

## ***Interactive comment on “Weather and Climate Science in the Digital Era” by Martine G. de Vos et al.***

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The paper is an interesting read on an important and timely topic. The length is appropriate, and the authors represent a broad spectrum of subjects within Geosciences. However, the paper could improve significantly if the text would be more specific and if more specific examples would be provided for the claims in the text (see list of points below but there are many more places in the text). I think that it would make the paper much more credible if the authors would provide a list of action points to improve the situation at the end of the paper. However, I leave this for the authors to decide. The English should be improved.

**Specific comments:**

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- II.6-9: How is this shown?
- II. 10-14: What is special about the origin, scalability and legal barriers? Why does the complexity limit collaboration? Can you give examples?
- I. 14: Why is there a need for new roles?
- I. 36: Was this really both short and long wave? If you refer to the 90s, you should also cite the original papers by Chevallier et al.
- I. 56: Lagging behind whom? Can you give an example?
- End of section 1: It would be good to give a hint about the structure of the following. The reader does not know what to expect from the rest of the paper.
- I. 71-74: Which or at least how many countries? How many Funders and Research institutes? Can you give examples?
- I.82: As you elaborate later on, OpenIFS is not Open Source as it has a (free) license.
- End of section 2: You could also mention Reanalysis data here.
- I.108: “clearly enrich their research” Can you give an example how?
- I. 114: What is “CF”?
- I. 124: What do you mean by “performance scalability”. Software tools that allow to evaluate data at scale on supercomputers? How is data interoperable?
- I. 132: Which tools? Can you name them?
- I. 144: Which Journals? Can you name them?

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- I. 150: Can you outline some of the examples in more detail?
- . “The studies show that use of machine learning methods has added value because models are built with data beyond standard meteorological data. For example, local conditions related to the natural and built environment that cannot be captured easily in simulation models can be taken into account through trained models.” I do not understand this. Can you rephrase?
- I. 177: Can you name examples for hardware and software platforms. And can you define what you mean by “platform” in this context?
- “data such as that of the environment and citizen science sources.” I do not know which data sets you are referring to here.
- “The increase in accuracy and skill of forecasts at local scales are shown, improved consistency of data products and improved efficiency and skill of simulations, often crossing different disciplines.” Again, I do not understand this. Do you mean “show” instead of “are shown,”?
- I. 194: Which issues?
- “Technologically, the promise of using modern digital technologies is not always met due to the complexity of software platforms.” I do not understand this.

### Minor points:

- I. 9: Rephrase: “that here are”
- I. 32: Rephrase “since ensured”
- I.45: Rephrase: “use of using”

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- l. 171: “Emerging fields”
- l. 192: “science and it vastly” -> “science, and vastly”
- l. 206: “science science”
- l. 213: Rephrase “are a means to”
- l. 216: Rephrase “openly vastly”

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