Interoperable data management and instrument control experiences with the EMSO Generic Instrument Module at OBSEA

Daniel Mihai Toma, Enoc Martínez, Joaquin Del Rio, Óscar Garcia and Juanjo Dañobeitia
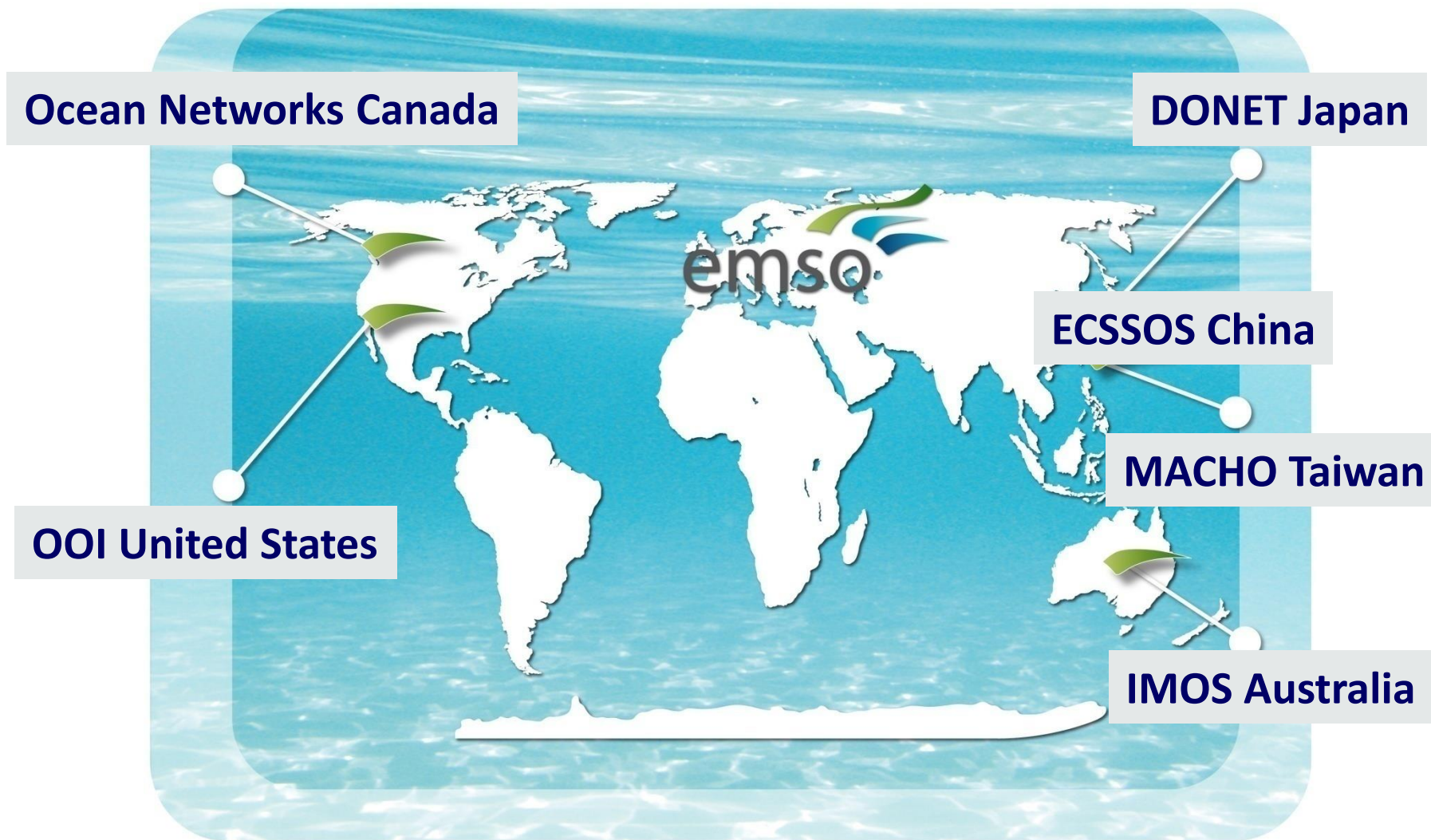
IMDIS 2018 - Barcelona, 5-7 November
International Conference on Marine Data and Information Systems
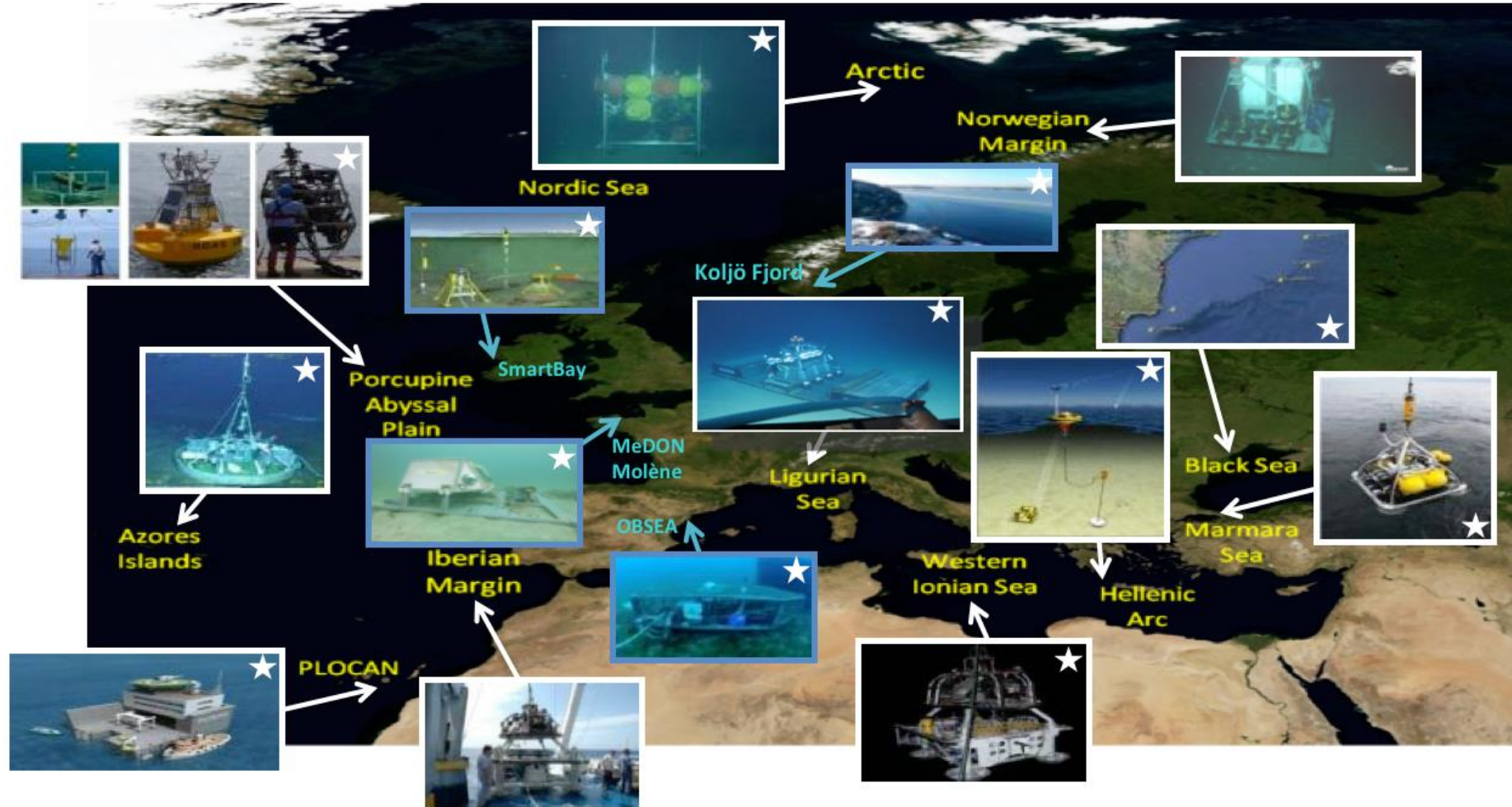
Outline

