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The OPS4/DPCT HTC and HPC infrastructure: a unique INAF-ASI facility empowered by the Gaia mission legacy.

Abstract.
The Gaia mission is nearing the end of its operational life: after 10.5 years of continuous science operations (more than twice the initial lifetime), in Jan 2025 data taken with focal plane instruments will no longer be considered in the scientific data stream. However, in-orbit operations will continue for a few more months for testing end-of-life performances of digital detectors and other satellite subsystems in an effort to exploit Gaia's exceptional longevity despite its orbiting in the L2 environment.

We are then entering the post-operations phase and Gaia'legacy era, i.e., from data reduction and analysis to data management and exploitation. Therefore, this presentation addresses the work that Team INAF, with the support of Team ALTEC and the addition of more recent initiatives funded with PNRR resources, are carrying on at our Data Processing facility (DPCT@ALTEC) to face the challenges of the mission legacy, as advocated and prototyped in the framework of The Living Sky Project (WP4 of the MITIC special projects funded by MUR, 2018-2022) . Computational and infrastructural aspects, implied by the deep exploitation of the first Big Data system of the faint astronomical sky built only from space-borne data, will be illustrated along with the progress made so far.

Finally, we show how this unique, world-class HTC and HPC facility is capable of dealing with INAF growing computational complexities and ready to take more space data (e.g. Euclid, Lisa,..) and exploit them on a variety of outstanding problems in observational physics and the physics of space instrumentation by our scientific communities.

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