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Expanding the Pierre Auger Observatory Open Data program

Since 2021, the Open Data Portal has provided access to the Pierre Auger Observatory's data for both the scientific community and the general public. The data release process has been in place since the Observatory's foundation and continues to be strengthened as outlined in the approved policy and the Observatory's Data Management Plan. More than 80 000 cosmic-ray events above 10^{17} eV, detected with the surface and fluorescence detectors, have been released at various levels, from calibrated traces to high-level reconstruction parameters. Additionally, atmospheric data and low-energy particle counting rates have been made available for space-weather studies.

The Collaboration is committed to releasing FAIR (Findable, Accessible, Interoperable, and Reusable) data, along with accompanying software and detailed documentation, enabling users to perform their own queries and analyses for both research and educational purposes. These datasets have already served as a basis for several scientific papers and have been widely used in various outreach activities.

After 20 years of stable data acquisition, the Pierre Auger Collaboration will disclose 30% of the cosmic ray events above $2.5 \cdot 10^{18}$ eV collected with the main surface detector array during Phase I of the Observatory, corresponding to an exposure of about $24\,000\text{ km}^2\text{ sr yr}$, together with events detected with the fluorescence detector and used for energy calibration. This release will provide an unprecedented public dataset for ultra-high-energy cosmic rays, enabling in-depth studies of their properties.

Together with the published catalog of the 100 most energetic events recorded, this initiative represents the Pierre Auger Collaboration's strong commitment to distributed and collective knowledge, sharing progress with the entire scientific community.

Collaboration(s)

Pierre Auger Collaboration

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