- EMSO network description

- EGIM Prototype

- EGIM SWE-based Data Acquisition System

    - OGC SOS as Gateway for EGIM

    - OGC SOS Implementation for EGIM

- Some statistics for the first deployment at OBSEA observatory

EMSO network description

Ocean Networks Canada

DONET Japan

ECSSOS China

MACHO Taiwan

OOI United States

IMOS Australia

EMSO network description

6/11/2018

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Outline

EMSO network description
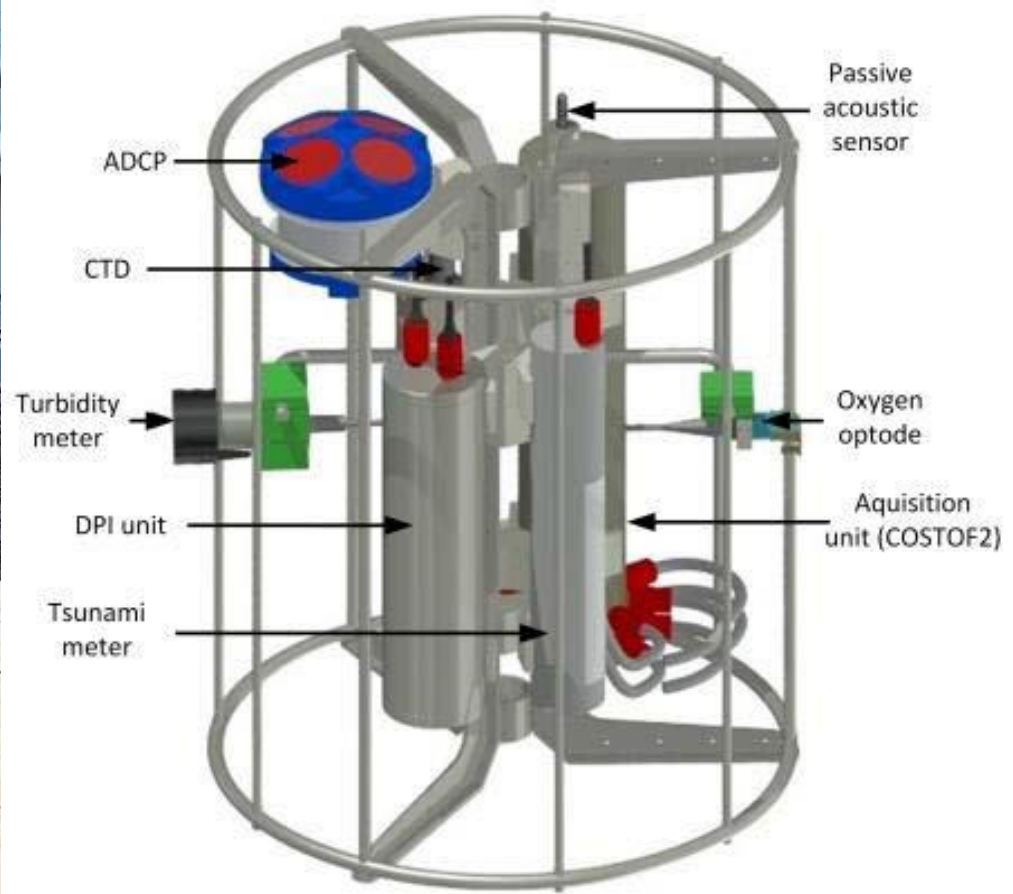
EGIM Prototype

EGIM SWE-based Data Acquisition System

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EGIM Prototype

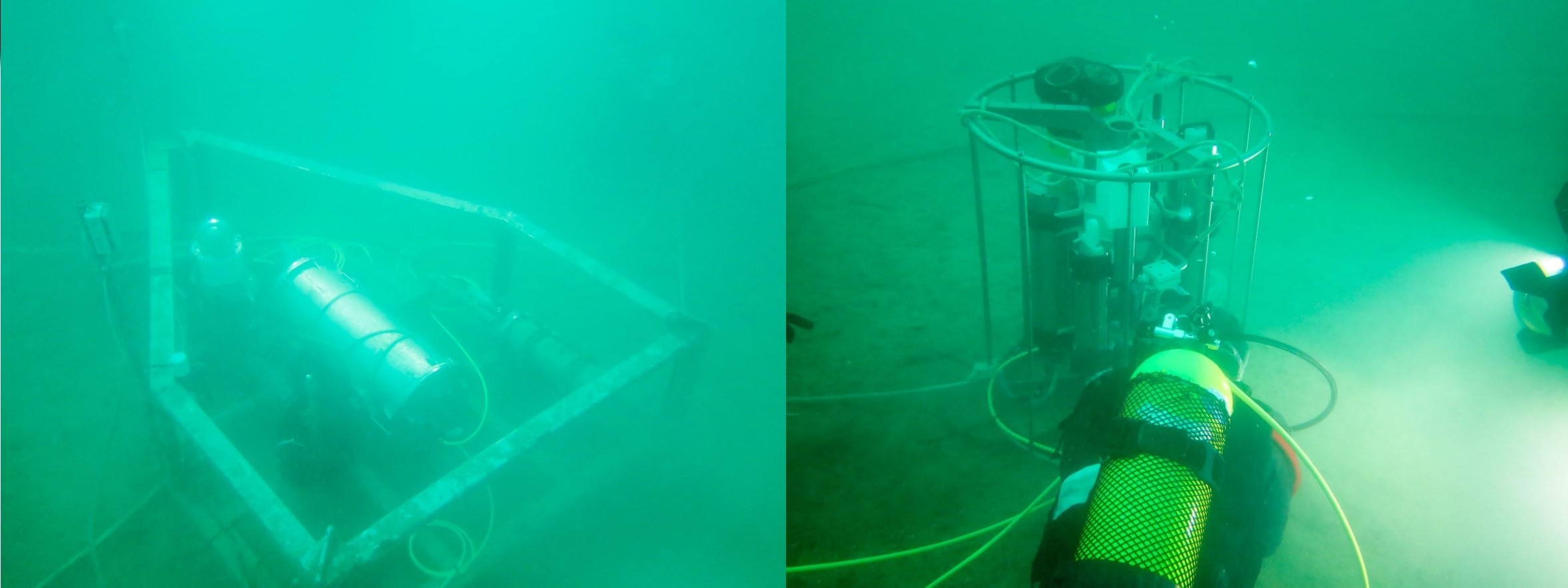Passive acoustic sensor

ADCP

CTD

Turbidity meter

Oxygen optode

DPI unit

Aquisition unit (COSTOF2)

Tsunami meter

EGIM Prototype

Core variables captured by the EGIM – EMSO Generic Instrument Module, and their cross-disciplinary application

Variable	Geosciences	Physical Oceanography	Biogeochemistry	Marine Ecology
Temperature	X	X	X	X
Conductivity	X	X	X	X
Pressure	X	X	X	X
Dissolved O_2	X	X	X	X
Turbidity	X	X	X	X
Ocean currents	X	X	X	X
Passive acoustics	X			X

EGIM Prototype

EGIM Prototype

Sensor	Parameter	Sampling rate
SEABIRD SBE37-SIP-P7000-RS232 (cabled + pump)	sea_water_temperature, salinity, conductivity, depth, sound_velocity	1 sample every 10 seconds
SEABIRD SBE 54 Tsunami	sea_water_temperature pressure	1 sample every second
AADI-3005214831 DW4831Optode	sea_water_temperature, oxygen_concentration, air_saturation	1 sample every second
Wetlabs ECO NTUrtd	turbidity	1 sample every second
Teledyne Workhorse monitor ADCP 300 KHz	sea_water_temperature, roll, pitch, heading_of_device, • 20 bins of N_S_sea_water_speed, • 20 bins of E_W_sea_water_speed, • 20 bins of vertical_sea_water_speed, • 20 bins of error_sea_water_speed,	1 sample every minute
OceanSonics icListen SB60L-ETH (10 Hz -200 kHz)	wav and spectrograms	5 minutes audio recording every 30 minutes

