KATERINA: successful connection to the EMSO-Ligure-Nice cabled observatory

IFREMER (France) and MARUM (Germany) have just deployed off the Nice Airport the so-called KATERINA station hosting sea water sensors.

The successful connection of the station to the EMSO-Ligure-Nice cabled observatory allowed remote configuration of the monitoring system so that in situ data are now effectively accessible in real time in MARUM, Bremen, more than 1000 km away.

The deployment of the KATERINA station and sensors occurred from August 20 to 23, 2019 in the frame of the EMSO-Link project which granted Transnational Access to MARUM as a service provided by the EMSO ERIC. Deployment operations at sea were carried out from the R/V *L'Europe* as part of the FLUID3D-2 cruise and the ANR-MODAL project. The support of divers from IFREMER was key to achieve cable deployments and underwater operations as required to connect the KATERINA station to a junction box of the EMSO-Ligure-Nice cabled observatory.

https://www.youtube.com/watch?v=x8RpX17mLoU

Sebastien Garziglia (IFREMER) who was the mission chief indicates that "The radioactivity sensor together the CTD sensors (conductivity-temperature-depth) now installed in the KATERINA station record data relevant to the understanding of the temporal variability of fresh groundwater discharge. This approach add to fluid pressure monitoring in the sediment which initiated 10 years ago as a means of assessing the factors affecting the susceptibility of the area to failure."

Xavier Bompais (IFREMER) who is in charge of the EMSO-Ligure-Nice observatory explains that "The operations have been carefully planned by IFREMER and MARUM teams. The connexion of the instruments and the transmission of the data they record was tested and validated last June in laboratory."

One single planned operation was not completed during the FLUID3D-2 mission. It is the deployment of a seismo-piezometer probe from MARUM which aimed at measuring the pore fluid pressure together with ground motions in the sediment nearby the KATERINA station. Despite two attempts, the lance-like probe could not penetrate hard grounds. A new attempt is planned to be made next November.

Overall the FLUID3D-2 cruise was successful as maintenance, recovery and deployment operations planned on another type of piezometer went well and allowed the connexion of two new instruments to EMSO-Ligure-Nice cabled observatory.

https://www.youtube.com/watch?v=c7UnUr_6Hbs

More information

- EMSO-Ligure-Nice observatory : http://www.emso-fr.org/EMSO-Ligure-Nice
  Video: https://www.youtube.com/watch?v=Jf7qoheWIzcc
- EMSO-Link Transnational access : http://emso.eu/transnational-access/
- ANR MODAL project : http://modal-project.cnrs.fr/

