Nutrients
  - Analyses completed
- Total dissolved sulphide
  - Analyses ongoing
- Hg in porewater
  - To be analysed
- Ra (?) in porewater
  - uncertain
- 14-C in DIC
  - To be analysed in March

Blue text: promised in the project

Water column sample work/plan overview

- Nanoplastic
  - Samples sent to a collaborator
- Dissolved barium
  - Samples to be sent to a collaborator
- DOM
  - To be analysed (by Weichao)
- Hg in water column
  - To be analysed


University of Bergen - F/F G.O. Sars
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Depth:
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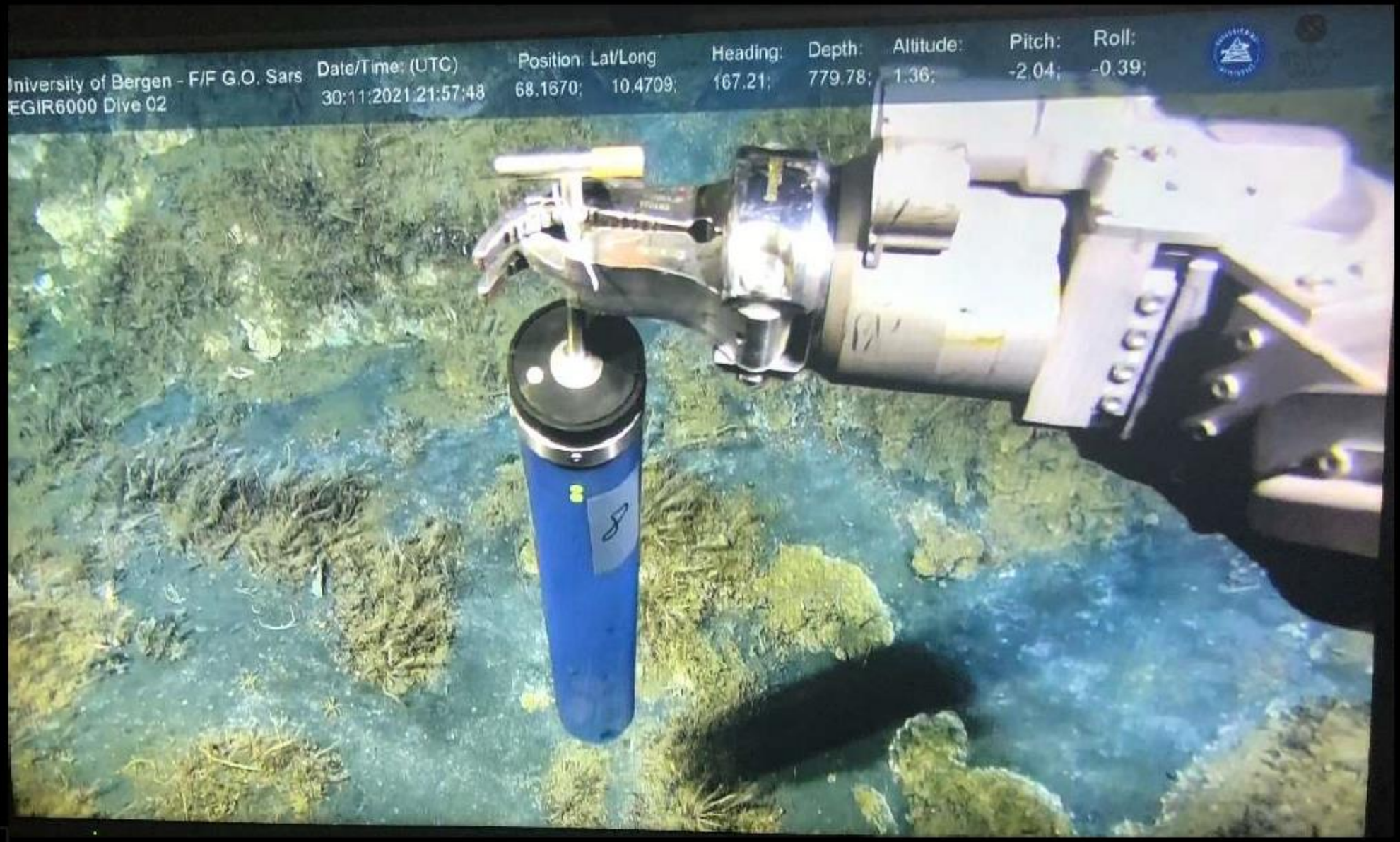
Altitude:
2.05;
Pitch:
-3.90;
Roll:
-0.74;

Mini Push Core 17 (North Canyon)
DBL
O2 - consumption
Depth (µm)
Concentration (µmol/l)


