UMSA

UMSA

WHAT:

By integrating the service with the EOSC Federated Cloud Backend, uniform access to data and computing resources are provided, scaling it to the target European-wide user community.

FOR WHO:

Researchers.

ACCESS:

https://www.eosc-synergy.eu/results/umsa

UMSA

Description

UMSA is an untargeted mass-spectrometry analysis service from RECETOX (Research Centre for Toxic Compounds in the Environment at Masaryk University) in the Czech Republic. The service is evolving to a key component of the emerging EIRENE ESFRI. By integrating the service with the EOSC Federated Cloud Backend, uniform, access to data and computing resources are provided, scaling it to the target European-wide user community.

Typically, mass spectrometry is done in a targeted way to confirm or disprove the presence of a specific compound in a sample. On the contrary, this service supports data processing to correlate the whole spectra (ie. all the present compounds) with other data (social, medical, other sample analyses, etc.) to work with more complex hypotheses of environmental impacts on human health.

Target audience/beneficiaries

Researchers in Environmental studies, namely the European Humane Exposome Network (EHEN), the world's largest project network studying the impact of environmental exposure on health.

Benefits

The UMSA service supports a reliable and reproducible approach to processing mass spectrometry data. It is a component of a large array of data processing services in complex exposome research.

One of the main challenges addressed by UMSA is the current inability to detect low abundant pollutants and their metabolites. UMSA solves the current limitations by implementing LC&GC/MS pipelines including advanced tools. It integrates all tools and workflows users need.

Use and Impact after EOSC Synergy

The individual tools available in UMSA can be composed of numerous workflows to process various types of mass spectrometry data. The focus is on untargeted experiments and search for evidence of low-abundant environmental pollutants and their metabolites in various environment and human samples (dust, water, food, blood, urine, ...).

The main exploitation route is to promote use of the service by the community, and publishing relevant software tools. Various scientific papers and presentations were illustrated at conferences throughout 2022.