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# MBSHC 2022 in Slovenia

30-03-2022

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# Seafloor Information System, SIS 5.9

## Highlights

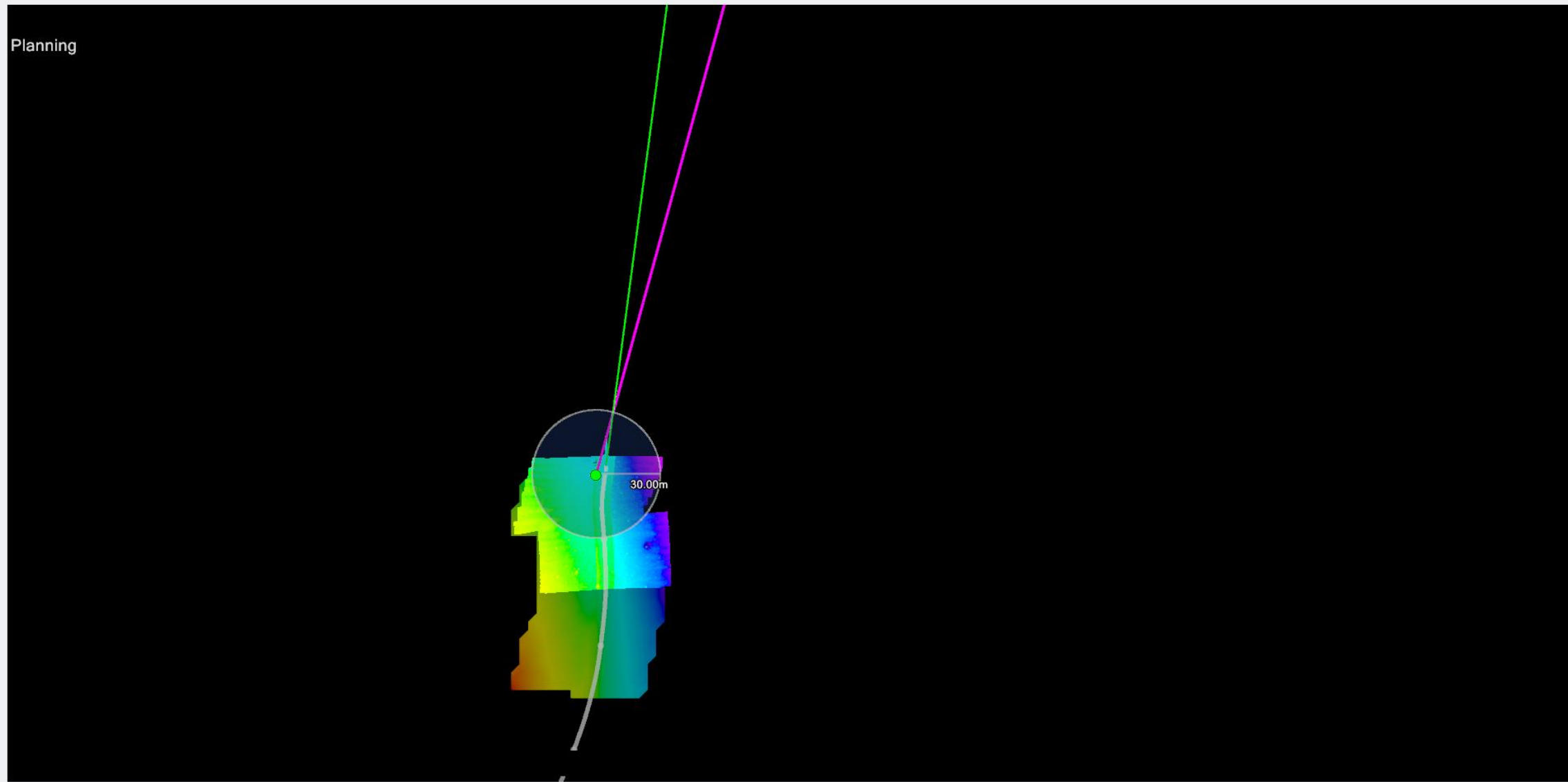


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# SIS 5.9

## Automatic corridor adjustment

- Plan a line, either in SIS or on a remote planning station
- Set the parameters for the corridor you want to survey along the planned line:
  - Meters to either side of the planned line
- Either SIS or the remote planning stations sends NMEA XTE or APB to SIS on UDP
- SIS will automatically adjust the outer beams of the EM<sup>®</sup> to keep the corridor width fixed
  - SIS cannot know what lies ahead so there is naturally some delay in this setup
  - Set Parameters can be used to adjust the delay
- The result is a straight corridor along the planned line