University of Bergen - F/F G.O. Sars
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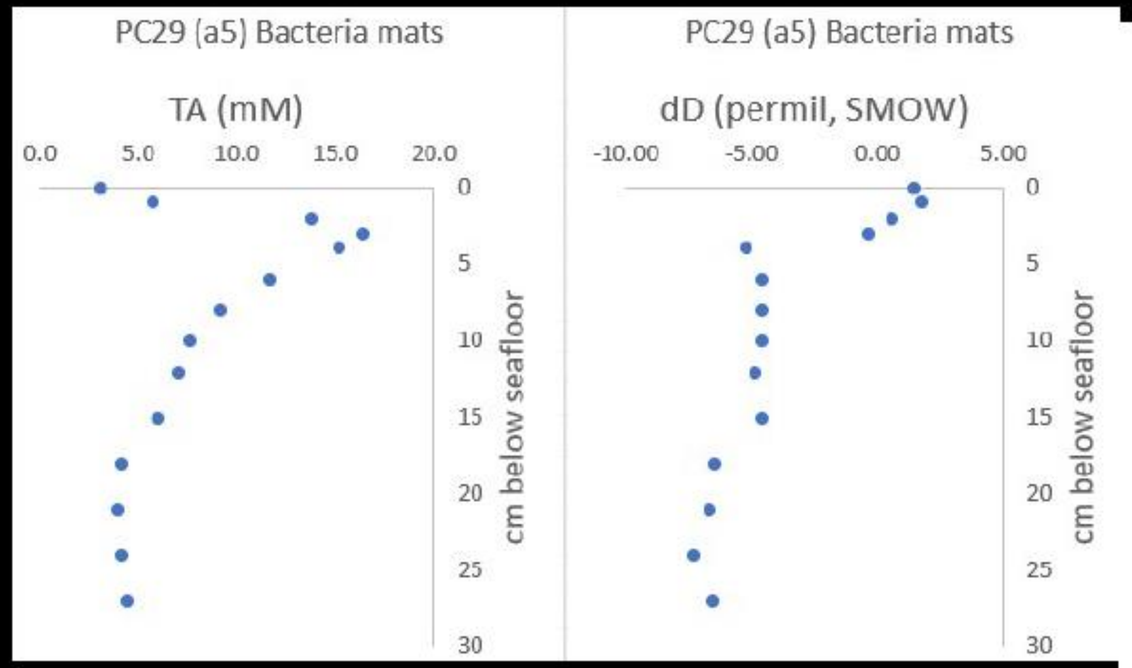
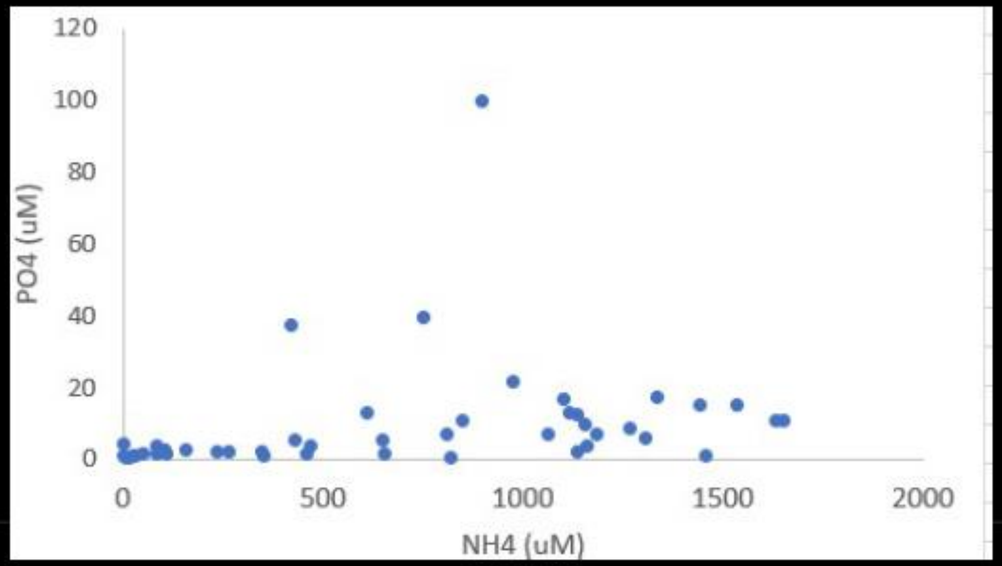




