Linking vocabulary models describing contaminants data from different marine domain communities to facilitate data provision to EMODnet Chemistry

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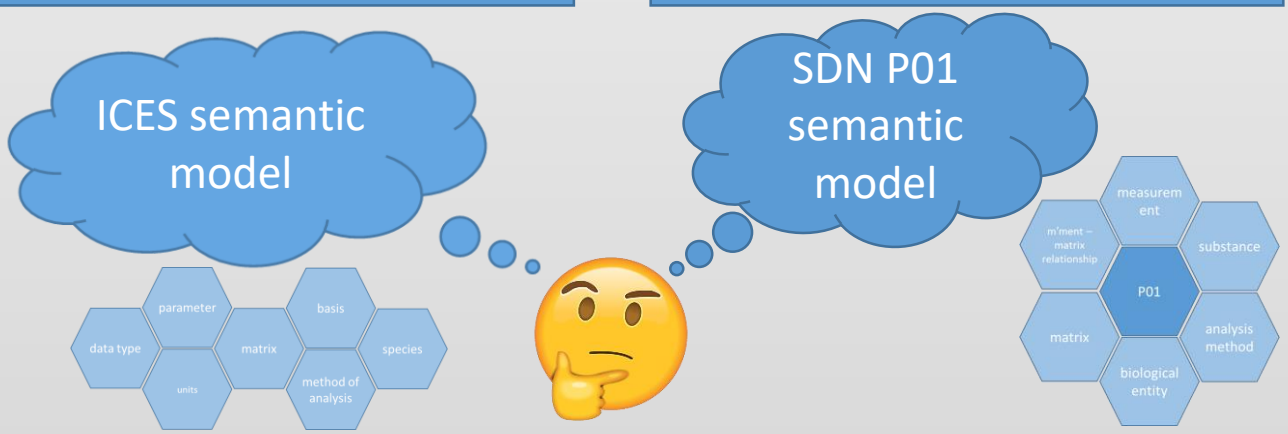
The International Council for the Exploration of the Seas (ICES) has been managing contaminants data for approximately 40 years. Data have been reported mainly for assessment purposes for OSPAR, HELCOM and AMAP.

EMODnet Chemistry uses the SeaDataNet (SDN) data management infrastructure to harmonise and aggregate data from across European seas and regional conventions (e.g. OSPAR, HELCOM, and Black Sea).

ICES Environmental Reporting Format

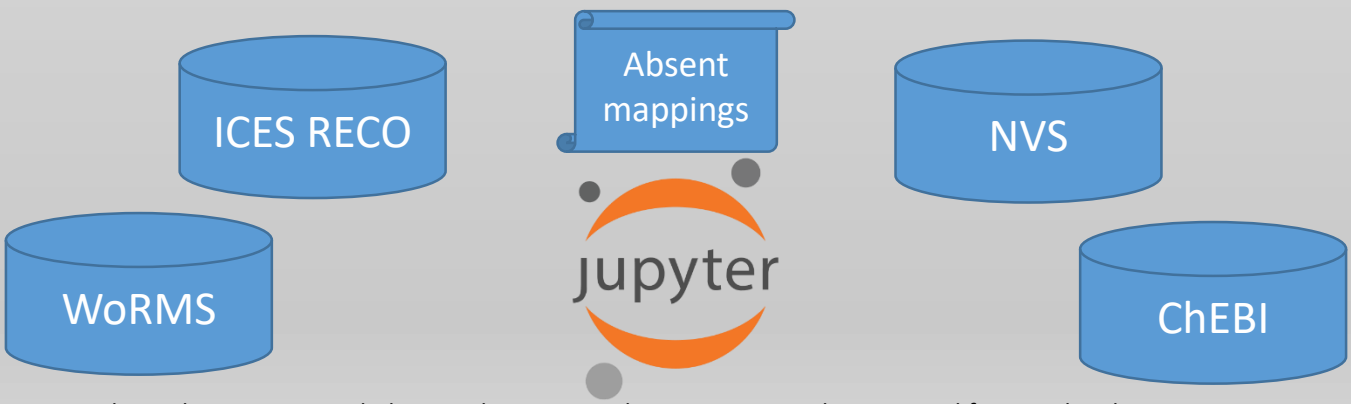
SeaDataNet compliant ODV ASCII & CF-netCDF formats



During EMODnet Chemistry the Irish Marine Institute, BODC and ICES collaborated to build a tool to map between the different vocabularies and differing underlying semantic models used by the OSPAR, HELCOM, AMAP and SDN communities to describe contaminants measurements using the vocabularies published on the ICES and NERC Vocabulary Servers.

https://github.com/IrishMarineInstitute/ICES2NVS_semantic_map

The tool is written in Python and available as a Jupyter Notebook on GitHub, where it can be run in the web browser utilising the Binder cloud infrastructure. Linked data resources are obtained from web APIs (WoRMS & CheBI) to enable or validate mappings between vocabularies on the ICES RECO and NERC Vocabulary Server (NVS) APIs.



The tool maps ICES vocabulary combinations to the parameter markup required for SDN data harmonisation.

ICES ERF	**DTYPE**	**PARAM**	**CAS**	**MUNIT**	**MATRX**	**BASIS**		
	CS	CU	7440-50-8	mg/kg	SED2000	D		
SDN P01	CUSEDBD1	Concentration of copper {Cu CAS 7440-50-8} per unit dry weight of sediment <2000um						
ICES ERF	**DTYPE**	**PARAM**	**CAS**	**MUNIT**	**MATRX**	**BASIS**	**METPT**	
	CW	HG	7439-97-6	ug/l	WT	W	FM-PC-0.4	
SDN P01	MTWD0008	Concentration of total mercury {total_Hg CAS 7439-97-6} per unit volume of the water body [dissolved plus reactive particulate <0.4/0.45um phase]						
ICES ERF	**DTYPE**	**PARAM**	**CAS**	**MUNIT**	**MATRX**	**BASIS**	**AphiaID**	**Species**
	CF	CD	7440-43-9	ug/kg	SB	D	140480	Mytilus edulis
SDN P01	CDDWCF14	Concentration of cadmium {Cd CAS 7440-43-9} per unit dry weight of biota {Mytilus edulis (ITIS: 79454: WoRMS 140480) [Subcomponent: flesh]}						

Foras na Mara Marine Institute

ICES CIEM

National Oceanography Centre
British Oceanographic Data Centre BODC