SIS

2022-01-06  
08:17:31Z

EM2040\_40



Line cnt

0003

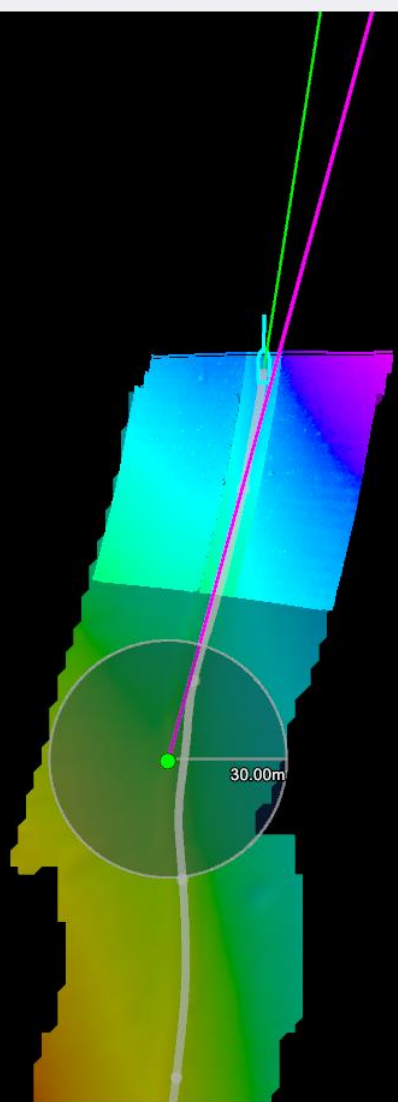
27

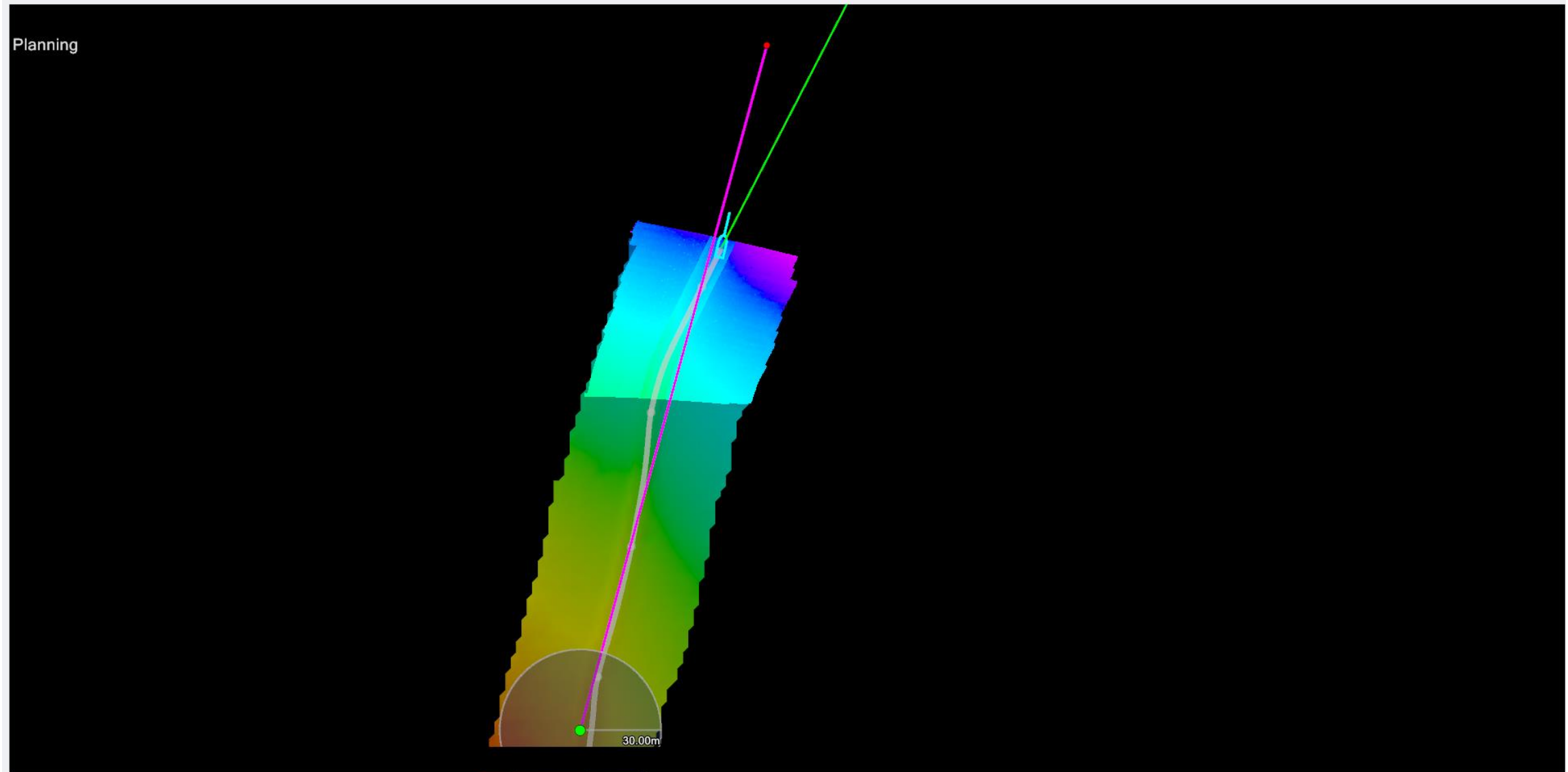
Test\_2021\_01\_06\_T1

1:1105

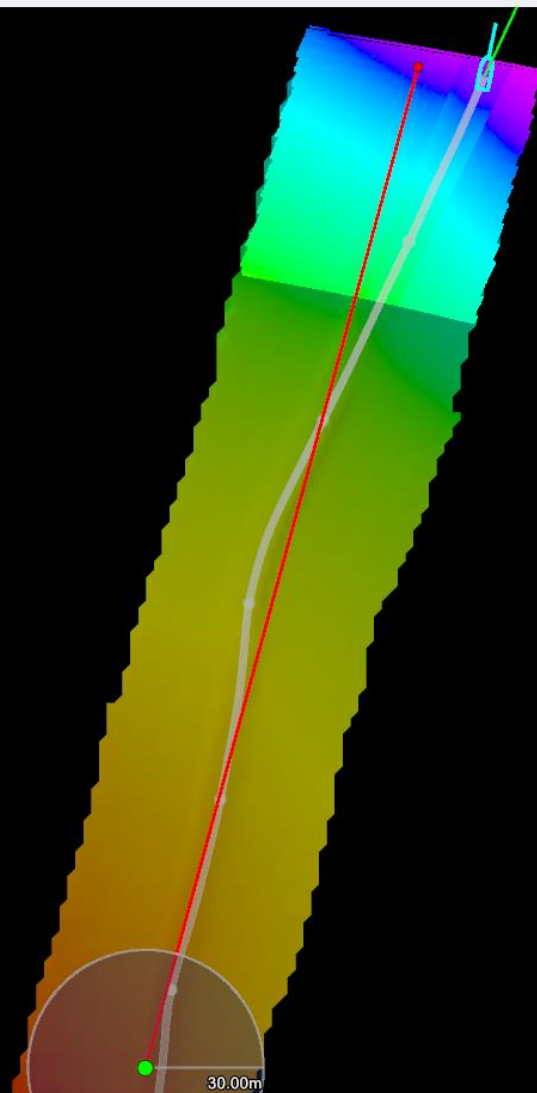


Planning





Planning



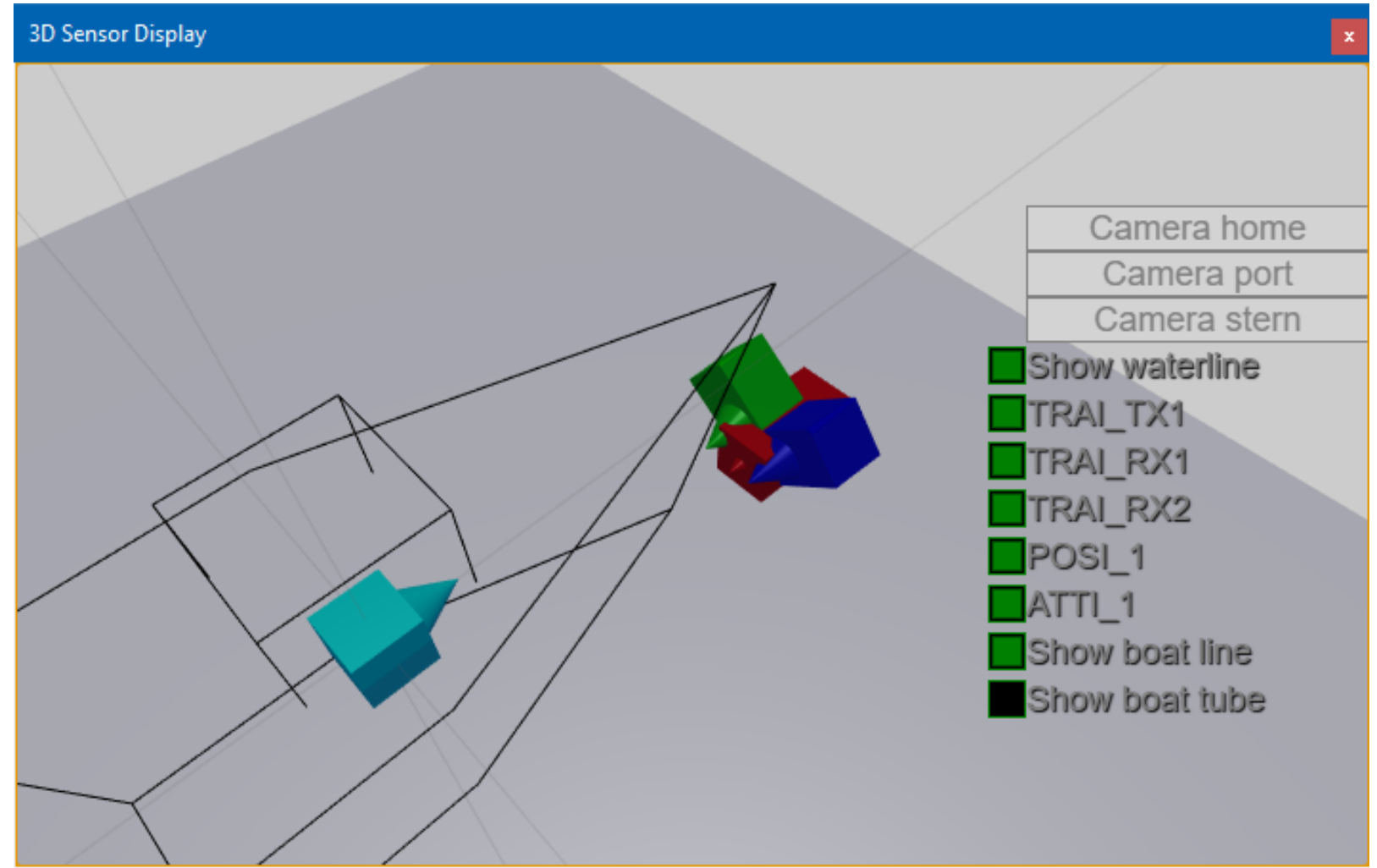


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## SIS 5.9

EM2040 Dual-Head Dual Swath

3D display of sensor locations

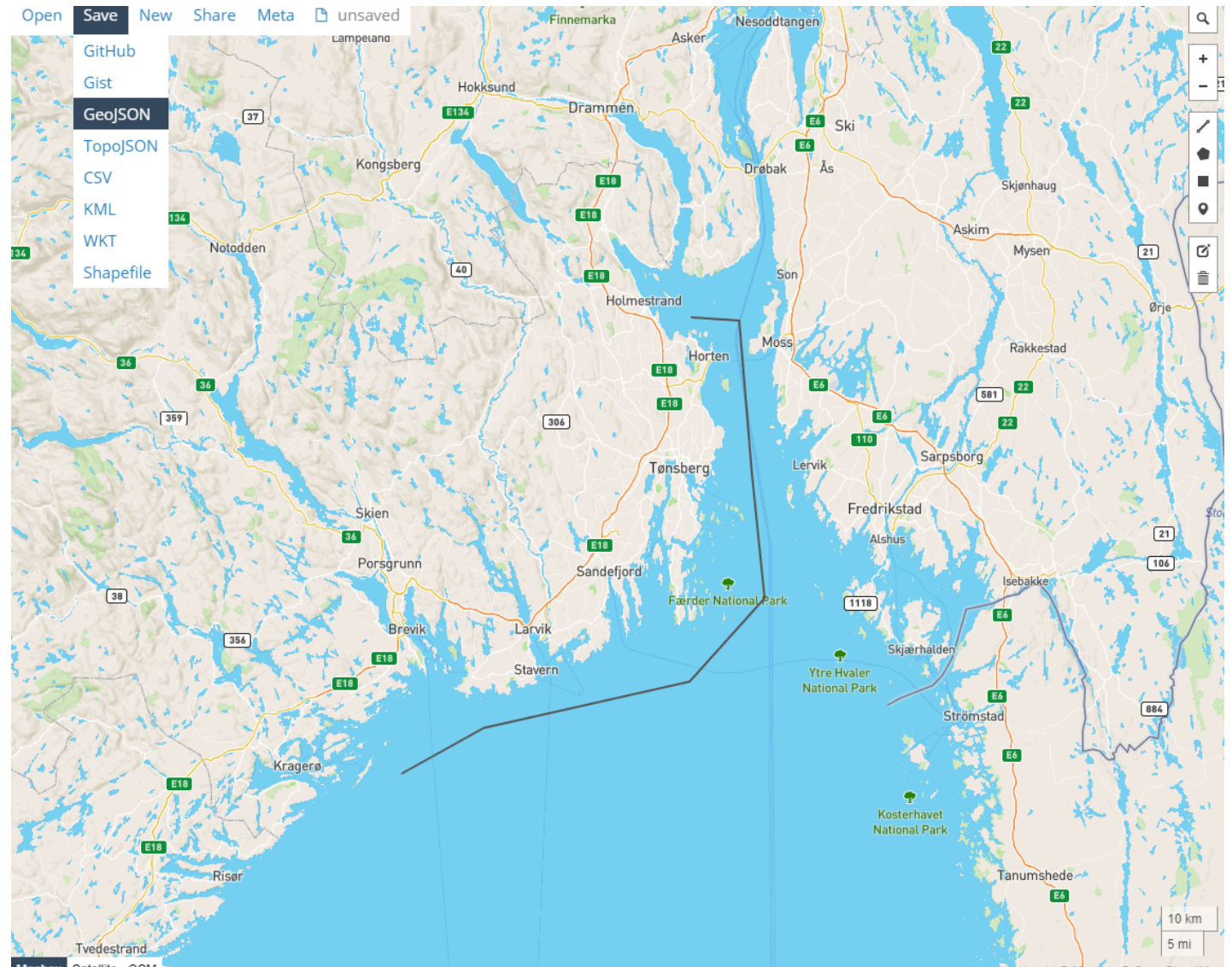




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## SIS 5.9

Plan lines in other tools and save as GeoJSON for easy import into SIS

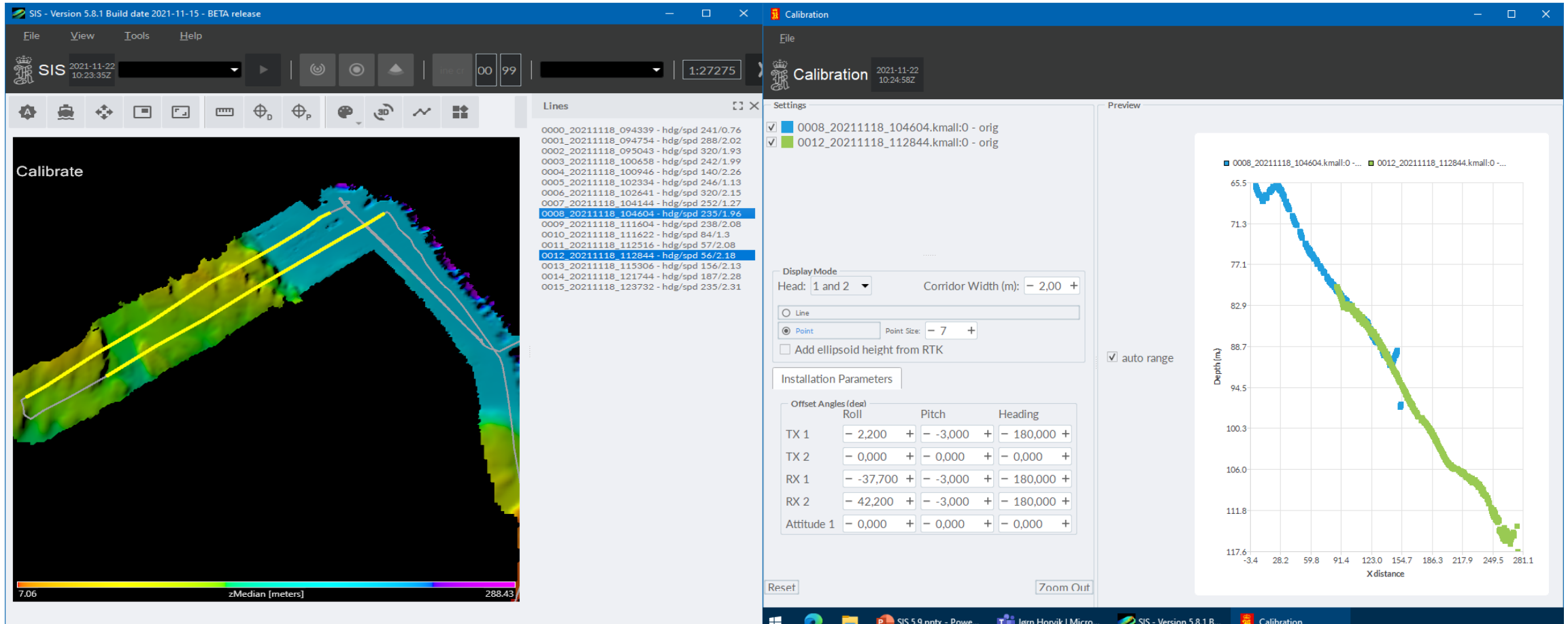




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# SIS 5.9

