

**Research Result Report**  
**ICRR Inter-University Research Program 2022**

Research Subject: Commissioning and upgrade of the onsite data center for CTA North in La Palma, Spain

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Summary of Research Result :

The next generation observatory for the very high energy gamma-rays will be the Cherenkov Telescope Array (CTA) covering energies from 20 GeV to 300 TeV with unprecedented sensitivity. It will be built on two sites: one in the Northern hemisphere (La Palma, Canary Islands, Spain), the other one in the Southern hemisphere (Paranal, Chile). Four Large Size Telescopes (LSTs) of 23 m diameter and 28 m focal length will be arranged at the center of both arrays to lower the energy threshold and to improve the sensitivity of CTA below 200 GeV. The first LST was inaugurated in Autumn 2018 and is now in the commissioning phase.

The onsite data center for CTA North has been procured by the University of Tokyo from the company Fujitsu. The delivery date was March 2018 in La Palma. I am responsible for this data center, i.e. the correct set-up, the coordination and management of the users and the commissioning of the IT center.

During the past years the numbers of users and the required storage space increased constantly. In 2021 74% of the available 3.4PB disk space was used. During data taking up to 10TB per night can be taken which means 200TB per month. In order to be able to store the incoming data now and in the future, we upgraded the existent system by 2.3PB. The figure below shows the 5 racks located in the onsite data center. The yellow shaded spaces show the slots that are now used for new disks and servers.

This new total disk space of 5.7PB is not only meant for data storage, but also for Monte Carlo simulations that are needed for precise data analysis.

