

Rubin Observatory Glossary and Acronym Definitions

William O'Mullane

2022-08-02

These are the full contents of the glossary definition file Tags are used by generateAcronyms.py to differentiate between overloaded entries. For information and usage see https://lsst-texmf.lsst.io/lsstdoc.html#acronyms-or-glossaries.

| Entry | Description | Tags |
|-------|---|---------|
| 1D | One-dimensional | Gen |
| 2D | Two-dimensional | Gen |
| 2MASS | Two-Micron All Sky Survey | Gen |
| 3D | Three-dimensional | Gen |
| A/D | Analogue-to-Digital (converter) | Gen |
| AA | Authentication and Authorization | TS |
| AAAC | Astronomy and Astrophysics Advisory Committee | TS |
| AAAS | American Association for the Advancement of Science | Gen |
| AAPT | American Association of Physics Teachers | TS |
| AAS | American Astronomical Society | Gen |
| AAVSO | American Association of Variable Star Observers | TS |
| ABI | Application Binary Interface | Gen |
| ABOD | AURA Board of Directors | Gen |
| AC | Alternating Current | Gen |
| ACCS | Auxiliary Camera Control System | LSST DM |
| ACGIH | American Conference of Governmental Industrial Hygienists | Gen |
| ACM | Award Cash Management Service | OPS |
| ACWP | Actual Cost of Work Performed | Gen |
| AD | Associate Director | OPS |
| ADAM | Asteroid Discovery, Analysis, and Mapping | Sci |
| ADASS | Astronomical Data Analysis Software and Systems | Gen |
| ADC | atmospheric dispersion corrector | TS |
| ADC | Analogue-to-Digital Converter | Gen |
| ADCO | Associate Director for Chilean Operations | TS Gen |
| ADQL | Astronomical Data Query Language | Gen |
| ADS | Astrophysics Data System | OPS Gen |
| ADU | Analogue-to-Digital Unit | Gen |



| AED | Automated External Defibrillator | OPS |
|---------|--|-----------|
| AEON | Alert Event Observatory Network | OPS Sci |
| AES | Advanced Encryption Standard | OPS |
| AGN | Active Galactic Nuclei | TS |
| AGU | American Geophysical Society | TS |
| Al | Artificial Intelligence | Gen |
| AIC | Akaike Information Criterion | Gen |
| AIP | American Institute of Physics | Gen |
| AISES | American Indian Science and Engineering Society | DEI |
| AIT | Assembly Integration and Test | Gen |
| AI&T | Assembly Integration and Test | Gen |
| AIV | Assembly Integration and Verification | Gen |
| AJ | The Astronomical Journal | Sci |
| ALeRCE | Automatic Learning for the Rapid Classification of Events | OPS |
| ALD | Associate Lab Director | OPS DOE |
| ALICE | A Large Ion Collider Experiment | Gen |
| ALMA | Atacama Large Millimeter Array (ESO) | Gen |
| AMCL | AURA Management Council for LSST | LSST |
| AMCR | AURA management Council for Rubin Observatory | OPS Rubin |
| AMD | Advanced Micro Devices | OPS |
| AMPATH | Americas Pathway (Network) | Gen |
| AMPEL | Alert Management, Photometry, and Evaluation of Light curves | OPS |
| ANSI | American National Standards Institute | Gen OPS |
| ANTARES | Arizona-NOIRLab Temporal Analysis and Response to Events Sys- | OPS |
| | tem | |
| AOB | Any Other Business | Gen |
| AOC | AURA Oversight Council | OPS |
| AOS | Active Optics System | TS |
| AOSS | AURA Observatory Support Services | OPS |
| AP | Alert Production | LSST DM |
| APL | Apache Public License | LSST DM |
| APDB | Alert Production DataBase | DM |
| API | Application Programming Interface | Gen |
| APS | American Physical Society | TS |
| ARAS | | |
| | Astronomical Ring for Access to Spectroscopy | Sci |
| ARC | Astronomical Ring for Access to Spectroscopy Advanced Resource Connector | Sci DM |



| arcmin | arcminute minute of arc (unit of angle) | Gen |
|---------|--|-------------|
| arcsec | arcsecond second of arc (unit of angle) | Gen |
| ASAP | As Soon As Possible | Gen |
| ASAS-SN | All-Sky Automated Survey for Supernovae | Sci |
| ASCII | American Standard Code for Information Interchange | Gen |
| ASDC | ASI Science Data Center (Italy) | OPS |
| ASI | Agenzia Spaziale Italiana | OPS |
| ASP | Astronomical Society of the Pacific | TS |
| AST | NSF Division of Astronomical Sciences | TS |
| AT | Auxiliary Telescope | TS |
| ATCA | Advanced Telecommunications Architecture | TS |
| ATCS | Auxiliary Telescope Control System | TSSW |
| ATLAS | A Toroidal LHC Apparatus | Gen |
| ATLAS | The Asteroid Terrestrial-impact Last | Sci |
| ATM | Adaptavist Test Management | LSST DM |
| AU | deprecated acronym for astronomical unit; use au instead | Gen |
| au | astronomical unit | Gen |
| AURA | Association of Universities for Research in Astronomy | Gen |
| Avro | is a row-oriented remote procedure call and data serialization | OPS |
| | framework developed within Apache's Hadoop project | |
| AVS | Alert Vetting System | OPS |
| AWIS | Association for Women in Science | DEI |
| AWS | Amazon Web Services | Gen |
| AXS | Astronomy eXtensions for Spark | Sci |
| В | Byte (8 bit) | Gen |
| b | bit | Gen |
| BAC | Budget At Complete | Gen |
| BAO | Baryon Acoustic Oscillations | Sci |
| BCE | Before Common Era | Gen |
| BCR | Baseline Change Request | CAM |
| BCWP | Budgeted Cost of Work Performed | Gen |
| BCWS | Budgeted Cost of Work Scheduled | Gen |
| BDC | | |
| _ | Base Data Center | DM IT |
| BEE | Base Data Center back-end electronics | DM IT TS |
| | | |



| внв | Black Hole Binary | Sci |
|----------|---|-------------|
| BHNS | Black hole-neutron star | Sci |
| BJD | barycentric corrected Julian date | TS |
| BNF | Backus-Naur Form | Gen |
| BNL | Brookhaven National Laboratory | Gen |
| BNS | Binary Neutron Star | Sci |
| BOE | Basis of Estimate | Gen |
| BOF | Birds of a Feather (Sessions at ADASS) | Gen |
| BOSS | Baryon Oscillation Spectroscopic Survey | Sci |
| BOT | Bench for Optical Testing | CAM |
| BPS | Batch Production Service | DF LDF DM |
| Bps | Bytes per second | Gen |
| bps | bit(s) per second | Gen |
| BSR | Business Systems Review | OPS |
| BTS | Base (La Serena) Test Stand | LSST |
| BTU | British Thermal Unit | OPS |
| CA | Control (or Cost) Account | Gen |
| CADC | Canadian Astronomy Data Centre | Gen |
| CALTECH | California Institute of Technology | Gen |
| CAM | CAMera | LSST DM |
| CAM | Control (or Cost) Account Manager | Gen |
| CAOM | Common Archive Observation Model | DM Gen |
| CARMENES | Calar Alto high-Resolution search for M dwarfs with Exoearths | DM Gen |
| | with Near-infrared and optical Echelle Spectrographs | |
| CAS | Central Administrative Services | Adm |
| CASA | Common Astronomy Software Applications (for ALMA) | Sci |
| CASNET | AURA's financial reporting database | Adm |
| СВ | Configuration Baseline | LSST DM |
| CBP | Collimated Beam Projector | DM LSST OPS |
| CC | Change Control | Gen |
| CCW | Camera Cable Wrap | CAM |
| CC-IN2P3 | Centre de Calcul de l'IN2P3 | Gen |
| CCB | Change Control Board | LSST DM |
| CCD | Charge-Coupled Device | Gen |
| CCOB | Camera Calibration Optical Bench | LSST DM |
| CCP | Change Control Process | Adm |
| | | |



| CCS | Camera Control System | LSST DM |
|---------|---|---------|
| CDF | Cumulative Distribution Function | Sci |
| CDMX | Ciudad de Mexico | Gen |
| CDN | Content Delivery Network | DM IT |
| CD-4 | Critical Decision 4 | DOE |
| CDS | Centre de Donnes astronomiques de Strasbourg | Gen |
| CE | Communications Engagement | OPS |
| CE | Computing Element | DM |
| CEC | International in-kind Contribution Evaluation Committee | LSST |
| CEE | Communications, Education, and Engagement | OPS OIR |
| CEP | Cost Estimating Plan | OPS |
| CEPP | COVID-19 Exposure Prevention Plan | OPS |
| CERN | European Organization for Nuclear Research | Gen |
| CET | Community Engagement Team | OPS OIR |
| CfA | (Harvard-Smithsonian) Center for Astrophysics | Gen |
| CFD | computational fluid dynamics | TS |
| CFHT | Canada-France-Hawaii Telescope | TS |
| CFHT-LS | A 5-passband legacy imaging survey conducted at the Canada- | Sci |
| | France-Hawaii Telescope from 2003-2008 | |
| CFO | Chief Financial Officer | OPS |
| CFHTLS | Canada-France-Hawaii Telescope Legacy Survey | TS |
| CFR | Code of Federal Regulations | OPS |
| CHIME | Canadian Hydrogen Intensity Mapping Experiment | Sci |
| CI | Continuous Integration | DM |
| CI | Cyber Infrastructure | Sci |
| CIGALE | Code Investigating GALaxy Emission | Sci |
| CIS | Computer Infrastructure Support | TS |
| CLO | community.lsst.org - use of this acronym is discouraged. The lan- | DM |
| | guage that should be used in official documents is "Community | |
| | Forum" or "Vera C. Rubin Community Forum". | |
| CLP | Chilean Peso | OPS |
| CM | Configuration Management | LSST DM |
| CMB | Cosmic Microwave Background | Sci OPS |
| CMB-S4 | Cosmic Microwave Background Stage 4 | Sci OPS |
| CMDB | Configuration Management Database | LSST DM |
| CMMS | Computerized Maintenance Management System | OPS |