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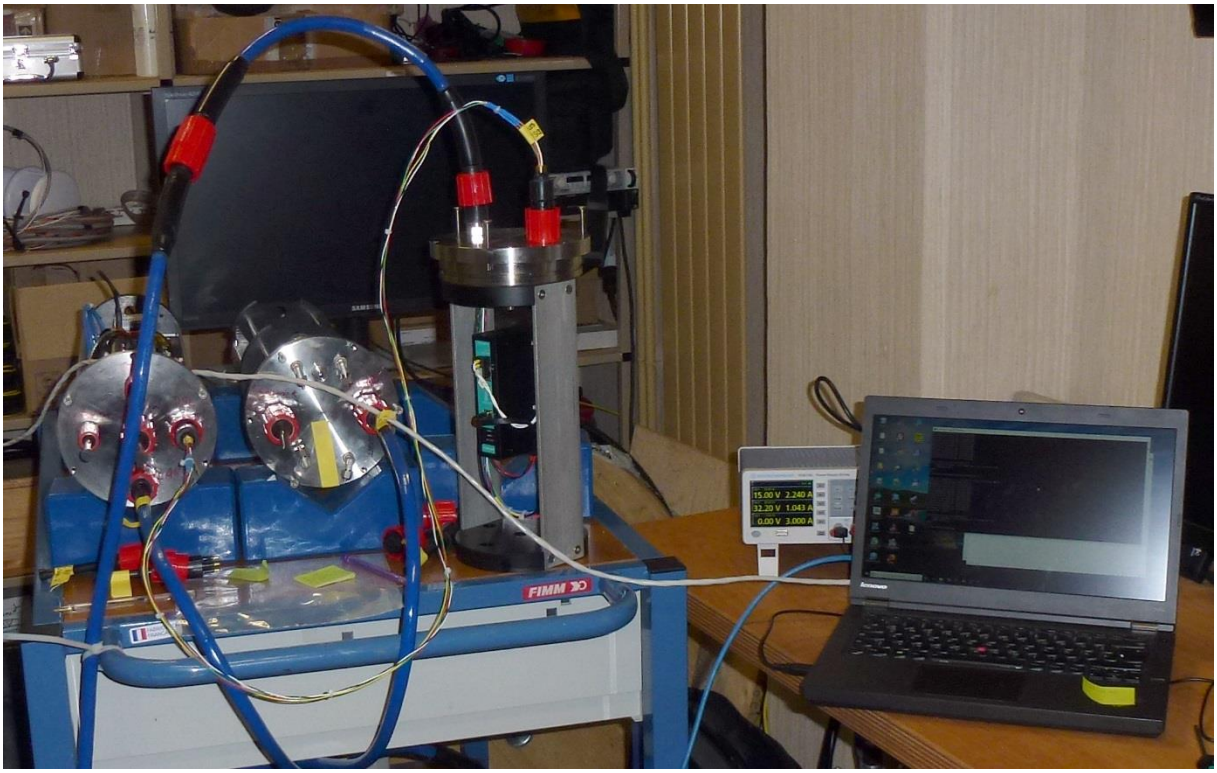
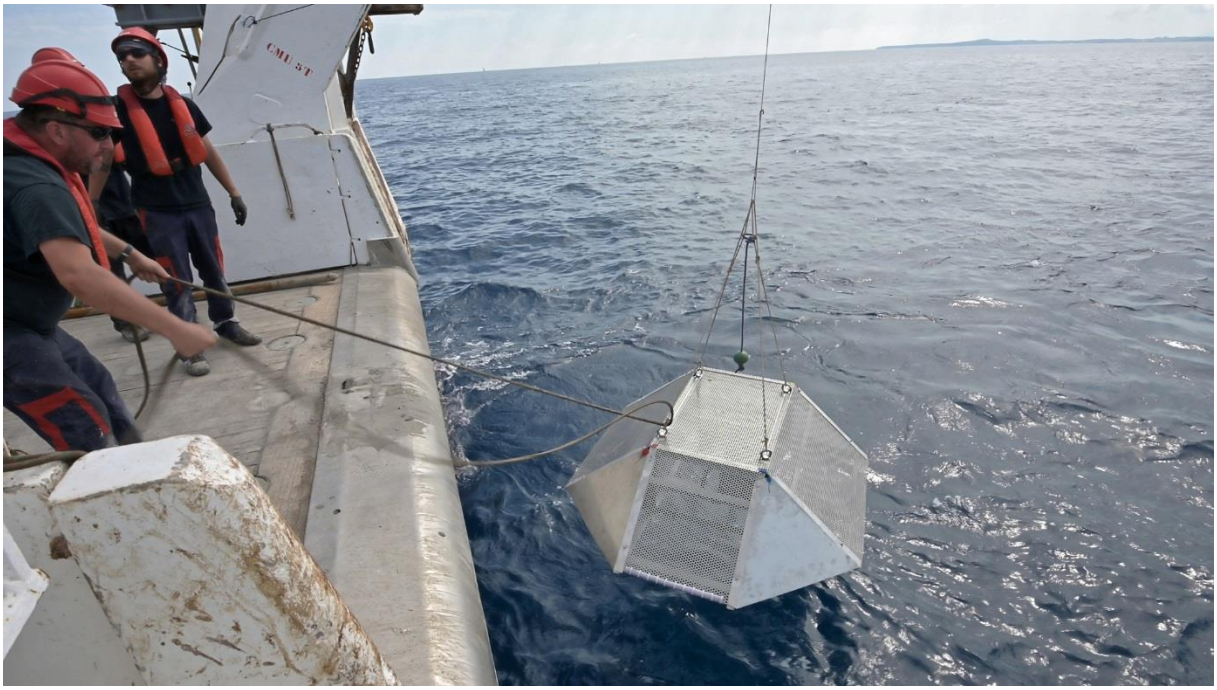
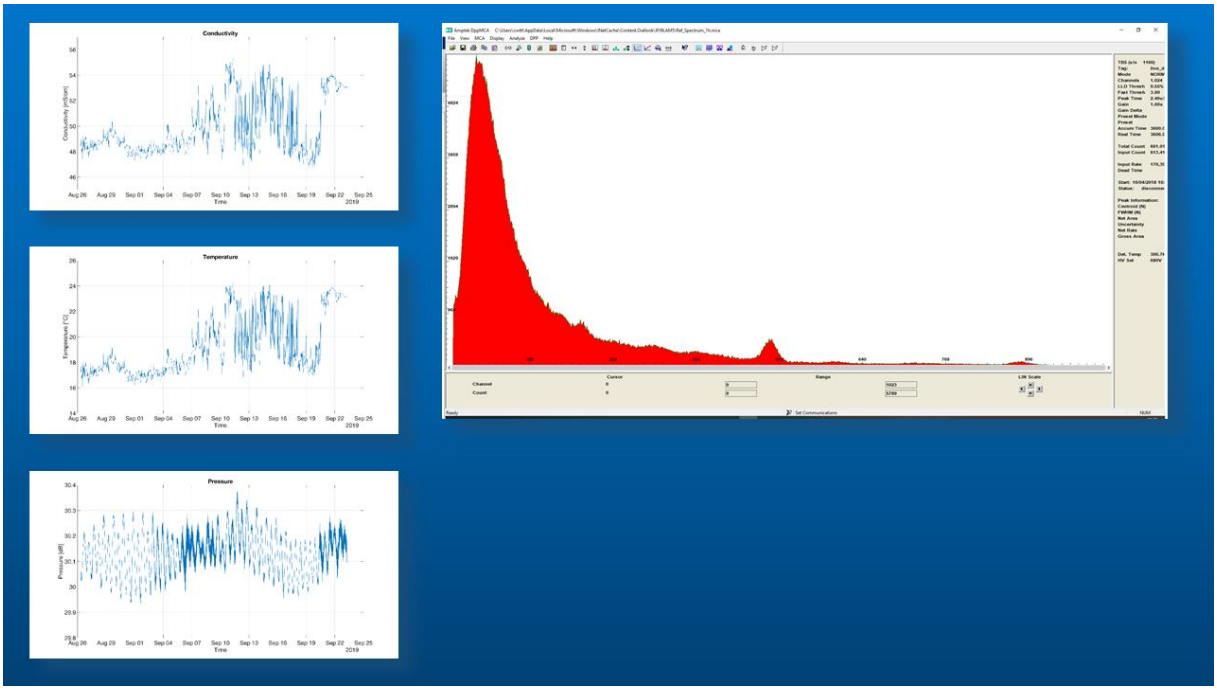


Performance tests in IFREMER Brest facilities (network simulator) in last June (© Ifremer - X. Bompais)

Very last checking before deployment (© Ifremer - O. Dugornay).



Deployment of the KATERINA station. Deployment operations at sea were carried out from the R/V *L'Europe* as part of the FLUID3D-2 cruise and the ANR-MODAL project (© Ifremer - O. Dugornay).



In situ data from the CTD (left) and KATERINA radioactivity sensor (right) are accessible in real time in MARUM Bremen, more than 1000 km away.

The Research leading to these results has received funding from the European Union H2020-INFRADEV-2016-2017 under grant agreement n° 731036, EMSO-Link.