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AMS and DAMPE: first experiences with federated cloud solutions and a look toward the future

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The computing model of the AMS and DAMPE Cosmic Ray experiments is designed to cope with several TB of ROOT files produced for every year of mission. Periodically the reprocessing of the full dataset is needed and on yearly base a massive MonteCarlo production of the various CR species must be run. The data analysis is, typically, performed on reduced ntuples by tens of users. Both the data production and the data analysis are run in the ~ 5 computing centers of the collaboration without any grid-like framework. Recently we started exploiting technical solutions provided by Dynamic On Demand Analysis Service, DODAS developed in the context of projects such as INDIGO-DataCloud, EOSC-hub and XDC in order to seamlessly access cloud resources both commercial (Deutsche Telekom, Google-Cloud) and on premises (Cloud@ReCas, and Cloud@CNAF). The work is progressing toward a larger federation which includes many and different IaaS' s into a single DODAS provided pool of resources. A concrete example is the ongoing initiative to include AMS2 compute resources hosted at ASI. Results of this activity will be shown including the experience and perspectives of the experiments both on computing and data handling. We will include also a wish lists for the future

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