| CMOS | complementary metal-oxide semiconductor | TS |
|---------|--|---------|
| CMS | Compact Muon Solenoid | Sci |
| CMS | Centralized Monitoring System) | IT DM |
| CNN | Convolutional Neural Network | Sci |
| CNP | Conditional Neural Processes | Sci |
| CNRS | Centre national de la recherche scientifique | Gen |
| CO | Carbon Monoxide | Sci |
| ComCam | The commissioning camera is a single-raft, 9-CCD camera that will | Gen |
| | be installed in LSST during commissioning, before the final cam- | |
| | era is ready. | |
| COMP | Complete | PMO |
| COMPASS | Catalogues of Objects and Measured Parameters from All Sky Surveys | Gen |
| CORBA | Common Object Request Broker Architecture | Gen |
| CoRoT | Convection, Rotation et Transits planétaires | Gen |
| COS | Center Operations Services | OPS |
| COTS | Commercial-Off-The-Shelf | Gen |
| COVID | COrona Virus Disease | Gen |
| COVID19 | COrona VIrus Disease 2019 | Gen |
| CP | catalog prices | TS |
| CPI | Cost Performance Index | Gen |
| CPP | Calibration Production Processing | LSST DM |
| CPR | Cardiopulmonary resuscitation | Gen |
| CPU | Central Processing Unit | Gen |
| CQA | Compliance and Quality Administrator | |
| CR | Change Request | LSST DM |
| CR | Cosmic Ray | Gen |
| CRB | cluster reference boards | TS |
| CRIC | Computing Resource Information Catalogue | DM |
| CRIO | CompactRIO National Instruments | TSSW |
| CRTS | Catalina Real-Time Transient Survey | Sci |
| CRTS3 | Catalina Real-Time Transient Survey | TS |
| CS | citizen science | TS |
| CSA | Cooperative Support Agreement | Gen |
| CSC | Commandable SAL Component | TS |
| CSDC | Community Science Data Center | OPS OIR |



| CSM | Circum-Stellar Material | Sci |
|--------|--|---------|
| CSV | Comma Separated Values | Gen |
| CTA | Cherenkov Telescope Array https://www.cta-observatory.org/ | Gen |
| CTIO | Cerro Tololo Inter-American Observatory | Gen |
| CUI | Controlled Unclassified Information | OPS |
| CV | Curriculum Vitae | Gen |
| CVE | Common Vulnerabilities and Exposures | IT |
| CVFMS | CernVM File System | DM |
| CVSS | Common Vulnerability Scoring System | IT |
| DAC | Data Access Center | LSST DM |
| DAF | data access framework | TS |
| DAQ | Data Acquisition System | LSST DM |
| DAX | Data Access Services | LSST DM |
| DB | DataBase | Gen |
| Db | Decibel | Gen |
| DBA | database administrator | TS |
| DBB | Data Backbone | LSST DM |
| DBBBM | Data Backbone Buffer Manager | DM |
| DBMS | DataBase Management System | Gen |
| DC | Data Center | LSST DM |
| DC2 | Data Challenge 2 (DESC) | OPS |
| DCM | Directorate Communications Manager | OPS |
| DCR | Differential Chromatic Refraction | Gen |
| DCT | Discovery Channel Telescope (Lowell Observatory) | TS |
| DDF | Deep Drilling Field | OPS |
| DDMPM | Data Management Deputy Project Manager | LSST DM |
| DDM | Distributed Data Management | DM |
| DDN | Data Delivery Network | Gen |
| DDOS | Distributed Denial Of Service | IT Gen |
| DDP | Derived Data Products (e.g. Rubin/Euclid) | OPS |
| DDS | Data Distribution System | TSSW |
| DE | dark energy | TS |
| DEC | Declination | Gen |
| DECam | Dark Energy Camera | Sci |
| DECaLS | The Dark Energy Camera Legacy Survey | Sci |
| DECAT | DECam Alliance for Transients | Sci |



| degdegree; unit of angleGenDELVEDECam Local Volume Exploration SurveySciDHODamped Harmonic OscillatorSciDEIDiversity, Equity, and InclusionDEIDELVEDECam Local Volume Exploration SurveySciDESDark Energy SurveyLSST DM OFDESCDark Energy Science CollaborationLSST DM OFDESIDark Energy Spectroscopic InstrumentLSST DM OF | PS |
|---|----|
| DHODamped Harmonic OscillatorSciDEIDiversity, Equity, and InclusionDEIDELVEDECam Local Volume Exploration SurveySciDESDark Energy SurveyLSST DM OFDESCDark Energy Science CollaborationLSST DM OFDESIDark Energy Spectroscopic InstrumentLSST DM OF | PS |
| DEIDiversity, Equity, and InclusionDEIDELVEDECam Local Volume Exploration SurveySciDESDark Energy SurveyLSST DM OFDESCDark Energy Science CollaborationLSST DM OFDESIDark Energy Spectroscopic InstrumentLSST DM OF | PS |
| DELVEDECam Local Volume Exploration SurveySciDESDark Energy SurveyLSST DM OFDESCDark Energy Science CollaborationLSST DM OFDESIDark Energy Spectroscopic InstrumentLSST DM OF | PS |
| DESDark Energy SurveyLSST DM OFDESCDark Energy Science CollaborationLSST DM OFDESIDark Energy Spectroscopic InstrumentLSST DM OF | PS |
| DESC Dark Energy Science Collaboration LSST DM OF DESI Dark Energy Spectroscopic Instrument LSST DM OF | PS |
| DESI Dark Energy Spectroscopic Instrument LSST DM OF | |
| 3, 1 | |
| | S |
| DETF Dark Energy Task Force (AAAC/HEPAP joint advisory sub- TS | |
| committee) | |
| DF Data Facility OPS DF DM | |
| DIA Difference Image Analysis DM | |
| DIMM Differential Image Motion Monitor Gen | |
| DKIST Daniel K. Inouye Solar Telescope OPS | |
| DLS Deep Lens Survey TS | |
| DM Data Management LSST DM | |
| DM-SST DM System Science Team LSST DM | |
| DMCCB DM Change Control Board LSST DM | |
| DMCS Data Management Control System LSST DM | |
| DMIS DM Interface Scientist LSST DM | |
| DMLT DM Leadership Team LSST DM | |
| DMO Data Management Organization LSST DM | |
| DMOC Data Management Operations Chile TS | |
| DMOG Data Management Operations Group TS | |
| DMPM Data Management Project Manager LSST DM | |
| DMQA Data Management Quality Assurance LSST DM | |
| DMS Data Management Subsystem LSST DM | |
| DMS-REQ Data Management System Requirements prefix DM | |
| DMSE Data Management System Engineer LSST DM | |
| DMSR DM System Requirements; LSE-61 LSST DM | |
| DMSS DM Subsystem Scientist LSST DM | |
| DMSST DM System Science Team LSST DM | |
| DMTN DM Technical Note LSST DM | |
| DMTR DM Test Report LSST DM | |
| DNN Deep Neural Network Sci | |



| DNS | Domain Name Service | OPS |
|------|---|-------------|
| DOE | Department of Energy | Gen |
| DoF | Degree(s) of Freedom (also known as DOF) | Gen |
| DOI | Digital Object Identifier | DM OPS |
| DOM | Document Object Model | Gen |
| DoNM | Date of Next Meeting | Gen |
| DOS | Data Operations Services | OPS OIR |
| DOT | U.S. Department of Transportation | OPS |
| DP | Data Production | OPS |
| DP0 | Data Preview 0 | OPS |
| DP1 | Data Preview 1 | OPS |
| DP2 | Data Preview 2 | OPS |
| DPA | Data and Processing Architecture | OPS |
| DPAC | Data Processing and Analysis Consortium (Gaia) | Gen |
| DPC | Data Policy Committee | OPS |
| DPDD | Data Product Definition Document | LSST DM |
| DPLT | DP Leadership Team | OPS |
| DPP | Data Products Processing | TS |
| DQ | data quality | TS |
| DQA | data quality assurance | TS |
| DR | Data Release | LSST DM |
| DR1 | Data Release 1 | OPS |
| DR2 | Data Release 2 | OPS |
| DR3 | Data Release 3 | OPS |
| DR10 | Data Release 10 | OPS |
| DR11 | Data Release 11 | OPS |
| DRB | Data Release Board | OPS |
| DRP | Data Release Production | LSST DM |
| DRW | Damped Random Walk | Sci |
| DS9 | Deep Space 9 (specific astronomical data visualisation applica- | Gen |
| | tion; SAOImage) | |
| DTN | Data Transfer Node | LSST DM |
| DUNE | Deep Underground Neutrino Experiment | Sci |
| Duo | 2 factor authentication system | LSST DM |
| DWDM | Dense Wave Division Multiplex | Gen LSST DM |
| EA | enterprise architect | TS |



