

The Vera C. Rubin Observatory Data Preview 2

VERA C. RUBIN OBSERVATORY TEAM,¹ LEANNE P. GUY¹,² ARUN KANNAWADI^{3,4},⁵ SHUANG LIANG,⁵ AND
WILLIAM O’MULLANE^{1,2}

¹*Vera C. Rubin Observatory Project Office, 950 N. Cherry Ave., Tucson, AZ 85719, USA*

²*Vera C. Rubin Observatory, Avenida Juan Cisternas #1500, La Serena, Chile*

³*Department of Physics, Duke University, Durham, NC 27708, USA*

⁴*Department of Astrophysical Sciences, Princeton University, Princeton, NJ 08544, USA*

⁵*SLAC National Accelerator Laboratory, 2575 Sand Hill Rd., Menlo Park, CA 94025, USA*

(Dated: July 13, 2026)

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

7. SUPPORT FOR COMMUNITY SCIENCE

8. SUMMARY AND FUTURE RELEASES

ACKNOWLEDGMENTS

This material is based upon work supported in part by the National Science Foundation through Cooperative Agreements AST-1258333 and AST-2241526 and Cooperative Support Agreements AST-1202910 and AST-2211468 managed by the Association of Universities for Research in Astronomy (AURA), and the Department of Energy under Contract No. DE-AC02-76SF00515 with the SLAC National Accelerator Laboratory managed by Stanford University. Additional Rubin Observatory

funding comes from private donations, grants to universities, and in-kind support from LSST-DA Institutional Members.

This work has been supported by the French National Institute of Nuclear and Particle Physics (IN2P3) through dedicated funding provided by the National Center for Scientific Research (CNRS).

This work has been supported by STFC funding for UK participation in LSST, through grant ST/Y00292X/1.

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; Naghib 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. 2023), Slurm, HTCondor, CVMFS, FTS3, ESNet

APPENDIX

Glossary

Association of Universities for Research in Astronomy:
consortium of US institutions and international

affiliates that operates world-class astronomical observatories, AURA is the legal entity responsible for managing what it calls independent operating Centers, including LSST, under respective cooperative agreements with the National Science Foundation. AURA assumes fiducial responsibility for the funds provided through

those cooperative agreements. AURA also is the legal owner of the AURA Observatory properties in Chile.

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](https://doi.org/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](https://doi.org/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](https://doi.org/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., et al. 2021, *Mon. Not. Roy. Astron. Soc.*, 501, 1282, doi: [10.1093/mnras/staa3679](https://doi.org/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](https://doi.org/10.1117/12.2629569)
- Mueller, F., et al. 2023, in ASP Conf. Ser., Vol. TBD, ADASS XXXII, ed. S. Gaudet, S. Gwyn, P. Dowler, D. Bohlender, & A. Hincks (San Francisco: ASP), in press. <https://dmtn-243.lsst.io>
- Naghib, E., Yoachim, P., Vanderbei, R. J., Connolly, A. J., & Jones, R. L. 2019, *The Astronomical Journal*, 157, 151, doi: [10.3847/1538-3881/aafece](https://doi.org/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](https://doi.org/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](https://doi.org/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](https://doi.org/10.5281/zenodo.13985198)