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Open data formats: how to communicate weather and climate to everyone

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Advancements in digital computers and networking have created immense possibilities for advanced weather forecasts, extensive data collections and other weather-related products. In the internet age, direct availability of such products online is becoming more and more prevalent. This opens up a question of how to effectively communicate all that data to the customers. It is, namely, not only important what data is communicated, but also how it is communicated. In the case of digital data transfer, the data format defines most of the characteristics of the "how".

Proprietary data formats may be tempting: they are usually readily available to the publishers of information and they seem to be well tailored to the data at hand. But in reality this can also significantly compromise the goal of reaching a wide audience. This is not only due to the price of the software required to decode the formats — there are a lot of proprietary solutions that provide decoding software free of charge; the main reason is that proprietary solutions invariably adapt slowly to new platforms that emerge in the digital landscape. Most people are probably familiar with the frustrating experience of receiving an e-mail message on their smartphone and not being able to open a word-processor document attached to it. With Android, iOS, Linux, and many other niche platforms (like FirefoxOS) becoming increasingly used for web access, such incidents will be ever more common.

The only way to effectively reach out to everyone with access to the internet is to use openly defined and royalty-free data formats. This way, nobody is excluded in advance: every new emerging platform can provide applications to decode and display the data. Although this might not be an important consideration for weather products tailored to specific customers, it is an essential point for NHMSs, as they have a public role to play. Furthermore, anyone communicating climate science and the effects of the climate change has a distinct goal to reach out to as wide an audience as possible.

The meteorological community should be aware of the issue of data formats and take it seriously. Our aim is to provide help in choosing the formats for specific types of information: practical guidelines will be given and examples of good and bad practices will be examined. We will also touch upon the question of what to do in cases when no suitable open format seems to exist yet.