| EAC | Estimate At Completion | LSST DM |
|----------|---|-------------|
| EAS | Environmental Awareness System | TS |
| EB | ExaByte | Gen |
| EC2 | Amazon Elastic Compute Cloud | DM |
| EDC | EPO Data Center | OPS EPO |
| EDR | early data release | TS |
| EE | engineering estimate | TS |
| EEPROM | Electrically Erasable Programmable Read-Only Memory | Gen |
| EFD | Engineering and Facility Database | LSST DM |
| EIE | European Industrial Engineering - Italian engineering company | LSST DM |
| | (Dome) | |
| ELAsTiCC | Extended LSST Astronomical Time Series Classification Challenge | Sci |
| ELG | Emission-Line Galaxies | Sci |
| ELM | Extremely Low Mass(Survey) | Sci |
| ELT | Extremely Large Telescope | Sci |
| EM | Electro Magnetic | Sci |
| EO | Electro Optical | CAM |
| EOS | Engineering Operations Services | OPS |
| EPA | Environmental Protection Agency | Gen |
| EPLS | Excludable Parties List | TS |
| EPO | Education and Public Outreach | LSST DM |
| EPOC | Education and Public Outreach Center | OPS |
| ESA | European Space Agency | Gen |
| ESAC | European Space Astronomy Centre | Gen |
| ESD | electrostatic discharge | TS |
| ESNet | Energy Sciences Network | Gen |
| ESO | European Southern Observatory | OPS |
| ESP | Early Science Program | OPS |
| ET | exposure time | TS |
| ETC | Estimate To Complete | Gen LSST DM |
| ETL | extract-transform-load | TS |
| ETS | engineering and technical devices | TS |
| ETU | Engineering Test Unit | LSST DM |
| EUI | Engineering User Interface System | PSE |
| EUPS | Extended Unix Product System | LSST DM |
| eV | electron-Volt | Gen |



| EVM | Earned Value Management | Adm Gen |
|-------|--|---------|
| EVMS | Earned Value Management System | Adm Gen |
| EXIST | Energetic X-ray Imaging Survey Telescope | TS |
| F2F | Face 2 Face (meeting) | DM |
| FAFF | First-Look Analysis and Feedback Functionality | TS |
| FAQ | Frequently Asked Question | Gen |
| FAR | Federal Acquisition Regulations | TS |
| FBOT | Fast blue optical transient | Sci |
| FBOTs | Fast blue optical transients | Sci |
| FDP | federated data product | TS |
| FDR | Final Design Review | LSST DM |
| FEA | Finite Element Analysis | OPS |
| FEC | Front-End Cage | TS |
| FEE | Front-End Electronics | TS |
| FELTs | Fast-Evolving Luminous Transients | Sci |
| FFRDC | Federally Funded Research and Development Center | Gen OPS |
| FFT | Fast Fourier Transform | Gen |
| FGCM | Forward Global Calibration Model | DM |
| FGST | Fermi Gamma-ray Space Telescope | Sci OPS |
| FIFO | First In First Out | Gen |
| FIPS | Federal Information Processing Standards | OPS |
| FITS | Flexible Image Transport System | Gen |
| FIU | Florida International University | Gen |
| FK5 | Fifth Fundamental Catalogue | Gen |
| FLOP | FLoating point Operation | IT |
| FLOPS | FLoating point Operation per Second | IT |
| FMEA | failure modes and effect analysis | TS |
| FMECA | Failure Modes, Effects, and Causality Analysis | OPS OIR |
| FNAL | Fermi National Accelerator Lab | OPS |
| FOA | Facilities Operations in Arizona | OPS |
| FOC | Facilities Operations in Chile | OPS |
| FOH | Facilities Operations in Hawaiʻi | OPS |
| FoM | Figure of Merit | Gen |
| FoV | Field of View (also denoted FOV) | Gen |
| FOV | field of view | TS |
| FPA | Focal Plane Array | LSST |
| | | |



| FPD | Fundamental Physics Directorate | OPS |
|--------|---|---------|
| FPGA | Field-Programmable Gate Array | Gen |
| FPRD | functional performance requirements document | TS |
| FPSL | Forced-Photometry Sensitivity Limit | TS |
| FRACAS | Failure Reporting Analysis and Corrective Action System | PSE |
| FrDF | French Data Facility | OPS |
| FS | File System | Gen |
| FSAAS | Filesystem as a Service | IT |
| FTE | Full-Time Equivalent | Adm Gen |
| FTS | File Transfer Service | OPS |
| FUSE | a user space filesystem framework | IT |
| FWHM | Full Width at Half-Maximum | Gen |
| FWP | Field Work Proposals | OPS |
| FY | Financial Year | OPS DM |
| FY20 | Financial Year 20 | OPS |
| FY21 | Financial Year 21 | OPS |
| FY22 | Financial Year 22 | OPS |
| FY23 | Financial Year 23 | OPS |
| FY24 | Financial Year 24 | OPS |
| FY25 | Financial Year 25 | OPS |
| GALAH | GALactic Archaeology with HERMES | DM |
| GALEX | Galaxy Evolution Explorer | OPS |
| GAMA | Galaxy And Mass Assembly (survey) | Sci |
| GAR | Google Archive Registry | DM |
| GAVO | German Astronomical Virtual Observatory | Gen |
| GB | Gigabyte | Gen |
| Gb | Gigabit | Gen |
| GC | NSF Grant Conditions | TS |
| gcc | The GNU Compiler Collection; a C and C++ compiler | Gen |
| GCE | Google Compute Engine | IT |
| GCN | GRB Coordinates Network | Gen |
| GCP | Google Cloud Platform | IT |
| GCS | Generic Control System | TSSW |
| GDS | Guider Data System | TS |
| GFLOP | Giga FLOP | Gen |
| GFLOPS | Giga FLOP per Second | Gen |
| | | |



| GID | Group Identifier | IT |
|---------|---|---------|
| GIS | Global Interlock System | |
| GLADE | Galaxy List for the Advanced Detector Era | Sci |
| GLAST | Gamma-Ray Large Area Space Telescope | TS |
| GLONASS | GLObal NAvigation Satellite System | Gen |
| GMT | Giant Magellan Telescope | OPS |
| GMU | George Mason University | TS |
| GNU | GNU's Not Unix! An operating system and an extensive collection | OPS DM |
| | of free computer software | |
| GP | Gaussian Process | Sci |
| GPFS | General Parallel File System (now IBM Spectrum Scale) | Gen |
| GPL | GNU Public License | Gen |
| GPS | Global Positioning System | Gen |
| GPU | Graphics Processing Unit | Gen |
| GR | General Relativity | Gen |
| GRB | Gamma-Ray Burst | Gen |
| GSE | Gaia Sausage-Enceladus | Sci |
| GST | Greenwich Sidereal Time | Gen |
| GUI | Graphical User Interface | Gen |
| GW | Gravitational Wave | Sci OPS |
| GZ | Galaxy Zoo | Sci OPS |
| НВ | Horizontal Branch | Sci |
| HBCU | Historically Black Colleges and Universities | DEI |
| HBS | Hydraulic Bearing Support | TS |
| HD | historical data | TS |
| HDD | Hard Disk Drive | DM Gen |
| HEALPix | Hierarchical Equal-Area iso-Latitude Pixelisation | Gen |
| HEASARC | NASA's Archive of Data on Energetic Phenomena | Gen |
| HELP | Herschel Extragalactic Legacy Project | Gen |
| HEP | High Energy Physics | Gen |
| HEPAP | HEP Advisory Panel | TS |
| HERMES | a high-resolution fibre-fed spectrograph for the 1.2m Mercator | Sci |
| | telescope | |
| HI | Hydrogen iodide | Sci |
| HIPS | Hierarchical Progressive Survey | Gen |
| HITS | High Cadence Transient Survey | Sci |



| HPC | High Performance Computing | DM |
|-------|--|---------|
| НРО | Head of Program Operations | OPS |
| HQ | Head Quarters | OPS |
| HR | Human Resources | Gen |
| HSC | Hyper Suprime-Cam | Gen |
| HSI | Hispanic Serving Institutions | DEI |
| HSM | Hierarchical Storage Management | DM |
| HST | Hubble Space Telescope | Gen |
| HTC | High Throughput Computing | DM |
| HTM | Hierarchical Triangular Mesh | Gen |
| HTML | HyperText Markup Language | Gen |
| HTTP | HyperText Transfer Protocol | Gen |
| HVAC | Heating, Ventilation, and Air Conditioning | OPS |
| HW | HardWare | Gen |
| I&T | Integration and Test | Gen |
| IaC | Infrastructure as Code | IT |
| IAM | Identity and Access Management | IT |
| laS | Infrastructure as a Service | IT |
| IAU | International Astronomical Union | Gen |
| IBM | International Business Machines | Gen |
| ICBS | International Communications and Base Site | LSST DM |
| ICD | Interface Control Document | Adm |
| ICoD | Interface Compliance Document | Adm |
| IDA | Interface Design Artifact | TS |
| IDAC | Independent Data Access Center | DM OPS |
| IDF | Interim Data Facility | OPS |
| IDL | Interactive Data Language | Gen |
| IIP | image ingest and processing | TS |
| ILC | Inner Loop Controller | PSE |
| IMBH | Intermediate Mass Black Hole | Sci |
| IMF | Initial Mass Function | DM |
| IMS | Integrated Master Schedule | PSE |
| ImSim | Image Simulation | Sims |
| INAF | Istituto Nazionale di Astrofisica | Gen |
| IN2P3 | Institut National de Physique Nucléaire et de Physique des Partic- | Gen |
| | ules | |