## Calibration





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# SIS 5.9

## SVP Editor

- Support for native SVP file formats
  - Valeport .vp2 and AML
  - Used when the instrument has more sensors than just sound speed and pressure
  - Tools → Fix profile: Extends, thins and verifies the profile, all-in-one
  - Tools → Send to SIS: The profile is immediately used the the EM<sup>®</sup>-system
  - Raypath: see the difference (if any) between two raypaths from two profiles



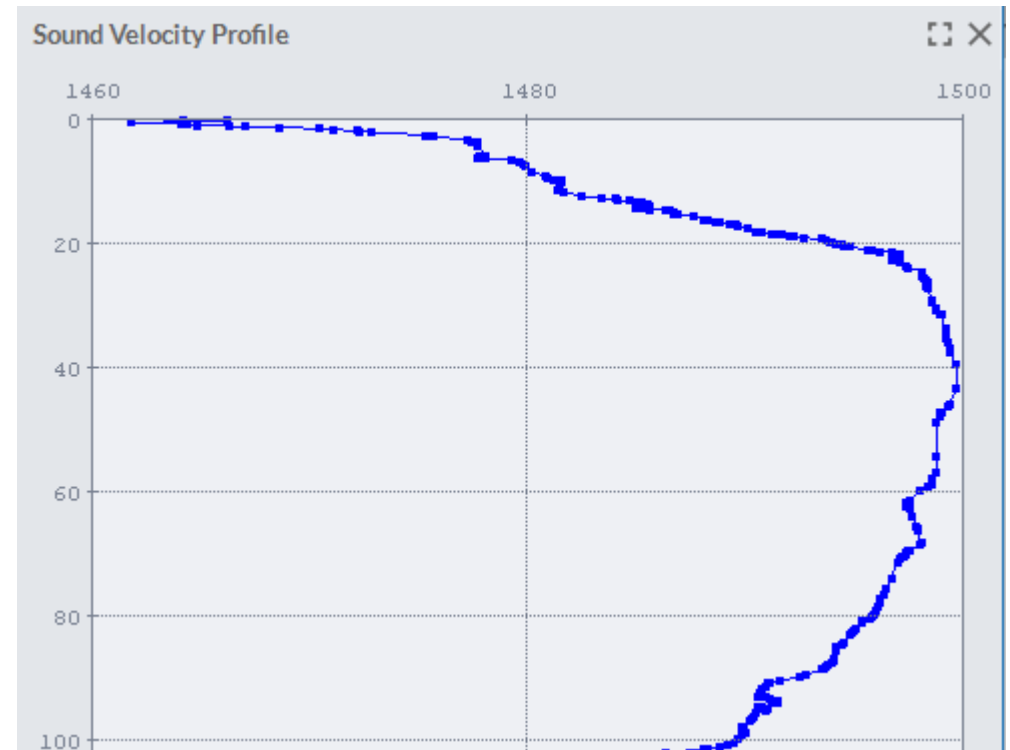
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# SIS 5.9

SVP Editor



- Extension is now done by extension-file only.
- User can change this file, and thus the way SIS extends the SVP



