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Understanding the WMO BUFR standard in ISO/OGC terms (and v.v).

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Abstract.

The World Meteorological Organisation has a data standard for observational data which is over 20 years old. All 189 WMO members are in the middle of a 10 year process of converting all observational data formats for real-time data exchange to BUFR.

Within Europe this conversion is estimated to have already cost more than 10 million Euros. Currently there are over half a million new BUFR bulletins (instances in ISO terms) being exchanged in real-time every day as the process accelerates.

The BUFR data model and format were developed in the age of SGML, but with the explicit requirement that the data bulletins/instances were of minimal size. In BUFR this means that nearly everything (except numbers) is a reference and numbers are compressed to fixed point precisions – themselves defined through references. The references are to the set of $\sim$460 BUFR tables which for WMO has much of the functions of registries and feature catalogues – but none of the functionality.

So BUFR is a very highly structured data model and format, used for critical daily weather data exchange across the globe.

But where is the interoperability with ISO/OGC data and data models?
Where is the common understanding needed to develop such interoperability?
Although both ISO and OGC have MOUs with WMO, this communication is at high level.
Where is the detailed conversation between the two communities of ISO/OGC and WMO?

Who are the interlocutors for such a conversation? We need to have people working on the philology of the two data models: understanding the different grammars and syntaxes; defining the praxis of interoperability.

- Because there is a surprising level of difference between these models which might be expected to demonstrate much more coherence.

This presentation attempts to provide some level of comprehension and comparison of the different modelling paradigms.