| IoA | Institute of Astronomy (Cambridge; also denoted IOA) | Gen |
|-------|--|---------|
| IP | Internet Protocol | DM |
| IPA | FreeIPA is an integrated security information management solu- | DM |
| | tion | |
| IPC | International Program Coordinator | OPS |
| IPC | International Program Coordinator | OPS |
| IPAC | No longer an acronym; science and data center at Caltech | Gen |
| IPEDS | Integrated Postsecondary Educational Data System | DEI |
| IPS | Integrated Project Schedule | Adm |
| IPsec | Internet Protocol Security | DM |
| IR | infrared | TS |
| IRAF | Image Reduction and Analysis Facility | Hist |
| IRIS | e-Infrastructure for Research and Innovation for STFC | OPS |
| IRNC | International Research Network Connections | TS |
| IRSA | Infrared Science Archive | Gen |
| IRU | indefinable right to use | TS |
| IS | Interface Scientist | LSST DM |
| ISD | Interface Support Document | |
| ISM | interstellar medium | TS |
| ISO | International Standards Organisation | Gen |
| ISR | Instrument Signal Removal | LSST DM |
| IT | Information Technology | Gen |
| ITAR | International Traffic in Arms Regulations | Gen |
| ITC | Information Technology Center | LSST DM |
| ITIL | Information Technology Infrastructure Library | Gen |
| ITO | IT Operations | OPS OIR |
| ITSC | Information Technology Services Committee | Adm |
| IUSE | Improving Undergraduate STEM Education | Sci |
| IVOA | International Virtual-Observatory Alliance | Gen |
| JBOD | Just a Bunch of Disks | OPS |
| JEDI | Job Execution and Definition Interface | OPS |
| JD | Julian Date | Gen |
| JDBC | Java DataBase Connectivity | Gen |
| JDR | Joint Directors Review | LSST |
| JHU | Johns Hopkins University | Gen |
| JIT | Just In Time | Gen |
| | | |



| JOG | Joint Oversight Group | Adm |
|--------|---|------------|
| JPL | Jet Propulsion Laboratory (DE ephemerides) | Gen |
| JRE | Java Runtime Environment | Gen |
| JSON | JavaScript Object Notation | Gen |
| JSR | Joint Status Review | LSST DM |
| JTM | Joint Technical Meeting | LSST DM |
| JVM | Java Virtual Machine | Gen |
| JWST | James Webb Space Telescope (formerly known as NGST) | Gen |
| JWT | JSON Web Token | DM |
| KASI | Korea Astronomy and Space Science Institute | Gen |
| K8S | Kubernetes provisioning system | IT LSST DM |
| KB | KiloByte | Gen |
| KBO | Kuiper-Belt Object | Gen |
| kbps | kilobits per second | Gen |
| KIPAC | Kavli Institute for Particle Astrophysics and Cosmology | Sci |
| KISS | Keep It Simple, Stupid | Gen |
| KPM | Key Performance Metric | LSST DM |
| KPMO | Kitt Peak Mountain Operations | OPS |
| KPNO | Kitt Peak National Observatory | OPS |
| KW | Kilowatt | Gen |
| L1 | Lens 1 | TS |
| L2 | Lens 2 | TS |
| L3 | Lens 3 | TS |
| L4 | Lens 4 | TS |
| LAG | List of Acronyms and Glossary | Gen |
| LAMOST | Large Sky Area Multi-Object Fibre Spectroscopic Telescope, also | Sci |
| | known as the Guo Shoujing Telescope | |
| LAN | Local Area Network | Gen |
| LAPACK | Linear Algebra PACKage | Gen |
| LASER | Light Amplification by Stimulated Emission of Radiation | Gen |
| LaTeX | (Leslie) Lamport TeX (document markup language and document | Gen |
| | preparation system) | |
| LATISS | LSST Atmospheric Transmission Imager and Slitless Spectrograph | TS |
| LBT | Large Binocular Telescope | TS |
| LBTO | Large Binocular Telescope Observatory | OPS |
| LBV | Luminous Blue Variables | Sci |



| LCA | Document handle LSST camera subsystem controlled documents | CAM |
|-------|--|----------|
| LCDM | Λ Cold Dark Matter; cosmological model | Sci |
| LCLS | Linac Coherent Light Source | Gen |
| LCO | Las Cumbres Observatories | Gen |
| LCR | LSST Change Request | LSST DM |
| LCURM | AIP Liaison Committee on Underrepresented Minorities | DEI |
| LDAP | Lightweight Directory Access Protocol | IT |
| LDF | LSST Data Facility | LSST DM |
| LMC | Large Magellanic Cloud | Sci |
| LDM | LSST Data Management (Document Handle) | LSST DM |
| LDO | LSST Document Operations (Document Handle) | LSST OPS |
| LED | Light-Emitting Diode | Gen |
| LEP | LSST EPO (Document Handle) | LSST EPO |
| LF | luminosity function | TS |
| LFA | Large File Annex | TS |
| LG | Local Group | Sci |
| LHC | Large Hadron Collider (at CERN) | Gen |
| LHN | long haul network | TS |
| LIGO | Laser Interferometer Gravitational-Wave Observatory | TS |
| LILA | Links Interconnecting Latin America | TS |
| LINCC | LSST Interdisciplinary Network for Collaboration and Computing | OPS |
| LISA | Laser Interferometer Space Antenna | TS |
| LLNL | Lawrence Livermore National Laboratory | Gen |
| LOE | Level of Effort | Gen |
| LOP | LSST Operations Plan | TS |
| LOTO | Lock Out Tag Out | TS |
| LOVE | LSST Operations Visualization Environment | LSST DM |
| LOY | LSST Operations Year | OPS |
| LPGL | Lesser Public GNU general License | Gen |
| LPM | LSST Project Management (Document Handle) | LSST DM |
| LRG | Luminous Red Galaxies | Sci |
| LSB | Low Surface Brightness | Sci |
| LSE | LSST Systems Engineering (Document Handle) | LSST DM |
| LSP | LSST Science Platform (now Rubin Science Platform) | LSST DM |
| LSR | LSST System Requirements; LSE-29 | LSST DM |
| LSS | Large Scale Structure | Sci |
| | | |



| LSST | Legacy Survey of Space and Time (formerly Large Synoptic Survey | Gen |
|---------|---|------|
| | Telescope) | |
| LSSTC | LSST Corporation | Adm |
| LSSTPO | LSST Project Office | Adm |
| LTS | LSST Telescope and Site (Document Handle) | TS |
| LUT | Look-Up Table | Gen |
| LV | Local Volume | Sci |
| LVV | LSST Verification and Validation | Gen |
| LZ | LUX-ZEPELIN (Dark Matter Mission) | Sci |
| M1 | primary mirror | TS |
| M1M3 | Primary Mirror Tertiary Mirror | LSST |
| M2 | Secondary Mirror | LSST |
| M3 | tertiary mirror | TS |
| MAC | Media Access Control | IT |
| MACHO | massive compact halo object | TS |
| MASCARA | Multi-site All-Sky CAmeRA | TS |
| MAF | Metric Analysis Framework | OPS |
| MASS | Multi-Aperture Scintillation Sensor | TS |
| MAST | Mikulski Archive for Space Telescopes | Gen |
| MB | MegaByte | Gen |
| Mb | Megabit (1000000 bit) | Gen |
| MBA | main belt asteroid | TS |
| MBE | model-based engineering | TS |
| MBps | Megabits per second | Gen |
| MBSE | model-based systems engineering | TS |
| MBTU | Mega British Thermal Unit | OPS |
| MC | Monte-Carlo (simulation/process) | Gen |
| MCM | Master Control Module | TS |
| MCMC | Monte Carlo Markov Chain | Gen |
| MEMS | micro-electronic mechanical systems | TS |
| MERRA | Modern-Era Retrospective analysis for Research and Applications | NASA |
| MIDAS | Munich Image Data Analysis System (ESO) | Gen |
| MIE | Major Item of Equipment | OPS |
| MJD | Modified Julian Date (to be avoided; see also JD) | Gen |
| ML | Machine Learning | Sci |
| MLP | Multi-Layer Perceptron | Sci |
| | | |



| MMA | Multi Messenger Astronomy | OPS |
|---------|--|---------|
| MMT | Multiple Mirror Telescope | OPS |
| MNRAS | Monthly Notices of the Royal Astronomical Society | TS |
| MOA | Memo Of Agreement | OPS |
| MOC | Multi Ordered Catalogue | VO DM |
| MODTRAN | MODerate resolution TRANsmission model | TS |
| MOF | Multi-Object Multi-Band Fitting | OPS |
| MOPS | Moving Object Processing System (deprecated; see SSP) | LSST DM |
| MOSFET | Metal-Oxide Semiconductor Field-Electric Transistor | Gen |
| MOU | Memo Of Understanding | OPS |
| MPA | Max Planck Institute for Astrophysics | Gen |
| MPC | Minor Planet Center | Gen |
| MPO | Memorandum Purchase Order | OPS DOE |
| MPP | Massively Parallel Process | DM |
| MPS | NSF Mathematical and Physical Sciences directorate | OPS |
| MPS/AST | NSF Mathematical and Physical Sciences directorate's Division of | OPS |
| | Astronomical Sciences | |
| MREFC | Major Research Equipment and Facility Construction | Gen |
| MREN | Montenegrin Research and Education Network | Gen |
| MSB | Most Significant Bit | Gen |
| MSE | Maunakea Spectroscopic Explorer | Sci |
| MSO | Mid-Scale Observatories | OPS OIR |
| MT | Main Telescope | TS |
| MTU | Maximum Transmission Unit | IT NET |
| MTBF | Mean Time Between Failures | OPS |
| MTDC | Modified Total Direct Costs | OPS |
| MTM1M3 | Main Telescope M1M3 | TS |
| MTM2 | Main Telescope Secondary Mirror | TS |
| MTOFC | Main Telescope Optical Feedback Control | TS |
| MTTR | Mean Time To Repair | OPS |
| MW | Milky Way | Sci |
| MYDB | My Database | DM Gen |
| NACME | National Action Council for Minorities in Engineering | DEI |
| NAOJ | National Astronomical Observatory of Japan | Gen |
| NAS | National Academy of Science | Sci |
| NAS | Network Attached Storage | DM |
| | | |