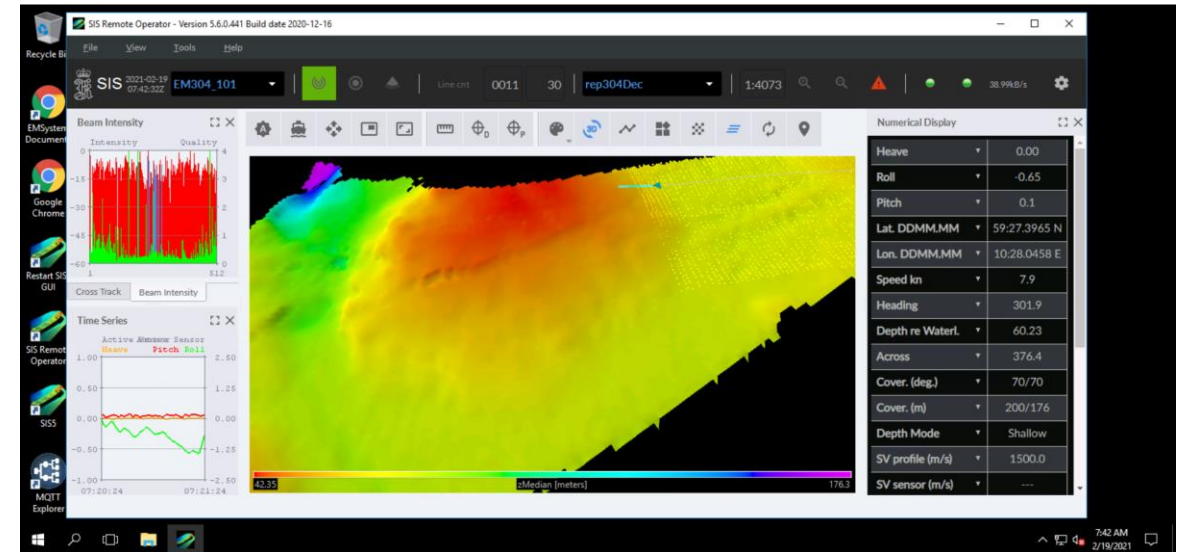


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# SIS Remote

## Remote control of EM<sup>®</sup>-systems

- SIS Remote is a feature in SIS 5
- Using SIS Remote an operator can take complete control of an EM<sup>®</sup>-system from anywhere on the Internet
- Installation- and Runtime-parameters, Sound Speed Profile management
- Digital Terrain Model, DTM, in full detail (typical 1x1 meter grid)
- Full 3D map display:
  - See «holes» in the dataset
  - Inspect calibration
  - Verify sound speed profile



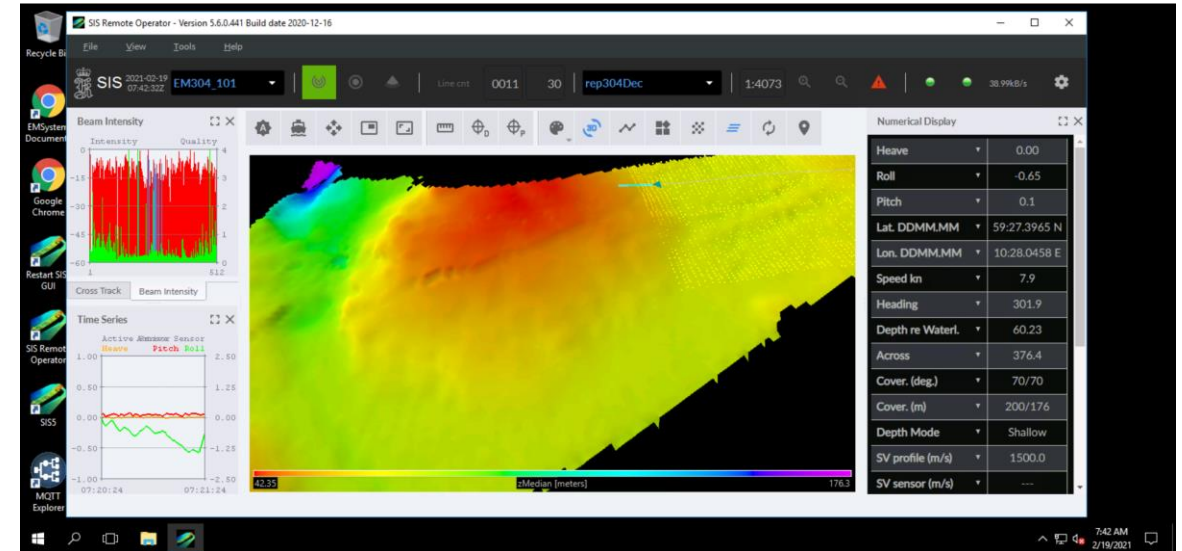


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# SIS Remote

Remote control of EM<sup>®</sup>-systems

- No extra training required
  - SIS Remote and SIS 5 are almost identical
- SIS Remote is always installed together with SIS 5
  - Simply add license for SIS Remote to existing SIS 5
- Integrated Planning Module
  - Plan lines in SIS Remote and transfer to ship
- All EM<sup>®</sup>-systems are displayed together in the same Geographical window
- Select which EM<sup>®</sup>-system to control in pulldown menu



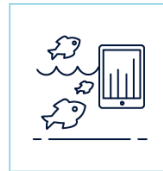
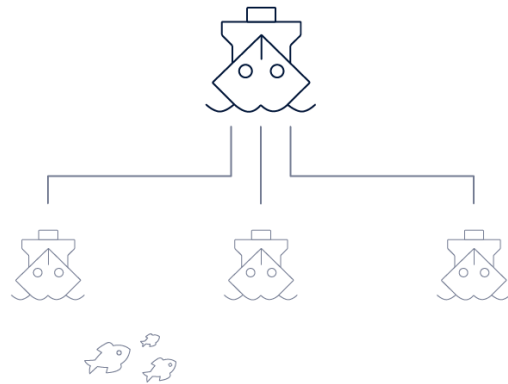


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# SIS Remote

Remote control of EM<sup>®</sup>-systems

## SIS REMOTE Ship-To-Ship



Monitor and control one or more EM<sup>™</sup>-systems from a remote location - on shore or on another ship.



Standard network:  
- MBR  
- 4G/5G  
- Satellite

Works on very low bandwidths

- SIS Remote can be used to control several EM<sup>®</sup>-systems at the same time
- Kongsberg Seatex' Maritime Broadband Radio, MBR, is an excellent choice for using SIS Remote in a ship-to-ship configuration

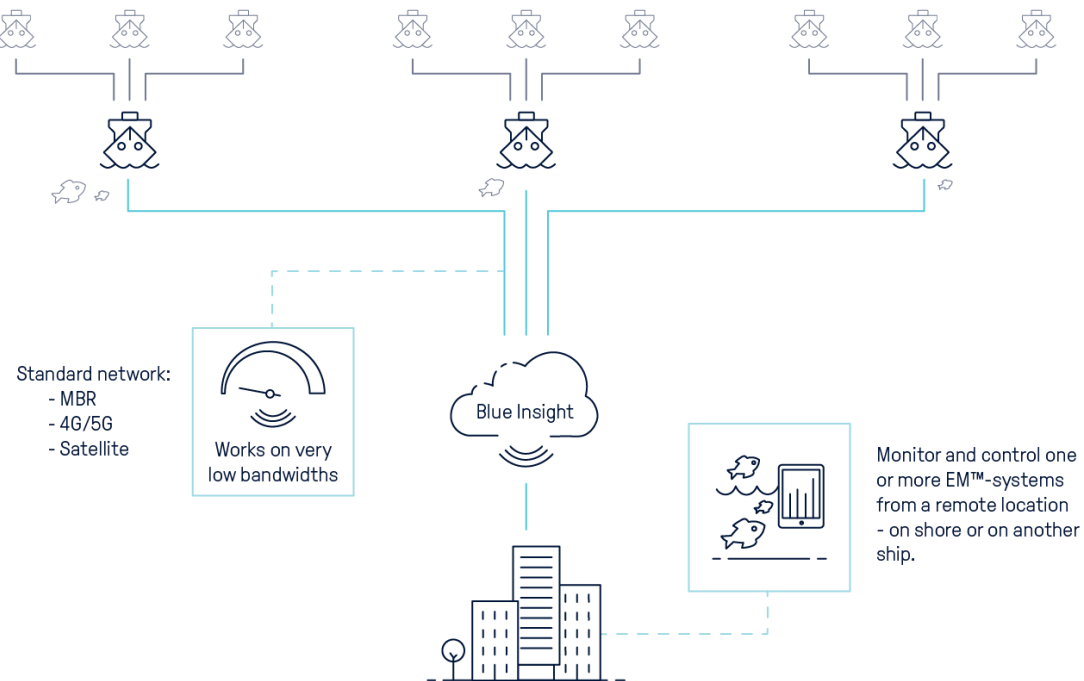


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# SIS Remote

Remote control of EM<sup>®</sup>-systems

## SIS REMOTE Ship-To-Shore Cloud Solution



- SIS Remote can be run in Blue Insight
- Log in on a Virtual Machine (Windows PC) through any web-browser (Chrome, Edge, Firefox) and operate EM<sup>®</sup>-systems remotely




