

The Vera C. Rubin Observatory Data Preview 2

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ABSTRACT

We present Rubin Data Preview 2 (DP2), the second data preview from the NSF-DOE Vera C. Rubin Observatory,

Keywords: Rubin Observatory - LSST

1. INTRODUCTION

2. COMMISSIONING WITH LSSTCAM

3. OVERVIEW OF THE CONTENTS OF RUBIN DP2

4. DATA RELEASE PROCESSING

5. PERFORMANCE CHARACTERIZATION AND KNOWN ISSUES

6. RUBIN SCIENCE PLATFORM

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Facilities: Rubin:Simonyi (LSSTComCam), Rubin:USDAC

Software: Rubin Data Butler ([Jenness et al. 2022](#)), LSST Science Pipelines ([Rubin Observatory Science Pipelines Developers 2025](#)), LSST Feature Based Scheduler v3.0 ([Yoachim et al. 2024](#); [Naghieb et al. 2019](#)) Astropy ([Astropy Collaboration et al. 2013, 2018, 2022](#)) PIFF ([Jarvis et al. 2021](#)), GBDES ([Bernstein 2022](#)), Qserv ([Wang et al. 2011](#); [Mueller et al. 2025](#)), Slurm, HTCondor, CVMFS, FTS3, ESNet

APPENDIX

Glossary

AURA: Association of Universities for Research in Astronomy.

DP2: Data Preview 2.

REFERENCES

- Astropy Collaboration, Robitaille, T. P., Tollerud, E. J., et al. 2013, *A&A*, 558, A33, doi: [10.1051/0004-6361/201322068](#)
- Astropy Collaboration, Price-Whelan, A. M., Sipőcz, B. M., et al. 2018, *AJ*, 156, 123, doi: [10.3847/1538-3881/aabc4f](#)
- Astropy Collaboration, Price-Whelan, A. M., Lim, P. L., et al. 2022, *ApJ*, 935, 167, doi: [10.3847/1538-4357/ac7c74](#)
- Bernstein, G. M. 2022, gbdes: DECam instrumental signature fitting and processing programs, Astrophysics Source Code Library, record ascl:2210.011. <http://ascl.net/2210.011>
- Jarvis, M., Bernstein, G. M., Amon, A., et al. 2021, *MNRAS*, 501, 1282, doi: [10.1093/mnras/staa3679](#)
- Jenness, T., Bosch, J. F., Salnikov, A., et al. 2022, in Society of Photo-Optical Instrumentation Engineers (SPIE) Conference Series, Vol. 12189, Software and Cyberinfrastructure for Astronomy VII, 1218911, doi: [10.1117/12.2629569](#)
- Mueller, F., Gaponenko, I., Gates, J., et al. 2025, in Astronomical Society of the Pacific Conference Series, Vol. 538, Astronomical Data Analysis Software and Systems XXXII, ed. S. Gaudet, D. Bohlender, S. Gwyn, A. Hincks, & P. Teuben, 114, doi: [10.26624/XCPI7375](#)
- Naghieb, E., Yoachim, P., Vanderbei, R. J., Connolly, A. J., & Jones, R. L. 2019, *AJ*, 157, 151, doi: [10.3847/1538-3881/aafece](#)
- Rubin Observatory Science Pipelines Developers. 2025, The LSST Science Pipelines Software: Optical Survey Pipeline Reduction and Analysis Environment, Project Science Technical Note PSTN-019, NSF-DOE Vera C. Rubin Observatory, doi: [10.71929/rubin/2570545](#)
- Wang, D. L., Monkewitz, S. M., Lim, K.-T., & Becla, J. 2011, in State of the Practice Reports, SC '11 (New York, NY, USA: ACM), 12:1–12:11, doi: [10.1145/2063348.2063364](#)
- Yoachim, P., Jones, L., Eric H. Neilsen, J., & Becker, M. R. 2024, lsst/rubin_scheduler: v3.0.0, v3.0.0, Zenodo, doi: [10.5281/zenodo.13985198](#)