| NASA | National Aeronautics and Space Administration | Gen |
|---------|---|---------|
| NAT | Network Address Translation | IT |
| NAT | nodal aberration theory | TS |
| NCOA | National Center for Optical-Infrared Astronomy | Gen |
| NCOIRA | (Obsolete now NOIRLab) National Center for Optical and Infrared | TS |
| | Astronomy | |
| NCR | Non Conformance Report | PMO |
| NCSA | National Center for Supercomputing Applications | Gen |
| NCW | Non Conformance Waiver | PMO |
| NEA | Near-Earth Asteroid | Gen |
| NED | NASA/IPAC Extragalactic Database | Gen |
| NEO | Near-Earth Object | Gen |
| NERSC | National Energy Research Scientific Computing Center | OPS |
| NET | Network Engineering Team | LSST DM |
| NFPA | National Fire Protection Association | OPS |
| NFS | Network File System | Gen |
| NGC | New General Catalogue | Sci |
| NGSS | Next-Generation Science Standards | OPS |
| NGVLA | Next Generation Very Large Array | OPS |
| NIR | Near Infrared | Sci |
| NIST | National Institute of Standards and Technology (USA) | Gen |
| NLR | National Lambda Rail | TS |
| NLT | NOIRLab Leadership Team | OPS |
| NMOC | NSF's OIR Lab Management Oversight Council | Gen |
| NNSA | National Nuclear Security Administration | OPS |
| NOAA | National Oceanic and Atmospheric Administration | Gen |
| NOAO | National Optical Astronomy Observatories now NOIRLab | Gen |
| NOC | Network Operations Center | NET |
| NOGLSTP | National Organization of Gay and Lesbian Scientists and Technical | DEI |
| | Professionals | |
| NOIR | NSF's National Optical-Infrared Astronomy Research Laboratory; | Gen |
| | https://nationalastro.org | |
| NOIRLab | NSF's National Optical-Infrared Astronomy Research Laboratory; | Gen |
| | https://nationalastro.org | |
| NOS | NSF's OIR Lab Operations Services | OPS OIR |
| NPCF | National Petascale Computing Facility | OPS OIR |
| | | |



| NRAO | National Radio Astronomy Observatory | Gen |
|---------------|--|---------|
| NRC | National Research Council | OPS |
| NSB | National Science Board | TS |
| NSBP | National Society of Black Physicists | DEI |
| NSF | National Science Foundation | Gen |
| NSF's OIR Lab | NSF's National Optical-Infrared Astronomy Research Laboratory; | Gen |
| | https://nationalastro.org | |
| NSO | National Solar Observatory | OPS |
| NSS | NOAO Support Services | OPS |
| NSTA | National Science Teachers Association | OPS |
| NTP | Network Time Protocol | OPS |
| NTS | NCSA Test Stand | DM CAM |
| NUV | Near Ultraviolet | Sci |
| NVMe | Non Volatile Memory Express | DM IT |
| NYT | New York Times | Gen |
| OAB | Outreach Advisory Board | EPO |
| OBS | Organisation Breakdown Structure | Gen |
| OC | AURA Observatory Council | OPS |
| OCDD | Operations Concept Definition Document | OPS |
| OCPS | OCS Controlled Pipeline System | TS DM |
| OCS | Observatory Control System | LSST DM |
| ODBC | Open DataBase Connectivity, a standard API for SQL databases. | LSST DM |
| OGA | Other Government Agencies | OPS |
| OHEP | Office of High-Energy Physics | TS |
| OI | Organization International | OPS |
| OIR | optical and infrared astronomy | TS |
| OLE | Observatory Logging Environment | TS |
| OMB | Office of Management and Budget | OPS |
| OOB | Out Of Bound (Alternative network access) | IT |
| OODS | Observatory Operations Data Service | DM |
| OPCC | Oficina de Protección de la Calidad del Cielo | OPS |
| OPD | optical path difference | TS |
| OPS | Operations | LSST DM |
| OpSim | Operations Simulation | Sims |
| OPSTN | Operations Technical Note | LSST DM |
| ORR | Operations Readiness Review | OPS |



| OS | Operating System | Gen |
|------------|---|---------|
| OSHA | Occupational Safety and Health Administration | OPS |
| OSI | open systems interconnect | TS |
| OSPL | OpenSplice DDS - the underlying messaging system for SAL | TS |
| OSS | Observatory System Specifications; LSE-30 | LSST DM |
| OSX | Macintosh Operating System (obsolete; now macOS) | Gen |
| OTB | Over Target Baseline | Gen |
| OTS | observatory telemetry system | TS |
| P5 | The Particle Physics Project Prioritization Panel is a scientific advi- | Adm |
| | sory panel tasked with recommending prioritization for U.S. in- | |
| | vestment in particle physics research, on the basis of various | |
| | funding scenarios. | |
| P6 | Primavera, a comprehensive project management tool | Adm |
| PanDA | Production ANd Distributed Analysis system | OPS |
| Pan-STARRS | Panoramic Survey Telescope and Rapid Response System | Gen |
| Parsl | Parallel Scripting Library http://parsl-project.org/ | DM |
| PASP | Publications of the Astronomical Society of the Pacific | Sci |
| РВ | PetaByte | Gen |
| PBI | Predominantly Black Institution | DEI |
| PCA | Principal Component Analysis | Gen |
| PCB | printed circuit boards | TS |
| PCI | Peripheral Component Interconnect | Gen |
| PCW | Project Community Workshop | LSST DM |
| PD | Program Development | OPS |
| PDAC | Prototype Data Access Center | LSST DM |
| PDF | Portable Document Format | Gen |
| PDF | Probability Density Function | Sci |
| PDR | Preliminary Design Review | LSST DM |
| PDR1 | Public Data Release 1 (HSC) | OPS |
| PDR2 | Public Data Release 2 (HSC) | OPS |
| PDM | Phase Dispersion Minimization | OPS |
| PDS | Planetary Data System | Sci |
| PDU | Power Distribution Unit | LSST DM |
| PEP | Project Execution Plan | Adm |
| PFS | Prime Focus Spectrograph | Gen |
| PHA | potentially hazardous asteroids | TS |
| | | |



| photo-z | photometric redshift | Sci |
|---------|--|----------|
| PI | Principle Investigator | Sci OPS |
| PII | personally identifiable information | TS |
| PLATO | PLAnetary Transits and Oscillations of stars | Sci |
| PLL | Phase-Locked Loop | Gen |
| PM | Project Manager | LSST DM |
| PMCS | Project Management Controls System | LSST DM |
| PMM | precision measuring machine | TS |
| PMO | Project Management Office | Adm |
| PMP | (DM) Project Management Plan; LDM-294 | LSST DM |
| PNG | Portable Network Graphics | DM |
| PO | Program Operations | OPS |
| POC | Proof Of Concept | Gen |
| POC | People Of Color | DEI |
| POCIT | People Of Color In Tech | DEI |
| POE | POly Esters | OPS |
| POI | Point Of Interest | OPS |
| POP | Project Operating Plan | LSST OPS |
| POSIX | Portable Operating System Interface | Gen |
| PPDB | Prompt Products DataBase | DM |
| PPE | Personal Protection Equipment | OPS |
| PR | Pull Request | Gen |
| PRC | Procurement Charge | OPS DOE |
| PRT | Personal Research Time | OPS |
| PS | Project Scientist | LSST DM |
| PS1 | Pan-STARRS 1 survey | LSST DM |
| PS1-MDS | PS1 Medium Deep Survey | Sci |
| PSD | power spectral density | TS |
| PSE | Project Systems Engineering | PSE |
| PSF | Point Spread Function | Gen |
| PST | Project Science Team | LSST DM |
| PSTN | Project Science Technical Note | LSST DM |
| PTF | Palomar Transient Factory | Sci |
| PVI | Processed Visit Image | DM |
| PWI | Predominantly White Institution | DEI |
| PZ | photo-z | Sci |
| | | |



| QA | Quality Assurance | Gen |
|---------|---|----------|
| QAP | Quality Assurance Plan | TS |
| QC | Quality Control | Gen |
| QE | quantum efficiency | TS |
| QSERV | LSST Query Services | TS |
| QSO | Quasi-Stellar Object (Quasar) | Sci |
| RA | Right Ascension | Gen |
| RAC | Resource Allocation Committee | OPS |
| RAID | Redundant Array of Inexpensive Disks | Gen |
| RAL | Rutherford Appleton Laboratory (UK) | Gen |
| RAM | Random Access Memory | Gen |
| RAVE | Radial Velocity Experiment (spectroscopic survey) | TS |
| RBSE | Research-Based Science Education (AURA) | OPS |
| RC | Release Candidate | Gen |
| RCC | Raft Control Rate | CAM |
| RCEC | Rubin Construction Executive Committee | Gen |
| RCI | Raft Communication Interface | CAM |
| RCM | Raft Communication Module | CAM |
| RDBMS | Relational Database Management System | Gen |
| RDO | Rubin Directors Office | OPS |
| RDP | Rubin Data Production | OPS |
| REB | Readout Electronics Board | LSST DM |
| REN | Research and Education Network | OPS |
| RENATER | Réseau National de télécommunications pour la Technologie | OPS |
| | l'Enseignement et la Recherche | |
| REO | Rubin Education and Outreach | OPS |
| REST | REpresentational State Transfer | IT |
| REUNA | Red Universitaria Nacional | Gen |
| RFC | Request For Comment | LSST DM |
| RFP | Request For Proposals | PMO |
| RFQ | Request For Quotations | LSST OPS |
| RGB | Red Giant Branch | Sci |
| RM | Release Manager | LSST DM |
| RMS | Root-Mean-Square | Gen |
| RNADE | Real-valued Neural Autoregressive Distribution Estimation | Sci |
| RNN | Recurrent Neural Network | Sci |
| | | |