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# SIS Remote


Remote control of EM<sup>®</sup>-systems


## Remote operator settings


### Realtime-data transfer control

Across track (beams):  ☒ Enable  
1 128 256 384 512

Along track Update:  ☒ Enable  
1s 30s 60s 60m

Display data:  ☐ Enable  
1s 30s 60s 60m

NumDisp data:  ☒ Enable  
1s 30s 60s 60m

Position Update:  ☒ Enable  
1s 30s 60s 60m

Terrain Upload:  ☒ Enable  
60s 60m 24h

- SIS Remote operator can control what data to send ship-to-shore
- Also control how much data to send of each type (depths, meta-data, positions, DTM)
- SIS Remote will work on as little as 5Kb/sec
- Very good performance on 25kB/sec



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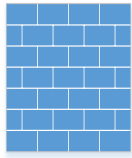
# SIS Remote

Remote control of EM<sup>®</sup>-systems

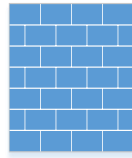


SIS 5

Firewall  
Encryption



MBR  
WiFi  
4G/5G  
Sattelite



Firewall  
Encryption



SIS Remote

- Security
- Use existing Firewall, encryption
- SIS 5 and SIS Remote are hidden behind the Firewalls
- SIS Remote uses only well documented and trusted proxies: Mosquitto IOT Server

# FAPEC Archiver for KMAIL data

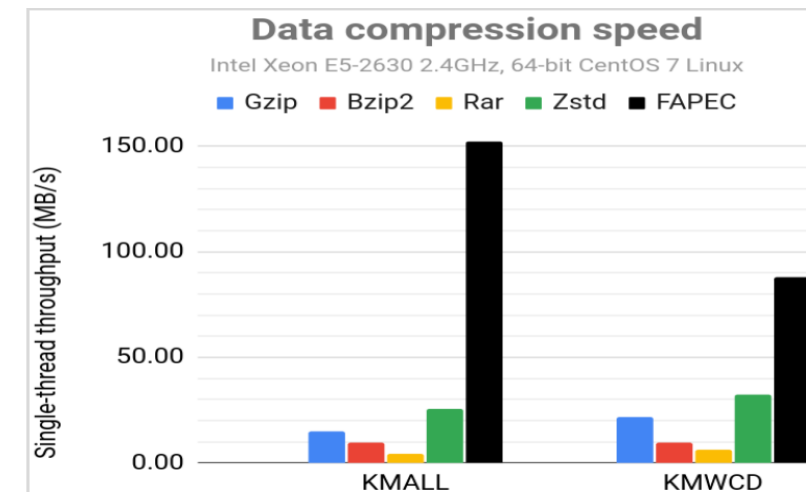
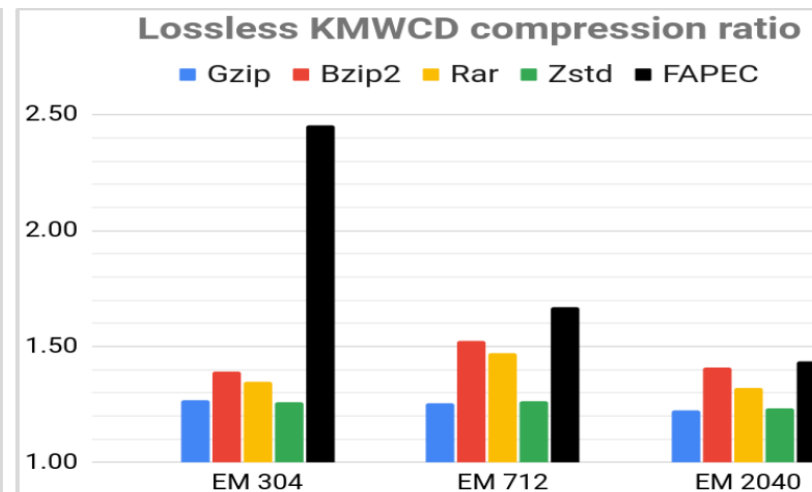
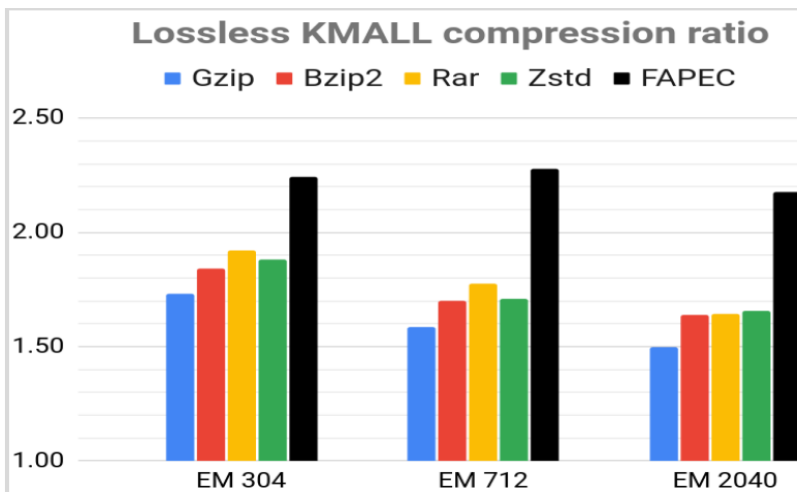
- ≡ **Best KMAIL compression in the market**
- ≡ Multi-platform     
- ≡ Low CPU and RAM requirements

## High-performance professional data compression software

Tailored algorithms for optimum compression  
of **KMAIL**, **KMWCD**, **.ALL** and **.WCD** data



Additional algorithms for **CSV**, time series, images, audio...



- ≡ **Support** from DAPCOM Data Services, technological spin-off company from UPC and UB  
Systems and software engineering for high-performance massive data handling and analysis  
Some customers: ESA-Gaia (catalogue from 2 billion stars), Spire (satellite data compression)



UNIVERSITAT POLITÈCNICA  
DE CATALUNYA  
BARCELONATECH



UNIVERSITAT DE  
BARCELONA

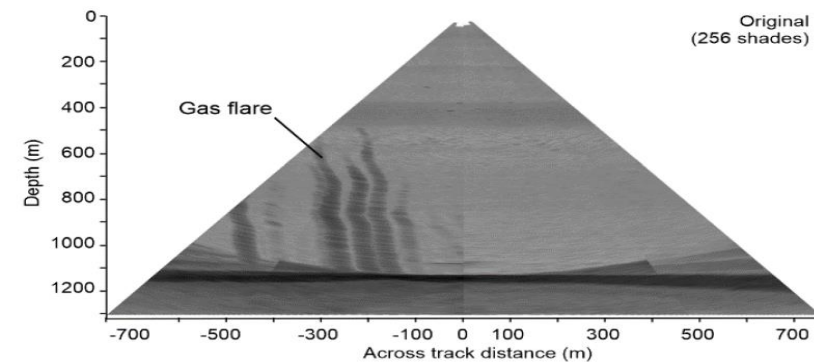
# FAPEC Archiver for KMALL data

[www.dapcom.es/get-fapec](http://www.dapcom.es/get-fapec)

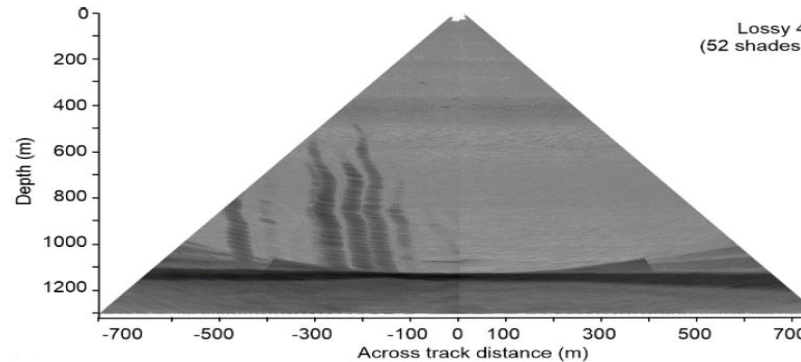


## Additional product features:

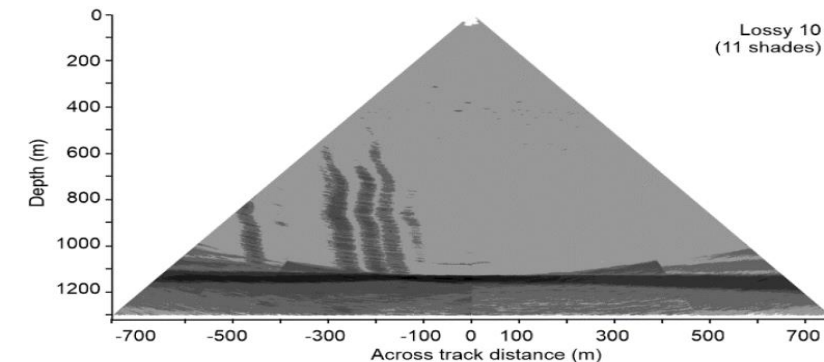
- Multi-threading and data encryption
- Resiliency in case of file corruption, minimizing data loss
- Lossy compression option for watercolumn datagrams.**  
EM304 example (KMALL file with MRZ + MWC datagrams, 933 MB):



Lossless: **412 MB, 12 sec.**  
(7-zip: 544 MB, 8.5 min.)



