

## 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
7. SUPPORT FOR COMMUNITY SCIENCE
8. SUMMARY AND FUTURE RELEASES

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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. 2023](#)), Slurm, HTCondor, CVMFS, FTS3, ESNet

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## APPENDIX

59

## Glossary

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61 **Association of Universities for Research in Astronomy:**

62 consortium of US institutions and international  
 63 affiliates that operates world-class astronomical  
 64 observatories, AURA is the legal entity respon-  
 65 sible for managing what it calls independent  
 66 operating Centers, including LSST, under respec-  
 67 tive cooperative agreements with the National  
 68 Science Foundation. AURA assumes fiducial

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responsibility for the funds provided through  
 those cooperative agreements. AURA also is the  
 legal owner of the AURA Observatory properties  
 in Chile.

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73 **AURA:** Association of Universities for Research in As-  
 74 tronomy.

75 **DP2:** Data Preview 2.

## REFERENCES

76 Astropy Collaboration, Robitaille, T. P., Tollerud, E. J.,  
 77 et al. 2013, *A&A*, 558, A33,

78 doi: [10.1051/0004-6361/201322068](https://doi.org/10.1051/0004-6361/201322068)

79 Astropy Collaboration, Price-Whelan, A. M., Sipőcz, B. M.,  
 80 et al. 2018, *AJ*, 156, 123, doi: [10.3847/1538-3881/aabc4f](https://doi.org/10.3847/1538-3881/aabc4f)

81 Astropy Collaboration, Price-Whelan, A. M., Lim, P. L.,  
 82 et al. 2022, *ApJ*, 935, 167, doi: [10.3847/1538-4357/ac7c74](https://doi.org/10.3847/1538-4357/ac7c74)

83 Bernstein, G. M. 2022, gbdes: DECam instrumental  
 84 signature fitting and processing programs, *Astrophysics*  
 85 *Source Code Library*, record ascl:2210.011.  
 86 <http://ascl.net/2210.011>

87 Jarvis, M., et al. 2021, *Mon. Not. Roy. Astron. Soc.*, 501,  
 88 1282, doi: [10.1093/mnras/staa3679](https://doi.org/10.1093/mnras/staa3679)

89 Jenness, T., Bosch, J. F., Salmikov, A., et al. 2022, in  
 90 *Society of Photo-Optical Instrumentation Engineers*  
 91 *(SPIE) Conference Series*, Vol. 12189, *Software and*  
 92 *Cyberinfrastructure for Astronomy VII*, 1218911,  
 93 doi: [10.1117/12.2629569](https://doi.org/10.1117/12.2629569)

94 Mueller, F., et al. 2023, in *ASP Conf. Ser.*, Vol. TBD,  
 95 *ADASS XXXII*, ed. S. Gaudet, S. Gwyn, P. Dowler,  
 96 D. Bohlender, & A. Hincks (San Francisco: ASP), in  
 97 press. <https://dmtn-243.lsst.io>

98 Naghib, E., Yoachim, P., Vanderbei, R. J., Connolly, A. J.,

99 & Jones, R. L. 2019, *The Astronomical Journal*, 157, 151,  
 100 doi: [10.3847/1538-3881/aafece](https://doi.org/10.3847/1538-3881/aafece)

101 Rubin Observatory Science Pipelines Developers. 2025, *The*  
 102 *LSST Science Pipelines Software: Optical Survey*  
 103 *Pipeline Reduction and Analysis Environment*, Project  
 104 *Science Technical Note PSTN-019*, NSF-DOE Vera C.  
 105 Rubin Observatory, doi: [10.71929/rubin/2570545](https://doi.org/10.71929/rubin/2570545)

106 Wang, D. L., Monkewitz, S. M., Lim, K.-T., & Becla, J.  
 107 2011, in *State of the Practice Reports*, SC '11 (New  
 108 York, NY, USA: ACM), 12:1–12:11,  
 109 doi: [10.1145/2063348.2063364](https://doi.org/10.1145/2063348.2063364)

110 Yoachim, P., Jones, L., Eric H. Neilsen, J., & Becker, M. R.  
 111 2024, *lsst/rubin\_scheduler: v3.0.0*, v3.0.0, Zenodo,  
 112 doi: [10.5281/zenodo.13985198](https://doi.org/10.5281/zenodo.13985198)