| RNP | Rede Nacional de Ensino e Pesquisa (National Education and Re- | IT |
|--------|--|----------|
| | search Network Brazil) | |
| ROE | Royal Observatory Edinburgh | OPS |
| ROO | Rubin Observatory Operations | OPS |
| ROOT | Object-oriented data analysis framework developed at CERN | Gen |
| ROP | Rubin Operations Plan | OPS |
| ROSAT | Röntgensatellit X-ray telescope | OPS |
| RPF | Rubin system PerFormance | OPS |
| RPM | RPM Package Manager (originally Red Hat Package Manager; now | IT |
| | a recursive acronym) | |
| RRL | RR Lyrae stars | Sci |
| RS232C | Standard 25-pin serial connection between computers and | Gen |
| DC A | modems | C |
| RSA | Raft Sensor Array | CAM |
| RSE | Rucio Storage Element | OPS |
| RSP | Rubin Science Platform | DM |
| RSS | square root of the sum of the squares | TS |
| RSS | Resident Set Size | DM |
| RTA | Real Time Analysis | Sci |
| RTA | responsible technical authority | TS |
| RTD | Resistance Temperature Detector | OPS |
| RTI | rise time invariance | TS |
| RTM | Raft Tower Module | CAM |
| RTN | Rubin Technical Note | LSST DM |
| RTV | raster to vector | TS |
| S3 | (Amazon) Simple Storage Service | IT |
| SAACC | South American Astronomy Coordination Committee | LSST |
| SaaS | Software as a Service | Gen |
| SAC | Science Advisory Committee | LSST Adm |
| SACC | Save All Correlations and Covariances | Sci |
| SACNAS | Society for Advancement of Chicanos/Hispanics and Native Amer- | DEI |
| | icans in Science | |
| SAGA | Satellites Around Galactic Analogs (Survery) | Sci |
| SAL | Service Abstraction Layer | OPS TSSW |
| SAMP | Simple Application Messaging Protocol | Gen |
| SAO | Smithsonian Astrophysical Observatory | Gen |



| SAPP | Science Algorithms, Pipelines, and Products | TS |
|--------|--|----------|
| SATA | Serial Advanced Technology Attachment | IT DM |
| SB | Surface Brightness | Sci |
| SBS | Shared Business Services | OPS OIR |
| SC | System Commissioning | PMO |
| SC | Science Collaboration | DM |
| SCADA | Supervisory Control And Data Acquisition | TS |
| SCIDAR | Scintillation Detection And Ranging | TS |
| SCOC | Survey Cadence Optimization Committee | OPS |
| SCOSC | Survey Cadence Optimization Strategy Committee | OPS |
| SDQA | Science Data Quality Assessment | DM LSST |
| SDS | Science array Data acquisition Subsystem | TS |
| SDSS | Sloan Digital Sky Survey | Gen |
| SE | System Engineering | Rubin |
| SED | Spectral Energy Distribution | Sci |
| SEM | Systems Engineering Manager | Adm |
| SEMP | Systems Engineering Management Plan | LSST DM |
| SEWG | Survey Evaluation Working Group | OPS |
| SF | Structure Function | Sci |
| SFR | Star Formation Rate | Sci |
| SFR | Supplemental Funding Request | Adm |
| SHA-1 | Secure Hash Algorithm 1 | Gen |
| SHE | Safety, Health, and Environmental | |
| SHPE | Society of Hispanic Professional Engineers | DEI |
| SI | Système International (International System of units defined by ISO) | Gen |
| SIA | Simple Image Access | Gen |
| SIT | System Integration, Test | LSST OPS |
| SITCOM | System Integration, Test and Commissioning | LSST OPS |
| SKA | Square Kilometer Array | Sci |
| SKF | Svenska Kullagerfabriken | PMO |
| SKU | Stock Keeping Unit (Google) | OPS |
| SLA | Service Level Agreement | Gen |
| SLAC | SLAC National Accelerator Laboratory | LSST DM |
| SLSN | super luminous supernova(e) | Sci |
| SMARTS | Small and Moderate Aperture Research Telescope System | OPS |
| | | |



| SMBH | Supermassive Black Hole | Sci |
|---------------|---|-------------|
| SMC | Small Magellanic Cloud | Sci |
| SMF | Stellar Mass Function | Sci |
| SN | SuperNovae | Sci |
| SNANA | SuperNovae SuperNova ANAlysis (https://snana.uchicago.edu/) | Sci |
| SNAPS | Solar System Notification Alert Processing System | OPS |
| SNR | Signal to Noise Ratio | DM |
| SO | Simons Observatory | Sci |
| SO | scientific operations | TS |
| SOAP | Simple Object Access Protocol | Gen |
| SOAR | Southern Astrophysical Research Telescope | Gen |
| SOC | | OPS IT |
| SOC | Security Operations Centre | Gaia |
| | Science Operations Centre | Gala Gen |
| SODA SODAR | Server-side Operations for Data Access | TS |
| | sonic detection and ranging | |
| SOF | Single-Object Fitting | OPS |
| SOG | science operations group | TS |
| SOML | Steward Observatory Mirror Lab (University of Arizona) | Gen |
| SOS | Science Operations Services | OPS |
| SOW | Statement Of Work | Gen |
| SP | Survey Performance | Sci |
| SP | System PerFormance | OPS |
| SP | Story Point | DM - |
| SPI | Schedule Performance Index | Gen |
| SPIE | The international society for optics and photonics | Gen |
| SPL | Science PipeLines | DM |
| SQL | Structured Query Language | Gen |
| SQR | SQuARE document handle | LSST DM |
| SPT | South Pole Telescope | Sci |
| SQuaRE | Science Quality and Reliability Engineering | LSST DM |
| SQuaSH | Science Quality Analysis Harness | DM |
| SRCF | Stanford Research Computing Facility | OPS |
| SRD | LSST Science Requirements; LPM-17 | LSST DM |
| SRT | Science Raft Tower | CAM |
| SS | Subsystem Scientist | LSST DM |
| SSC | Survey Strategy Committee | OPS |



| SSD | Solid-State Disk | Gen |
|--------|--|---------|
| SSH | Secure SHell | Gen |
| SSI | Synthetic Source Injection | Sci |
| SSID | Service Set Identifier | IT |
| SSL | Secure Sockets Layer | IT |
| SSM | Subsystem Manager | Adm |
| SSO | Solar System Object | DM |
| SSOIS | Solar System Object Image Search | Sci |
| SSP | Solar System Processing | LSST DM |
| SST | Simonyi Survey Telescope | Gen |
| SST | Subsystem Science Team | LSST DM |
| stdin | standard input | Gen |
| stdout | standard output | Gen |
| STEM | Science, Technology, Engineering and Math | Gen |
| STFC | UK Science and Technology Facilities Council | OPS |
| SU | Stanford University | OPS |
| SUI | Science User Interface (original name for the LSP Portal and API | LSST DM |
| | Aspects) | |
| SUIT | Science User Interface and Tools (LSST Data Management WBS | LSST DM |
| | element and team, responsible for LSP Portal Aspect) | |
| SV | Science Validation | LSST DM |
| SVOM | Space Variable Objects Monitor | Sci |
| SW | Software (also denoted S/W) | Gen |
| SWE | Society of Women Engineers | DEI |
| T/CAM | Technical/Control (or Cost) Account Manager | LSST DM |
| T&S | Telescope and Site | LSST DM |
| TAC | Time Allocation Committee | OPS |
| TACABS | absolute time-recording accuracy (millisecond) | TS |
| TACC | Texas Advanced Computing Center | Gen |
| TACREL | internal (relative) time-recording accuracy (millisecond) | TS |
| TAI | International Atomic Time | Gen |
| TAP | Table Access Protocol | Gen |
| TB | TeraByte | Gen |
| TBA | To Be Announced | Gen |
| TBC | To Be Confirmed | Gen |
| TBD | To Be Defined (Determined) | Gen |
| | , | |



