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## **EUHFORIA 2.0**

*Thursday, 9 September 2021 09:00 (13 minutes)*

The EU Horizon2020 project EUHFORIA 2.0 aims at developing an advanced space weather forecasting tool, combining the MHD solar wind and CME evolution model EUHFORIA[1] with the Solar Energetic Particle (SEP) transport and acceleration model PARADISE[2]. We will first introduce EUHFORIA and PARADISE and then elaborate on the plans of the EUHFORIA 2.0 project which will address the geo-effectiveness of impacts and mitigation to avoid (part of the) damage, including that of extreme events, related to solar eruptions, solar wind streams, and SEPs, with particular emphasis on its application to forecast Geomagnetically Induced Currents (GICs) and radiation on geospace.

The EUHFORIA 2.0 project started on 1 December 2019, and yielded some first results. These concern alternative coronal models, the application of adaptive mesh refinement techniques in the heliospheric part of EUHFORIA, alternative flux-rope CME models, evaluation of data-assimilation based on Karman filtering for the solar wind modelling, and a feasibility study of the integration of SEP models. The novel tool will be accessible by the whole space weather community via the ESA Space Weather Service Network as it will be integrated in the Virtual Space Weather Modelling Centre (VSWMC)[3], which is part of that network.

### References

- [1] J. Pomoell and S. Poedts: *J. of Space Weather and Space Climate*, 8, A35 (2018). DOI: <https://doi.org/10.1051/swsc/2018020>
- [2] N. Wijsen, "PARADISE: a model for energetic particle transport in the solar wind". PhD thesis, April 2020.
- [3] S. Poedts, et al.: *J. of Space Weather and Space Climate*, 10, Art. 14 (2020). Open Access DOI: [10.1051/swsc/2020012](https://doi.org/10.1051/swsc/2020012)

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