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Scientific analysis within SEPServer: the 13 July 2005 SEP event case study

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SEPServer is set out to make the first database of particle and corresponding EM observations of solar energetic particle (SEP) events over roughly three solar cycles. It will also provide users with results from the scientific analysis of multiple datasets using different observational and simulation based methods. Therefore, SEPServer will lead to new perspectives of scientific analysis and will serve as a new asset valuable for SEP and Space Weather research.

In this contribution, the event of 13 July 2005 has been used as a case study, which is a proxy for the overall information that the SEPServer will include and at the same time it reveals the capabilities offered to the future users of SEPServer. The analysis of the 13 July 2005 event – focusing on the data driven analysis, i.e. onset and release time determination from SOHO/ERNE, SOHO/EPHIN and ACE/EPAM together with pitch angle distributions from ACE/EPAM, simulations based on WIND/3DP and ACE/EPAM electrons as well as direct comparison of the observed SEP fluxes with the associated electromagnetic emissions – is performed. The physical interpretation and the interconnection of the experimental and the simulation based results are discussed in detail. The 13 July 2005 case study exemplifies the future usage of SEPServer, which will provide a comprehensive and up to date SEP analysis service.

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