| TBR | To Be Resolved | Gen |
|--------|---|---------|
| TC | Thermocouple | LSST DM |
| TCAM | Technical Control (or Cost) Account Manager | DM |
| TCP | Transmission Control Protocol | IT |
| TCS | Telescope Control System | TS DM |
| TCT | Technical Control Team (obsolete; now DMCCB) | LSST DM |
| TDE | Tidal Disruption Event | Sci |
| TDEs | Tidal Disruption Events | Sci |
| TEA | Top End Assembly | TS |
| TESS | Transiting Exoplanet Survey Satellite | Sci |
| TFLOP | Tera FLOP | Gen |
| TGAS | Tycho-Gaia Astrometric Solution | Sci |
| TLD | Top Level Domain | IT |
| TLS | Transport Layer Security | IT |
| TMA | Telescope Mount Assembly | TS DM |
| TMT | Thirty Meter Telescope | OPS |
| TNO | trans-Neptunian object | TS |
| TNS | Transient Name Server | Sci |
| TOM | Target and Observation Manager | Sci |
| TOO | Target Of Opportunity | Sci |
| ToO | Target of Opportunity | Sci |
| TOPCAT | Tool for OPerations on Catalogues And Tables | Gen |
| TOWG | Technical Operations Working Group | TS |
| TPC | Total Project Cost | PMO |
| TPU | Tensor Processing Unit | DM |
| TS | Test Specification | LSST DM |
| TSIP | Telescope System Instrumentation Program | OPS |
| TSS | Telescope and Site Software | LSST |
| TTS | Tucson Test Stand | LSST |
| TVS | Transients and Variable Stars Science Collaboration | OPS |
| TVSSC | Transients and Variable Stars Science Collaboration | OPS |
| TVSS | transient voltage surge suppressor | TS |
| UA | University of Arizona | TS |
| UAP | Unidentified Aerial Phenomena | Sci |
| UCL | University College London (UK) | Gen |
| UDF | User Defined Function | Sci |



| UDP | User Datagram Protocol | Gen |
|--------|---|-----------|
| UHECRs | Ultra-High-Energy Cosmic Rays | Sci |
| UHV | Ultra-high vacuum | LSST OPS |
| UI | User Interface | Gen |
| UID | User Identifier | IT |
| UIUC | University of Illinois at Urbana-Champaign | TS |
| UK | United Kingdom | Gen OPS |
| UKDF | United Kingdom Data Facility | OPS |
| UKIDSS | UKIRT Infrared Deep Sky Survey | Gen |
| UKIRT | United Kingdom Infrared Telescope | Gen |
| UMAP | Uniform Manifold Approximation and Projection for dimension | Sci |
| | reduction | |
| UML | unified modeling language | TS |
| UNIONS | Ultraviolet Near- Infrared Optical Northern Survey | Sci |
| UNSO | United States Naval Observatory | TS |
| UPS | uninterruptible power supply | TS |
| URL | Universal Resource Locator | Gen |
| US | United States | Gen |
| USB | Universal Serial Bus | IT |
| USD | United States dollar | TS |
| USDF | United States Data Facility | OPS DF DM |
| USNO | United States Naval Observatory | Gen |
| UT | Universal Time | Gen |
| UT1 | Universal Time 1 | Gen |
| UTC | Coordinated Universal Time | Gen |
| UV | Ultraviolet | Sci |
| UW | University of Washington | Gen |
| UWS | Universal Worker Service (IVOA standard) | Gen |
| UX | User Experience | Gen |
| VCD | Verification Control Document | LSST DM |
| VE | vendor estimate | TS |
| VF2F | Virtual Face 2 Face (meeting) | DM |
| VISTA | Visible and Infrared Survey Telescope for Astronomy | Gen |
| VLA | Very Large Array (NRAO) | Gen |
| VLAN | Virtual Local Area Network | IT |
| VLBA | Very Long Baseline Array | Gen |
| | | |



| VLBI | Very Long Baseline Interferometry | Gen |
|--------|---|---------|
| VLT | Very Large Telescope (ESO) | Gen |
| VLTI | Very Large Telescope Interferometer (ESO) | Gen |
| VM | Virtual Machine | IT |
| VME | Virtual Machine Environment | IT |
| VNOC | Virtual Network Operations Center | NET |
| VO | Virtual Observatory | Gen |
| VOIP | Voice Over Internet Protocol | IT DM |
| VOMS | VO Management Service | DM |
| VPC | Virtual Private Cloud | IT |
| VPHAS | VST/OmegaCAM Photometric H-Alpha Survey | Sci |
| VPN | virtual private network | TS |
| VQ | vendor quote | TS |
| VRO | (not to be used)Vera C. Rubin Observatory | Gen |
| VST | VLT Survey Telescope | Gen |
| W3C | World Wide Web Consortium | Gen |
| WAN | Wide Area Network | Gen |
| WBS | Work Breakdown Structure | Gen |
| WCA | Workplace Culture Advocate | Gen |
| WCAG | Web Content Accessibility Guidelines | OPS |
| WCS | World Coordinate System | Gen |
| WEPAN | Women in Engineering ProActive Network | DEI |
| WFD | Wide Fast Deep | OPS |
| WFIRST | Wide Field Infrared Survey Telescope | OPS |
| WFM | WorkFlow Management | DM |
| WFS | WaveFront Sensor | TS |
| WG | Working Group | LSST DM |
| WIED | Women In Engineering Division | DEI |
| WISE | Wide-field Survey Explorer | Gen |
| WIYN | (No longer an acronym - formerly:) Wisconsin, Indiana University, | Gen |
| | Yale University, NOAO (National Optical Astronomy Observato- | |
| | ries) Observatory | |
| WL | Weak gravitational Lens cosmic shear | Sci |
| WLMS | work load management service | TS |
| WMS | Work Management System | OPS |
| WOUCAO | Windows on the Universe Center for Astronomy Outreach | OPS |



| WP | Work Package | OPS |
|---------------|---|-----|
| WRHEN | Western Hemisphere Research & Education Networks | TS |
| WSDL | Web Services Description Language | Gen |
| WWT | World Wide Telescope | TS |
| XHTML | eXtensible HyperText Markup Language | Gen |
| XML | eXtensible Markup Language | Gen |
| XMM | ESA X-ray Multi-mirror Mission | Gen |
| XMM-Newton | ESA X-ray Multi-mirror Mission | Gen |
| XRISM | X-ray Imaging and Spectroscopy Mission | Sci |
| XSD | XML Schema Definition | Gen |
| XSEDE | Extreme Science and Engineering Discovery Environment | OPS |
| XSL | eXtensible Stylesheet Language | Gen |
| XSLT | eXtensible Stylesheet Language Transformation | Gen |
| YAML | Yet Another Markup Language | Gen |
| YSO | Young Stellar Object | Sci |
| ZD | zenith distance | TS |
| ZTF | Zwicky Transient Facility | Gen |
| accident | An undesired event that results in harm to people, damage to | Adm |
| | property, or loss to process. Accidents result from contact with | |
| | a substance or source of energy above the threshold limit of the | |
| | body structure | |
| accruals | Accounts on a balance sheet that represent liabilities and non- | Adm |
| | cash-based assets used in accrual-based accounting; these ac- | |
| | counts include, among many others, accounts payable, accounts | |
| | receivable, goodwill, future tax liability, and future interest ex- | |
| | pense | |
| active aster- | small Solar System bodies that have asteroid-like orbits but show | Sci |
| oid | comet-like visual characteristics | |
| adaptive mo- | The second moments of the source intensity distribution, which | Sci |
| ments | are used for measuring source shapes. This approach is close to | |
| | optimal for measuring the shapes of faint galaxies | |
| afw | LSST's pipeline library code and primitives including images and | DM |
| | tables | |



An aggregation of multiple point metrics. For example, the overall aggregate DM OA metric photometric repeatability for a particular tract given given the repeatability of multiple individual stars in the tract. See also: "metric" The process of reducing multiple input values to a single output, aggregation DM QA e.g., a metric value, computed from a collection of input values. For example, a sum or average of a metric computed over patches to produce an aggregate metric at tract level. See also: "metric", "aggregate metric" The pathlength of light from an astrophysical source through the airmass Earth's atmosphere. It is given approximately by sec z, where z is the angular distance from the zenith (the point directly overhead, where airmass = 1.0) to the source Akaike Inforan estimator of prediction error and thereby relative quality of Sci mation Critestatistical models for a given set of data rion **AMPEL** AMPEL (Broker) is a modular and scalable platform with explicit OPS provenance tracking, suited for systematically processing large possibly complex and heterogeneous — datasets either in real time or offline.https://ampelproject.github.io/ APC activities, projects, or state of the profession considerations Sci (decadal) Authentication The action of demonstrating who you are and an person, mission, DM or other entity. Usually by use of a password or security token Authorization The action of allowing an authorized or anonymous entity access DM to data or services. Automatic The ALERCE broker is a Chilean-led broker which is processing the alert stream from the ZTF and a Community Broker for the Vera Learning for the Rapid C. Rubin Observatory and its LSST, as well as other large etendue Classification survey telescopes. http://alerce.science/ of Events



Alert A packet of information for each source detected with signal-tonoise ratio > 5 in a difference image by Alert Production, containing measurement and characterization parameters based on the past 12 months of LSST observations plus small cutouts of the single-visit, template, and difference images, distributed via the internet Executing on the Prompt Processing system, the Alert Produc-Alert Produc-DM tion payload processes and calibrates incoming images, performs tion Difference Image Analysis to identify DIASources and DIAObjects, and then packages the resulting alerts for distribution. Alert Produc-A dedicated, internal database system used to support LSST Alert DM tion DataBase Production. Does not support end-user access. algorithm A computational implementation of a calculation or some method Sci of processing Alternate A single observation of an LSST field comprised of one 30 second DM Standard Visit exposure **Amplifier** An electronic component of a CCD that is used to recover the signal during read-out. For LSST, multiple amplifiers on each CCD will enable simultaneous read-out of adjacent regions of each detector. Often this term is used, not quite correctly, as a synonym for a read-out channel Apache Par- A columnar storage data persistence format maintained by the DM QA Apache project quet aperture cor-A correction that is applied to fluxes of sources that were mea-DM rection sured within a finite aperture, to account for the source flux that lies outside the aperture. This correction is usually based upon a model of the PSF as derived from bright, isolated stars. From the model one can derive the magnitude of the correction with aperture size and its variation with position in the image, which asymptotically approaches 1.0 at infinite aperture. Fluxes of sources in crowded fields are often measured with small apertures to avoid contamination, and then corrected with this approach