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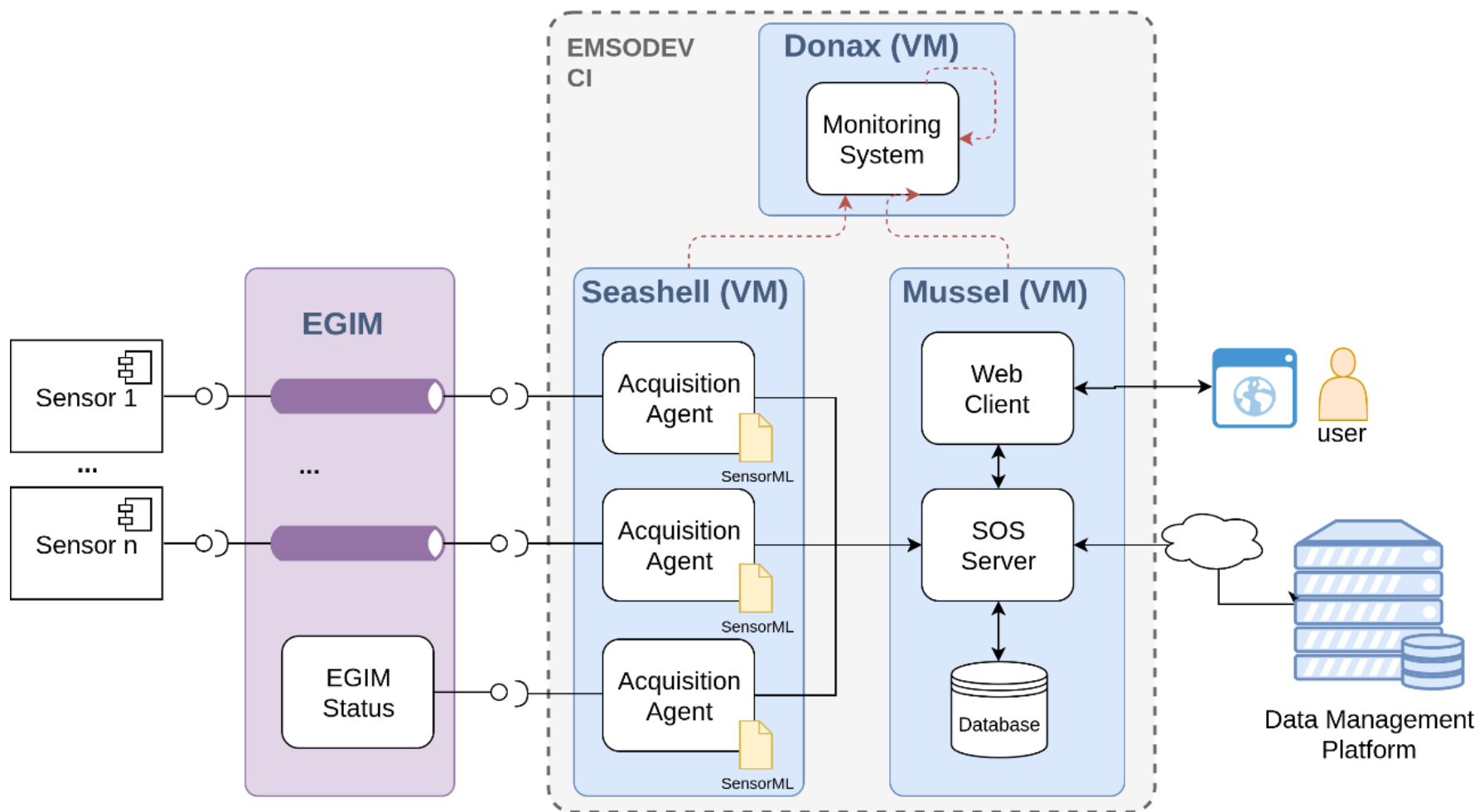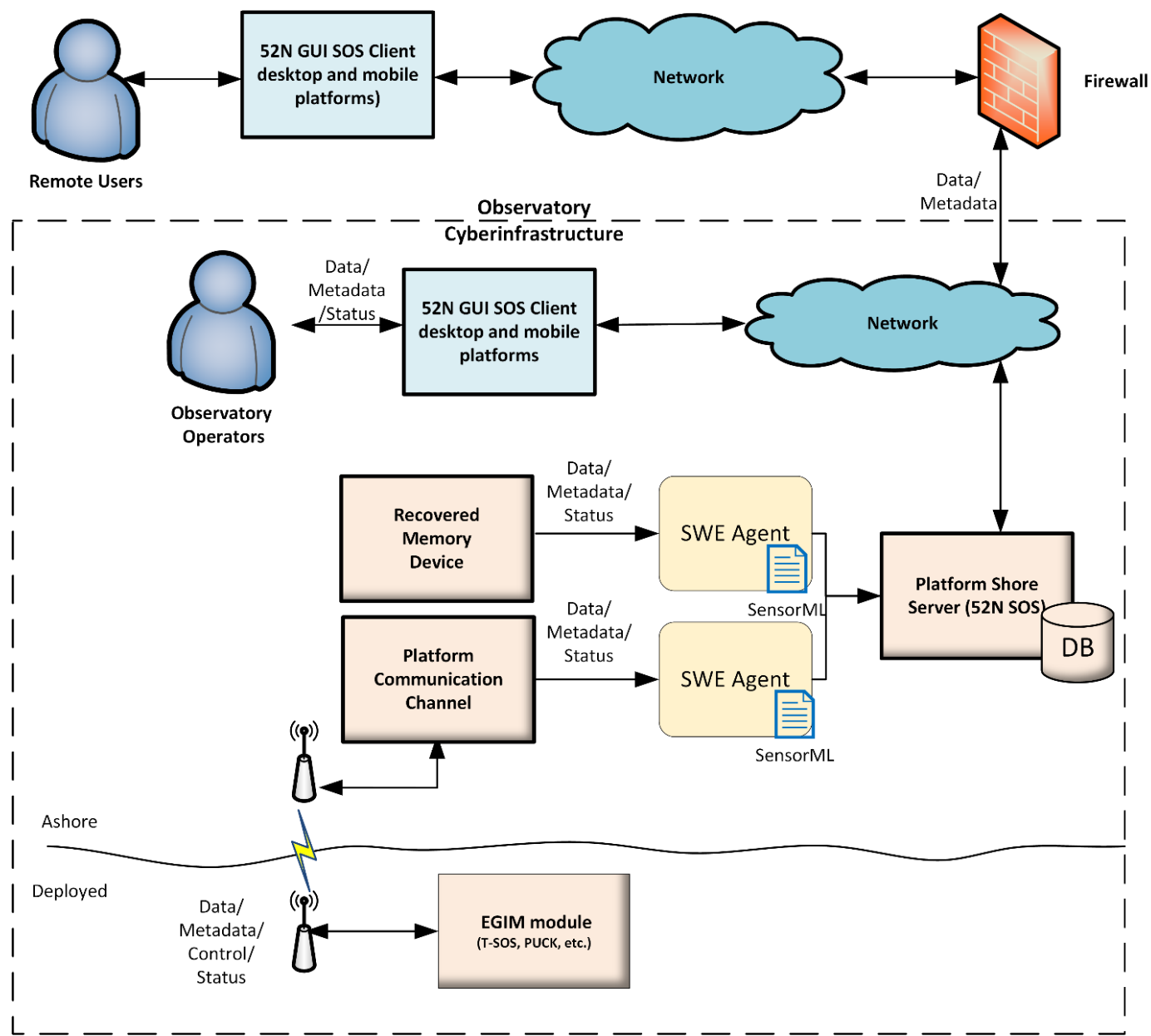
OGC SOS as Gateway for EGIM