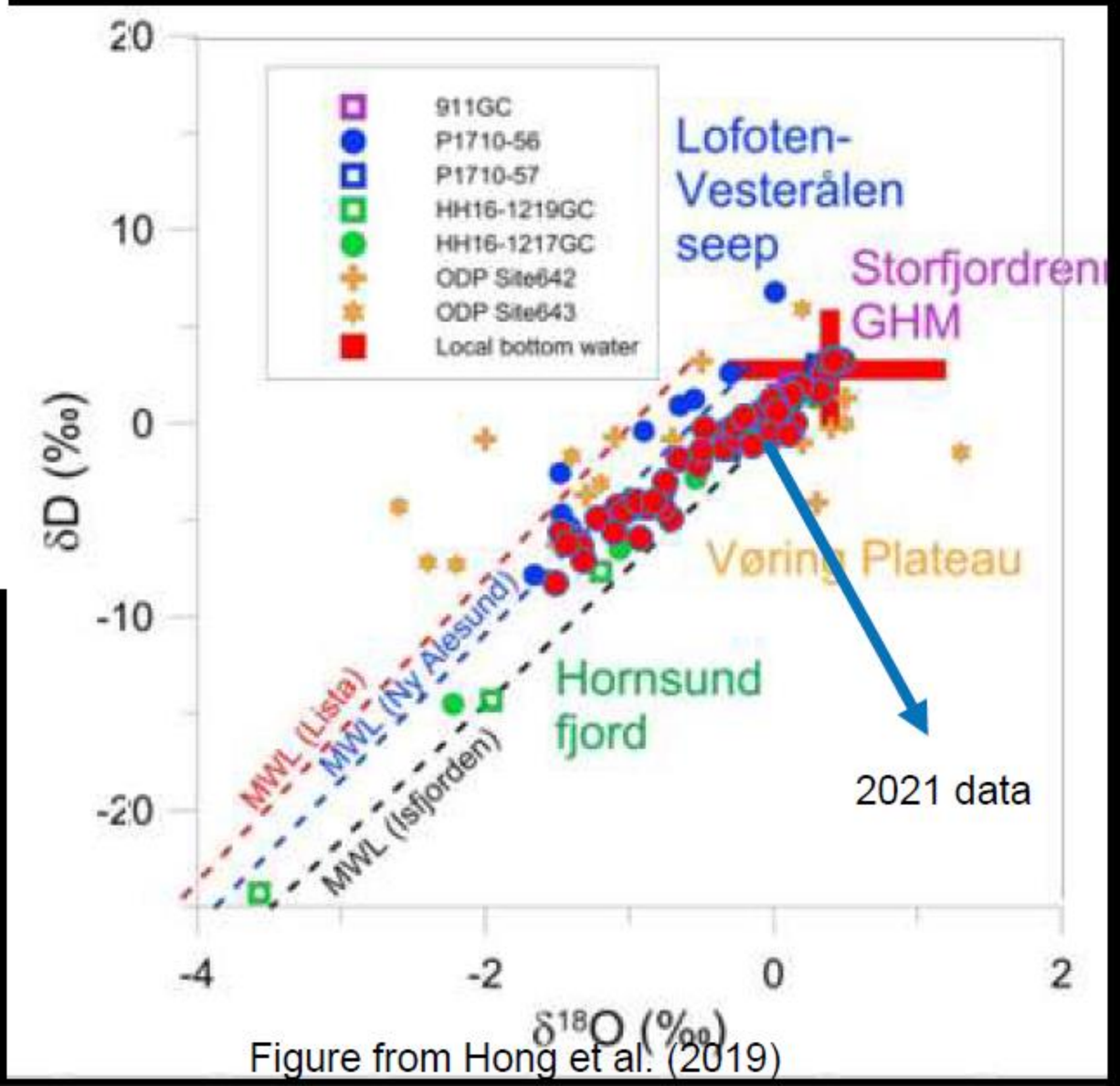
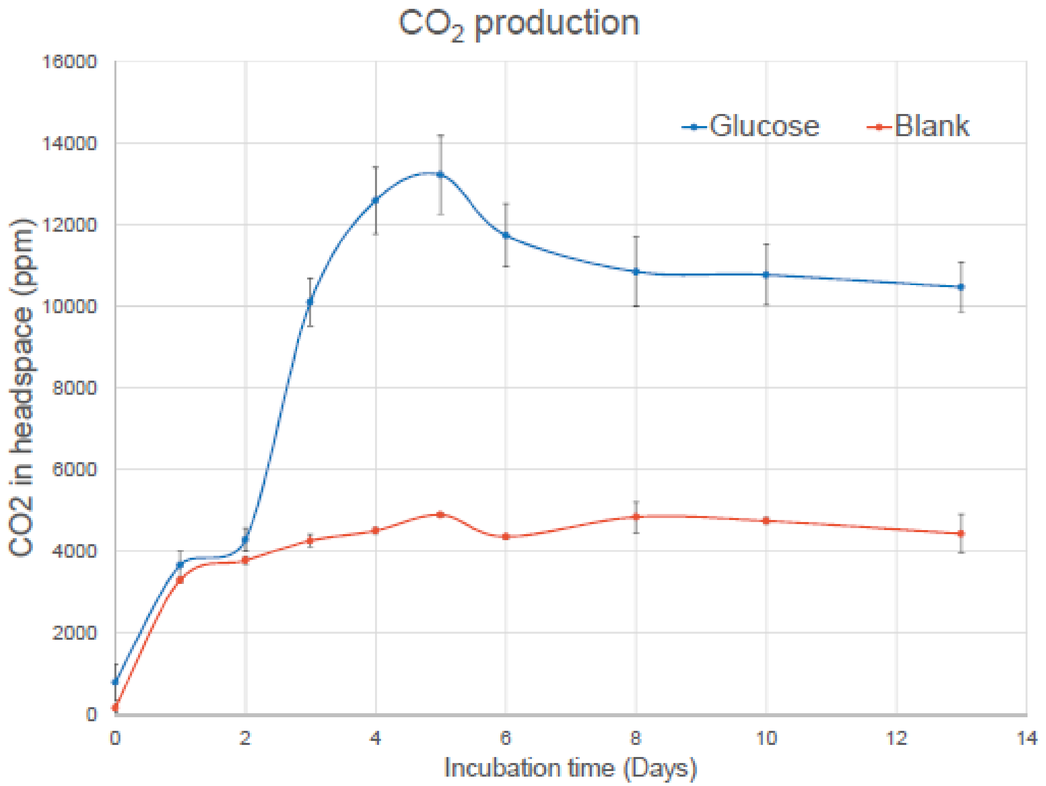
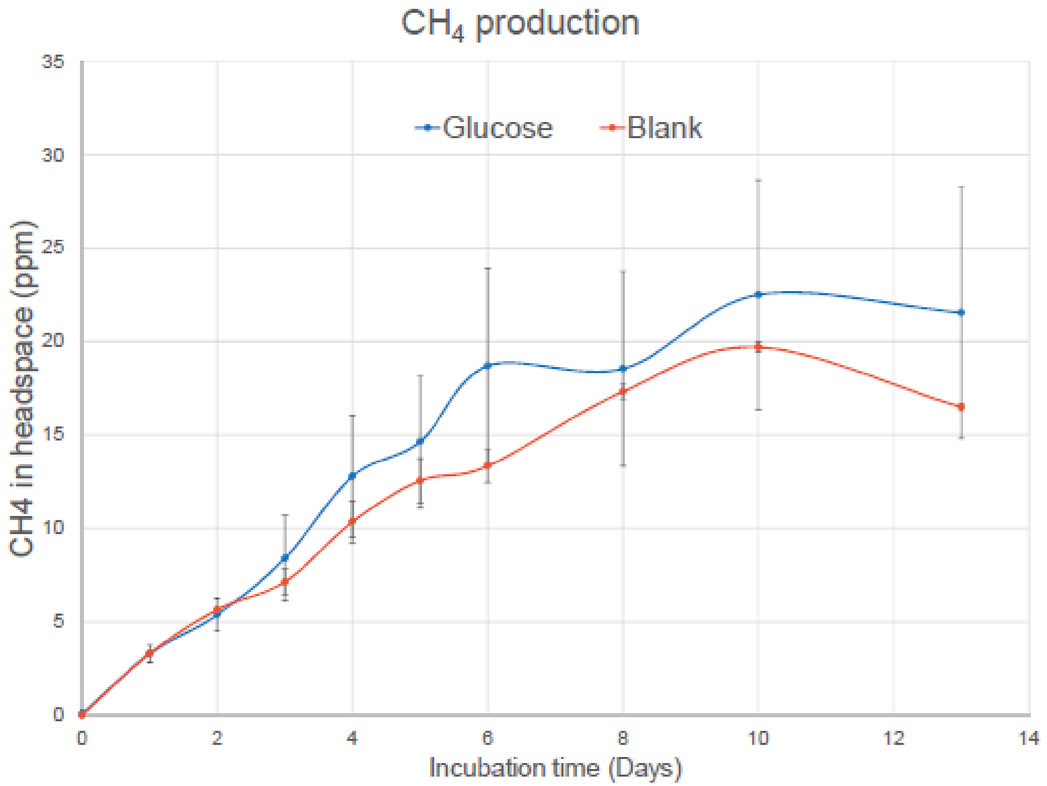


Figure from Hong et al. (2019)


CO_2 production
CO2 in headspace (ppm)
16000
14000
12000
10000
8000
6000
4000
2000
0
0
2
4
6
8
10
12
14
Incubation time (Days)
Glucose
Blank


CH_4 production
CH4 in headspace (ppm)
35
30
25
20
15
10
5
0
0
2
4
6
8
10
12
14
Incubation time (Days)
Glucose
Blank

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Thank you!

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