Lossy lev. 4: **272 MB**



Lossy lev. 10: **195 MB**

## Usage and integration:

- CLI: invoke FAPEC binaries from your scripts
- API: integrate the FAPEC library in your programs
- C, Python and Java wrappers

```
[fapec@dapcom kmall]$ fapec 0014_20200304_xxxx_yyyy.kmall
```

```
FAPEC Archiver - 22.0 r2723 (2022-02-24)  
(c) 2013-2022 DAPCOM Data Services S.L. - https://www.dapcom.es  
64/64 bit LE Restricted license for:  
John D. Tester
```

```
Compressing 1 file into 0014_20200304_xxxx_yyyy.kmall.fapec with 8 threads...  
[1/1] 0014_20200304_xxxx_yyyy.kmall (932.8 MB)...  
100.0% 89.9 MB/s ratio 2.26
```

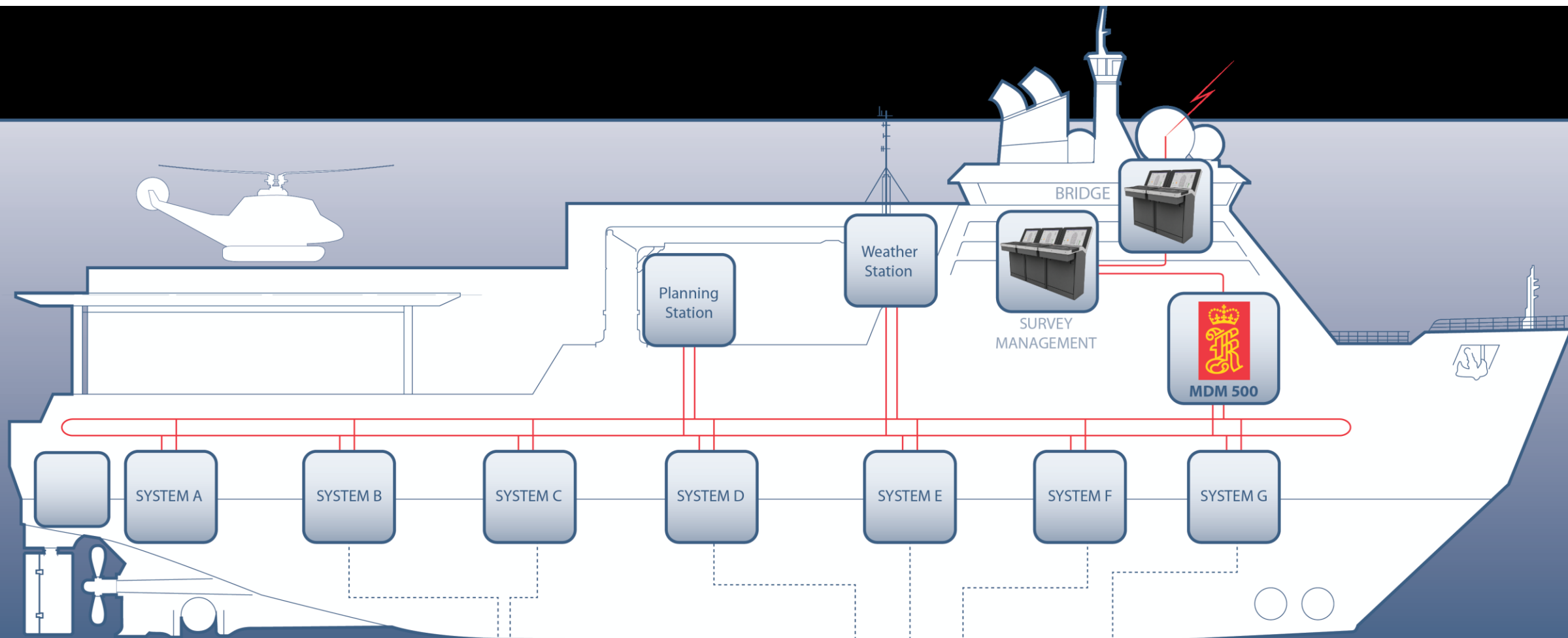
```
Done: 932.8 MB compressed to 411.9 MB (ratio 2.2647) in 10.4 seconds (89.9 MB/s)
```



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# MDM 500+

## Overview





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# Marine Data Management, MDM 500+

Collect data from many instruments and combine the results

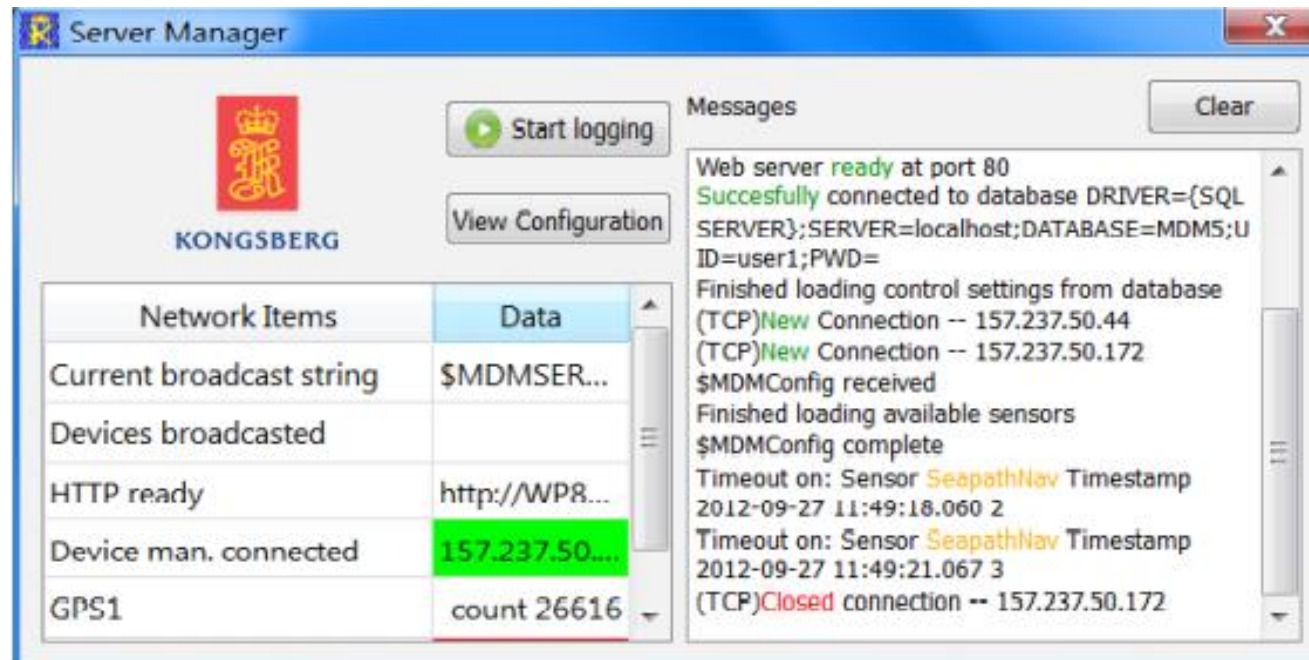
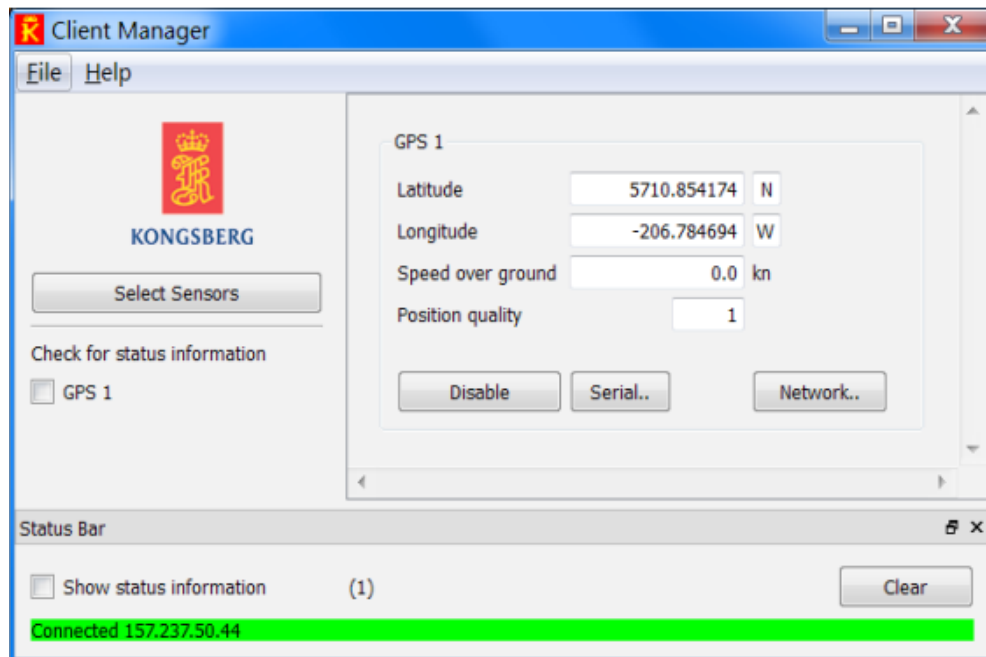
- Collect data from all sensors on the ship:
  - Weather, CTD, GPS, Magnetometer, ...
  - More than 50 instruments have been supported so far!
- Store data in Microsoft SQL Server database
- View data in any web-browser attached to the network
- Export data to other systems (csv-files)