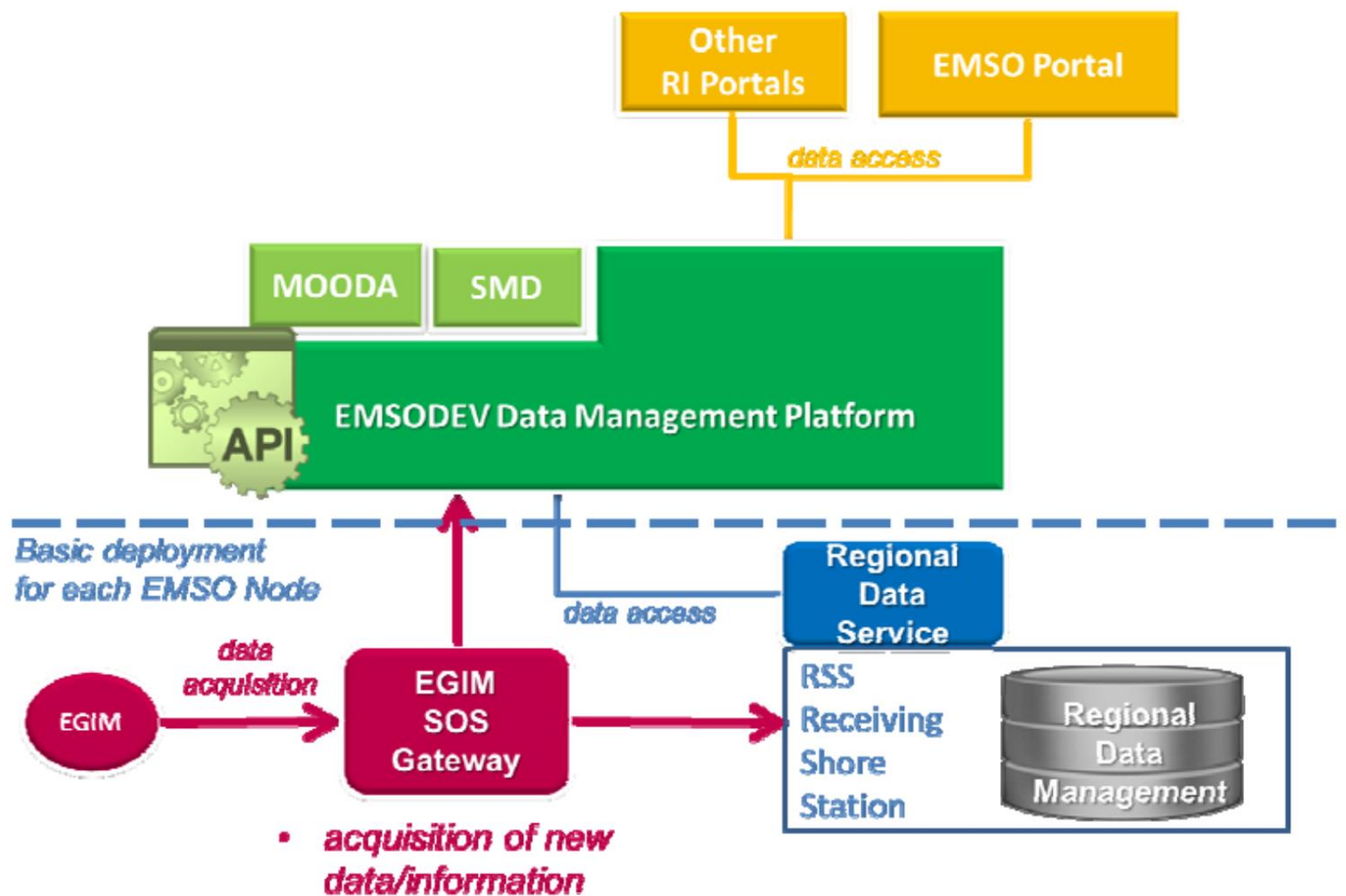
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🌿 **EGIM SWE-based Data Acquisition System**

