

Online Masterclass built on the KASCADE Cosmic ray Data Centre

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During the ongoing Covid-19 pandemic, people all over the world were forced to think about new ways of interacting with each other and this has especially challenged academics in their outreach activities with pupils. New online formats needed to be developed, and we used this opportunity to design and implement an (not only) online Masterclass using data from the KASCADE experiment. The masterclass is built on the KASCADE Cosmic Ray Data Centre and uses Jupyterhub and Notebooks for data analysis. We gained first practical experience during the International Cosmic Day with students at the age of 14-19 years. The Masterclass includes lectures on cosmic ray physics and data analysis, which are then consolidated in a hands-on part. By performing a cosmic-ray composition analysis on KASCADE data, the participants gain experience in using the KCDC open data web platform, working in the Jupyter environment, preprocessing data from a real astroparticle physics experiment, programming Python and performing exploratory data analysis. In this presentation, we will describe the content of the masterclass as well as the choice of implementation tools (such as platform, programming language and libraries) and organizational aspects of the event.

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Collaboration

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Outreach and Education

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