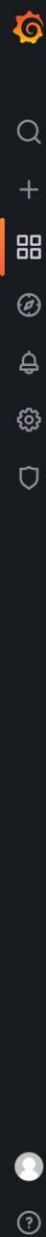


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# Marine Data Management 500+

General Purpose Data Logging System

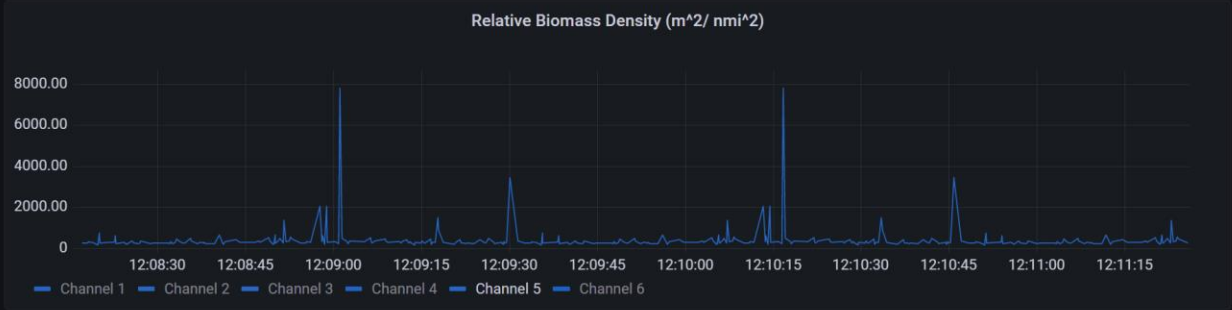
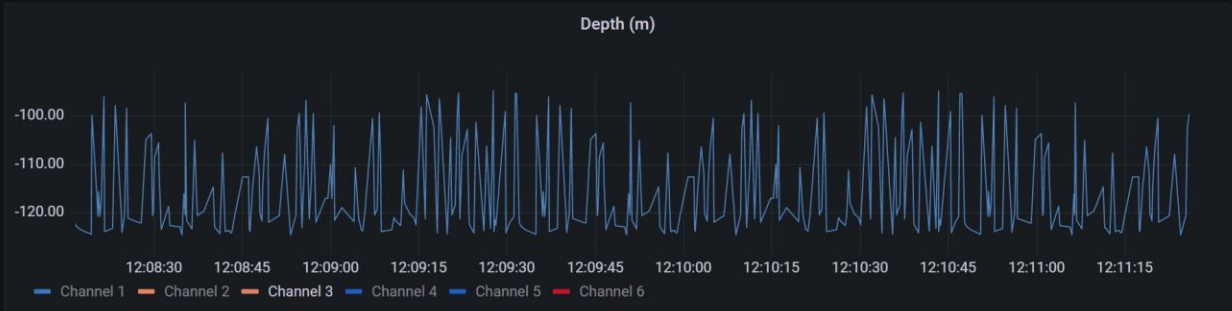
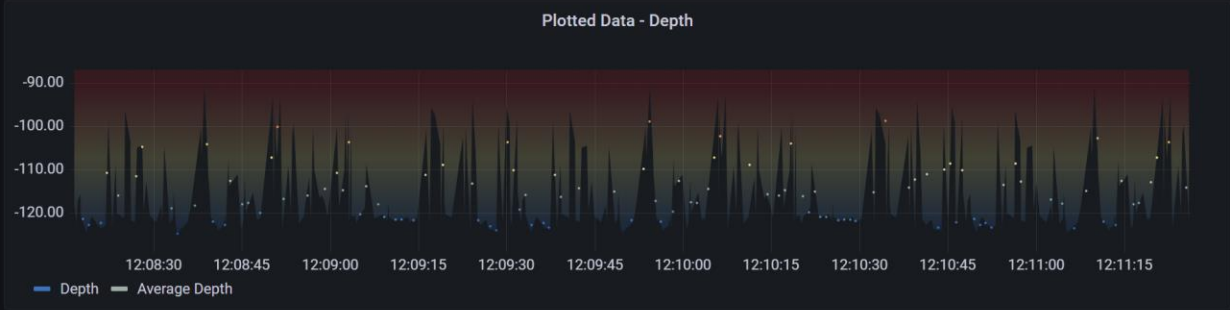
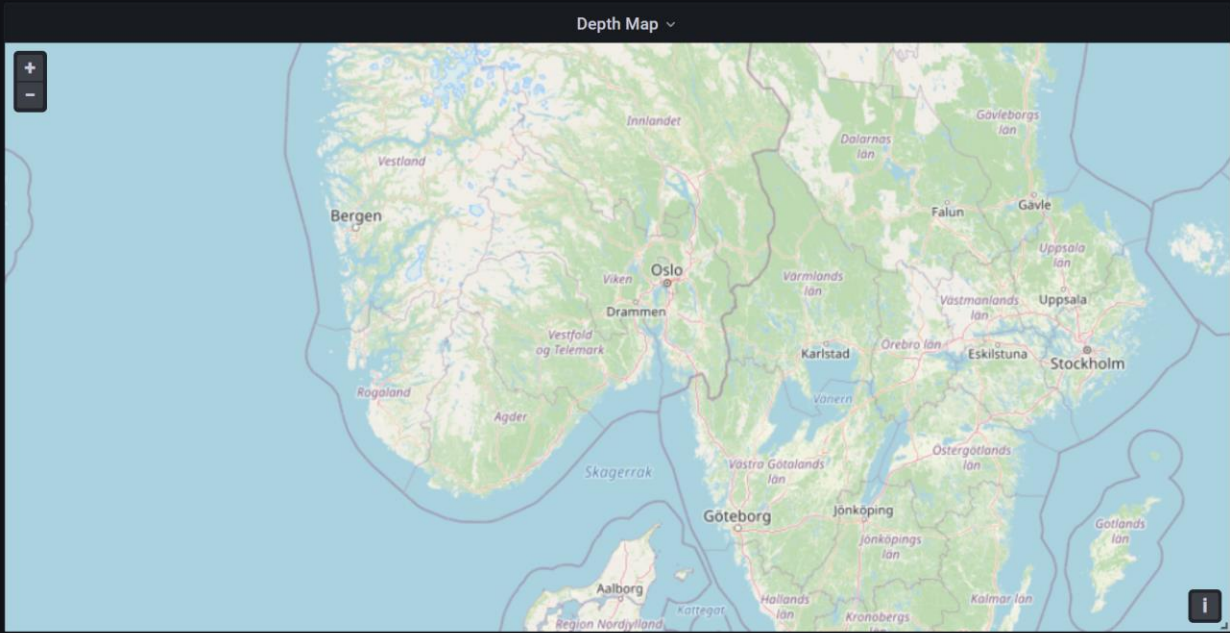




MDM500 / EK80 ☆ 🔗

📊 📄 ⚙️ ⏪ ⌚ 2022-03-04 12:08:16 to 2022-03-04 12:11:26 ⏩ 🔍 ↺ ⌵ 🖨️

Precision 4 ▾ Telegram Channel 1 ▾ Plotted Data Depth ▾ GPS Selection GPS 1 ▾



localhost:3000/d/dRk/GCv7k/speed-log?orgId=1



General / Speed Log ☆ 🔗

Direction Water Speed Source VBS ▾

STW (kn)



Latest STW



Longitudinal (kn)



Transversal (kn)

Latest SOG



Longitudinal (kn)