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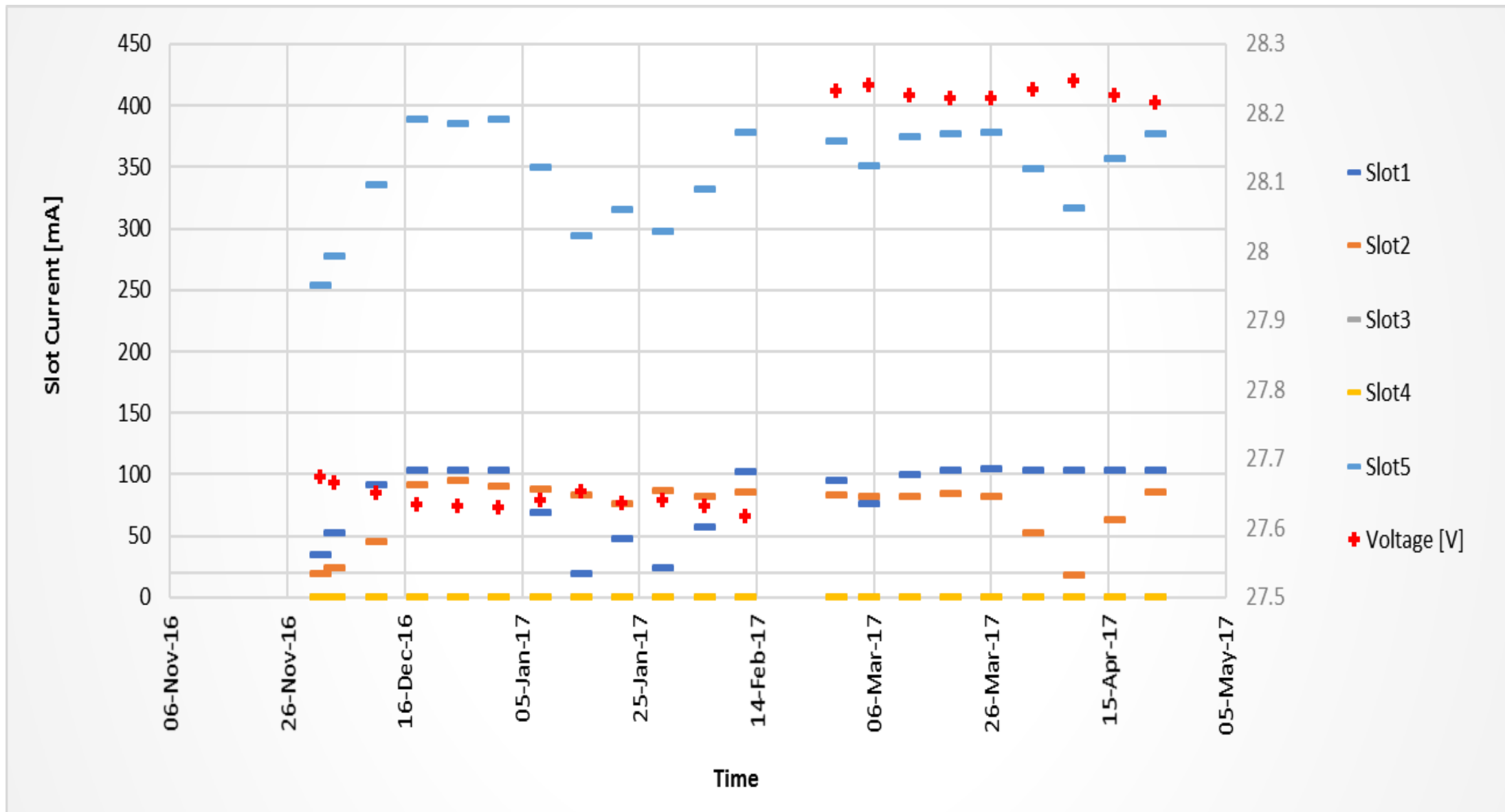# OGC SOS Implementation for EGIM

OGC SOS Implementation for EGIM
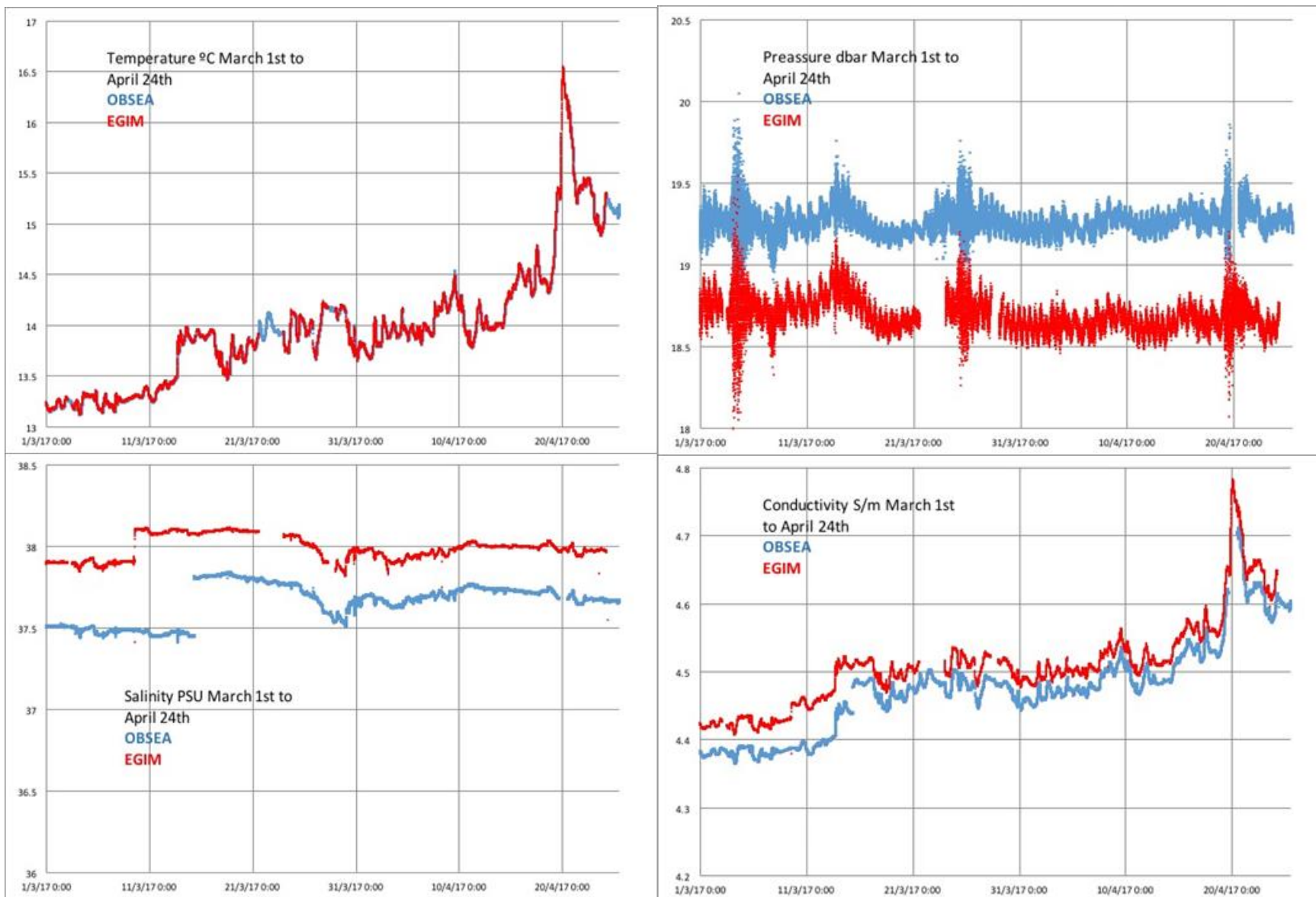
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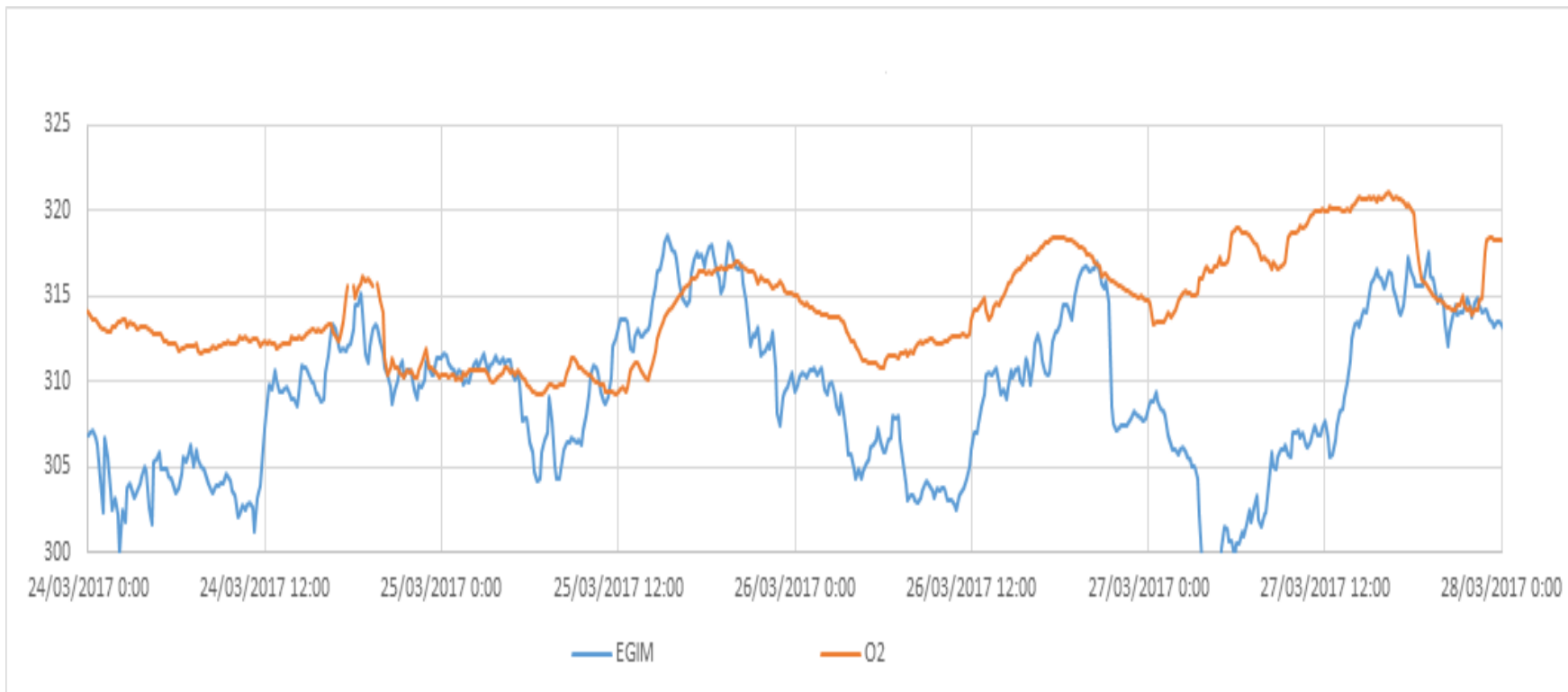
Power Consumption