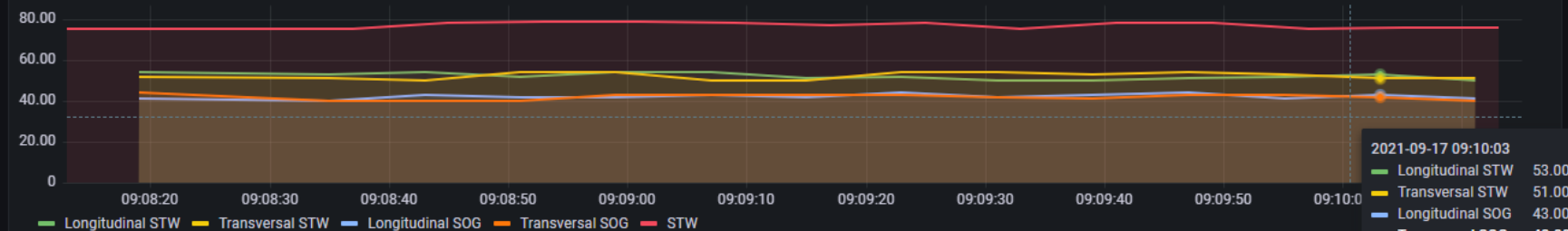
Transversal (kn)



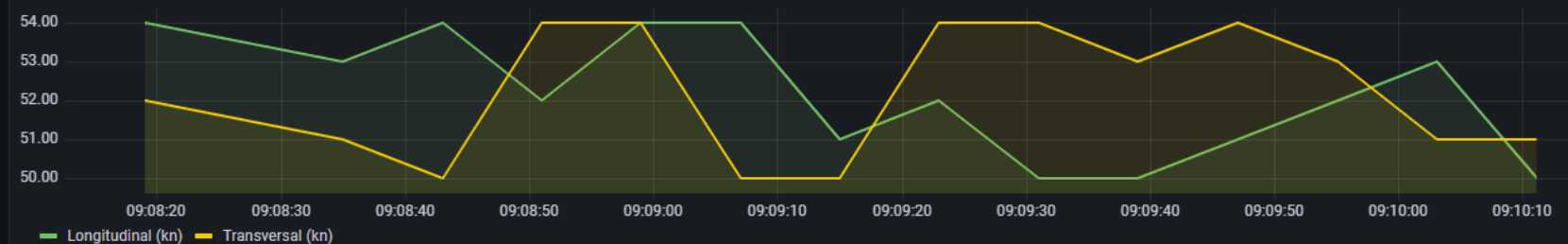
2021-09-17 09:08:13 to 2021-09-17 09:10:15 ▾



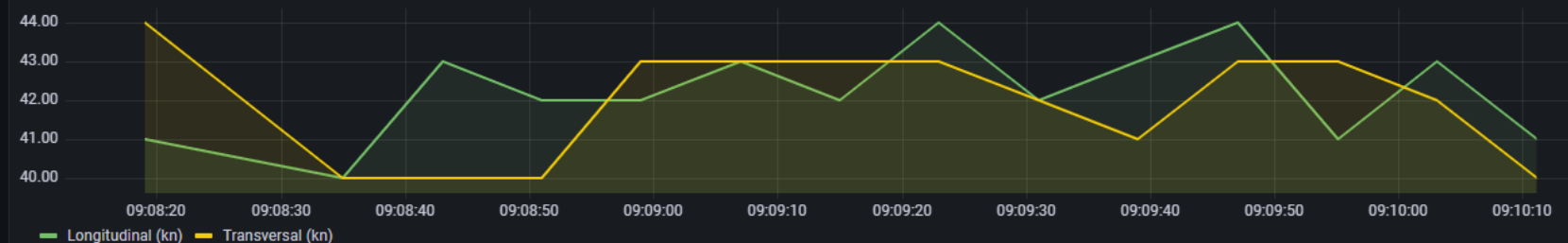
Speed Log ▾



Speed Through Water



Speed Over Ground





MDM500 / Multibeam ☆ 🔗

Last 15 minutes ▾

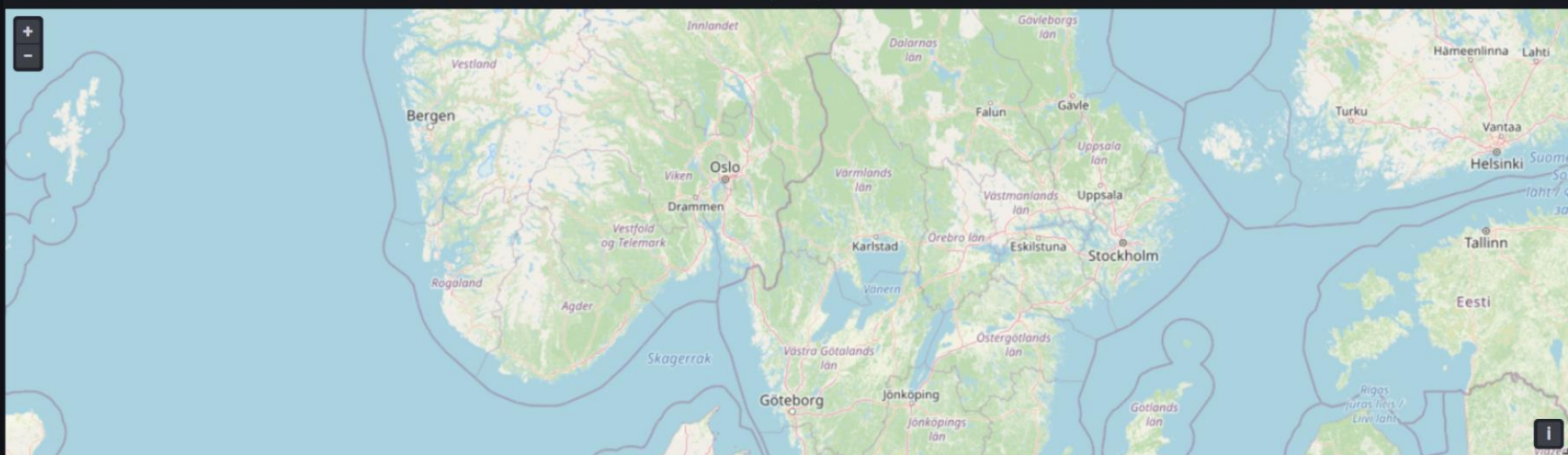
▾

Units m ▾ Precision 4 ▾ Instrument Multibeam Depth ▾ GPS Selection GPS 1 ▾

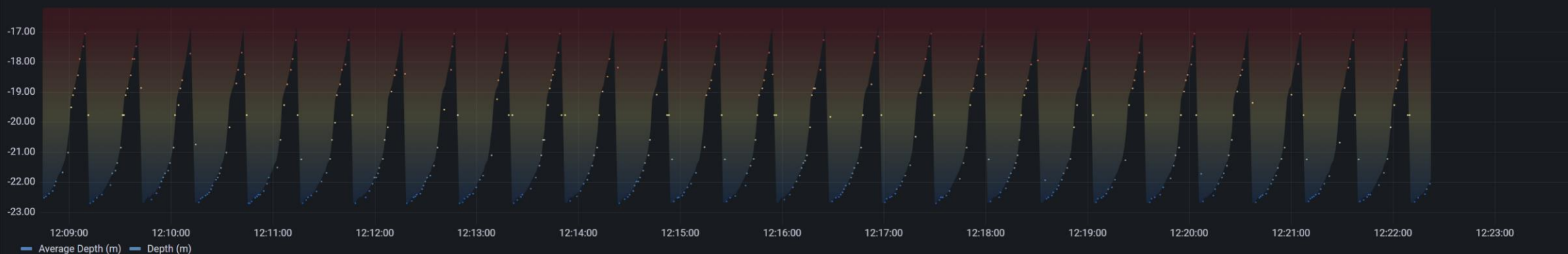
Last Depth (m)

-21.91

Depth Map ▾



Plotted Data





# Marine Data Management 500+

Logbook – Keep a record of all instruments

- Keep track of changes to each piece of equipment
- When was it last calibrated?
- Where is it now? In operation, in warehouse, in repair?
- When and where was it bought?
- Contact person?



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# LOGBOOK

EXPORT

## Instruments

Select an instrument to view or modify.

Instruments

GPS

1

## Instrument detail

You can modify the fields that are not disabled.

**Name:** GPS

**Status:** Online

**Expert Name:** Tribmle

**Offset :** X: 0 Y: 0 Z: 0

**Created:** 2022-02-08T15:04:04.276Z

**Serial Number:** 123

**UUID:** EEEE-AAA

**L22:**

**Location:** Mast

**Last Updated:** 2022-02-08T15:04:04.276Z

**Comment**  
Dummy entry

## Sensors

Select a sensor to view or modify.

Name	MDM ID	Calibrated	Created	Last Updated	
GPS 1	42	2022-02-08T15:06:25.730Z	2022-02-08T15:04:16.546Z	N/A	