Some statistics for CTD

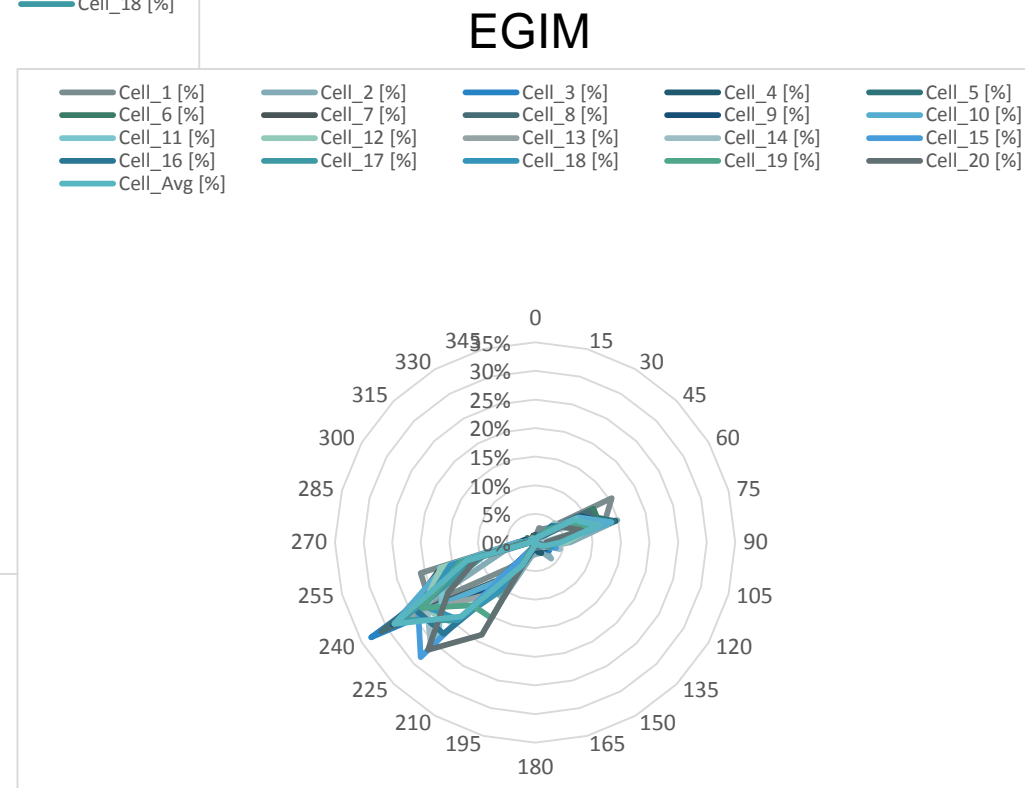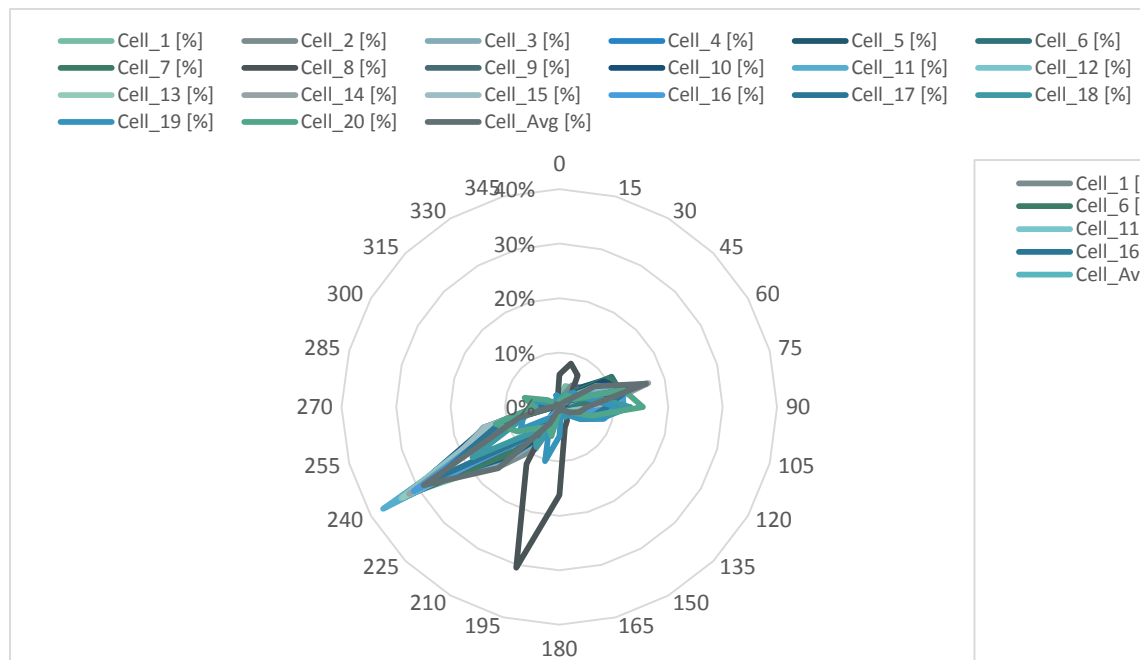EGIM-CTD (red) and OBSEA-CTD (blue)

Some statistics for Aanderaa

Oxygen concentration between the EGIM Aanderaa sensor (blue) and Aanderaa sensor on the OBSEA O2 buoy (orange).

Histograms of the AWAC installed in OBSEA model NORTEK 1MHz AWAC with AST (Acoustic Surface tracking) and the EGIM ADCP between March 5 to March 15 which shows similar water current data.

OBSEA

EGIM

Thank you!