Archive

The repository for documents required by the NSF to be kept. Ad These include documents related to design and development, construction, integration, test, and operations of the LSST observatory system. The archive is maintained using the enterprise content management system DocuShare, which is accessible through a link on the project website www.project.lsst.org

Archive Center Part of the LSST Data Management System, the LSST archive center is a data center at NCSA that hosts the LSST Archive, which includes released science data and metadata, observatory and engineering data, and supporting software such as the LSST Software Stack

Arizona-

ANTARES is a real-time astronomy system under development at OPS

NOIRLab

NOIRLab. https://antares.noirlab.edu

Temporal Analysis and

Response

to Events

System

Archiver The IIP component responsible for transferring raw images and DM

metadata to OODS and DBB in real time

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

servatory proper

Association Pipeline

An application that matches detected Sources or DIASources or DM generated Objects to an existing catalog of Objects, producing a (possibly many-to-many) set of associations and a list of unassociated inputs. Association Pipelines are used in Alert Production after DIASource generation and in the final stages of Data Release processing to ensure continuity of Object identifiers

Gen

Gen



Rubin Obser-

vatory AURA-O

AuxTel

Asteroid Disa cloud-based astrodynamics platform in development by the Asteroid Institute, a program of the B612 Foundation covery, Analysis, and Mapping astrometry In astronomy, the sub-discipline of astrometry concerns precision Sci measurement of positions (at a reference epoch), and real and apparent motions of astrophysical objects. Real motion means 3-D motions of the object with respect to an inertial reference frame; apparent motions are an artifact of the motion of the Earth. Astrometry per se is sometimes confused with the act of determining a World Coordinate System (WCS), which is a functional characterization of the mapping from pixels in an image or spectrum to world coordinate such as (RA, Dec) or wavelength astronomical A star, galaxy, asteroid, or other physical object of astronomical Sci interest. Beware: in non-LSST usage, these are often known as object sources Attribute A quantitative performance parameter in the context of the SysML based SysArch model used to generate a requirements document **AURA** Man-, group reporting to the AURA Board of Directors that oversees Adm the activities of the LSST Project Office and advocates the mission agement Council for of the LSST **LSST AURA** , group reporting to the AURA Board of Directors that oversees the Manactivities of the Rubin Observatory Directors Office and advocates agement Council for the mission of the observatory

LSST's 1.2-meter Auxiliary Telescope will measure atmospheric transmission and will be used to calibrate LSST images.

AURA Observatory in Chile



| background | In an image, the background consists of contributions from the sky (e.g., clouds or scattered moonlight), and from the telescope and camera optics, which must be distinguished from the astrophysical background. The sky and instrumental backgrounds are characterized and removed by the LSST processing software using a low-order spatial function whose coefficients are recorded in the image metadata | DM |
|----------------|--|-----|
| Babamul | Caltech's event broker | OPS |
| Base Facility | The data center located at the Base Site in La Serena, Chile. The Base Facility is composed of the Base portion of the Prompt Enclave directly supporting Observatory operations, the Commissioning Cluster, an Archive Enclave holding data products, and the Chilean Data Access Center | DM |
| Base Year | The cost of a particular project element as of a year chosen to rep- | Adm |
| Cost | resent an arbitrary cost level of 100, usually the year the project plan was created or refreshed. New, up-to-date base years are periodically introduced to keep data current | |
| Baseline | The point at which project designs or requirements are consid- | Adm |
| | ered to be 'frozen' and after which all changes must be traced and approved | |
| Baseline, Cost | The 'frozen' total costs required for completion of the project | Adm |
| | based on known resources (staff, physical assets, knowledge, etc.) that will be needed | |
| Baseline, De- | The baseline defining the site specific preliminary design of the | Adm |
| sign | LSST subsystems and their associated hardware and software de- | |
| | liverables required to meet the requirements and definitions of the System Baseline | |
| Baseline, | The baseline defining at the highest level the scientific, functional, | Adm |
| Functional | and performance requirements for what the LSST Observatory is and what it must do as a whole | |
| Baseline, | The 'frozen' amount of time required for completion of the project | Adm |
| Schedule | based on known resources (staff, physical assets, knowledge, etc.) that will be needed | |
| | | |



| Baseline, Sys- tem | The baseline defining the high level set of functional and performance requirements for the LSST system and each of the LSST subsystems (Camera, Telescope and Site, and Data Management), the Observatory Control System, and Education and Public Outreach | Adm |
|----------------------------|--|-----|
| Baseline, Technical | The 'frozen' requirements, specifications, designs, and allocations needed for completion of the project based on known resources (staff, physical assets, knowledge, etc.) that will be needed | Adm |
| Basis of Esti- mate | justification for arriving at a particular cost estimate, including estimating methods, approach taken, prices used, assumptions made; an analyzed and carefully calculated number | Adm |
| Batch Pro- duction | Computational processing that is executed as inputs become available, in a distributed way across multiple enclaves when needed, while tracking status and outputs. Examples of Batch Production include offline processing for Prompt Data Products, calibration products, template images, and Special Programs data products. Prioritization protocols for the various types of batch production are given in LDM-148 | DM |
| BEAMS | Bayesian Estimation Applied to Multiple Species (software for classification of light curves based on photometry) | Sci |
| BlackGEM | is a wide-field array of optical telescopes to be located at ESO's La Silla Observatory in Chile's Atacama desert. | Sci |
| Blazhko | the phenomenon of amplitude or phase modulation. Associated with some RRL | Sci |
| brighter- fatter effect | The common term used to refer to one of the photometric qualities of the LSST camera: sources with a higher flux have a broader PSF. This is accounted for during calibration | DM |
| Broker | Software which receives and redistributes Alerts, and may also perform processing such as filtering for certain characteristics, cross-matching with non-LSST catalogs, and/or light-curve classification, in order to identify and prioritize targets for follow-up and/or make scientific analyses. | DM |
| Builder | Individuals who have accumulated 2 FTE years worth of employment/contributions to the LSST Project | Adm |



| Business Manager | The person responsible for all business activities of the LSST Project and the LSST Corporation; he or she serves as liaison to AURA CAS, develops and monitors contracts, and serves as the LSST Corporation Secretary | Adm |
|-----------------------------|---|----------|
| Butler | A middleware component for persisting and retrieving image datasets (raw or processed), calibration reference data, and catalogs | DM |
| Buyer | Includes the terms 'Buyer' 'subcontract administrator or officer' 'contracts administrator or officer' sub-award administrator, or any other LSSTC authorized procurement official as used herein are inter-changeable | Adm |
| CA-FACTS | NSF Cooperative Agreement Financial & Administrative Terms and Conditions | Gen |
| cadence | The sequence of pointings, visit exposures, and exposure durations performed over the course of a survey | Sims Sci |
| CalExp | A particular type of Butler dataset that consists of an image corresponding to a single CCD, which has been characterized and calibrated. (A Butler term.) | DM |
| Calibrated Science Image | Deprecated term; see Processed Visit Image | DM |
| calibration | The process of translating signals produced by a measuring instrument such as a telescope and camera into physical units such as flux, which are used for scientific analysis. Calibration removes most of the contributions to the signal from environmental and instrumental factors, such that only the astronomical component remains | DM |
| Calibration Image | Any of a set of images used in the Instrument Signature Removal pipeline to remove distortions caused by the telescope, detector, or other sources, from the raw images. Includes darks, flats, tunable-laser dome flats, etc | DM |
| Calibration Scientist | The person responsible for the system calibration plan who establishes the requirements for the constituent elements of the calibration hardware, software, and operational data. The Calibration Scientist works under the direction of the Systems Engineering group | DM |



| Camcol | In the SDSS survey, a camera column is the range (in declination) covered by a single sensor in the camera | CAM |
|--|---|-----|
| Camera | The LSST subsystem responsible for the 3.2-gigapixel LSST camera, which will take more than 800 panoramic images of the sky every night. SLAC leads a consortium of Department of Energy laboratories to design and build the camera sensors, optics, electronics, cryostat, filters and filter exchange mechanism, and camera control system | CAM |
| camera | An imaging device mounted at a telescope focal plane, composed of optics, a shutter, a set of filters, and one or more sensors arranged in a focal plane array | Sci |
| Camera Crosstalk- Corrected Image | An image from the Camera system that has had crosstalk removed but has not been processed by the Instrument Signature Removal pipeline | DM |
| CARMA | Continuous time autoregressive moving average process, standard way to describe optical AGN variability | Sci |
| Catch-up Archiver | The Archiver for any images missed by the real time archiver | DM |
| CatSim | The catalog simulator simulates the properties and distributions of stars, galaxies, and asteroids that LSST expects to observe. | Sci |
| Center | An entity managed by AURA that is responsible for execution of a federally funded project | Adm |
| Central Ad- ministrative Services | AURA corporate division responsible for providing accounting, procurement, and business IT support services to AURA centers | Adm |
| Change Control | The systematic approach to managing all changes to the LSST system, including technical data and policy documentation. The purpose is to ensure that no unnecessary changes are made, all changes are documented, and resources are used efficiently and appropriately | Adm |
| Change Control Board | Advisory board to the Project Manager; composed of technical and management representatives who recommend approval or disapproval of proposed changes to, deviations from, and waivers to a configuration item's current approved configuration documentation | Adm |



The person responsible for CCB administration and implementa-Change Control Board tion of approved changes to the project technical, cost, and sched-Chair ule baselines; the CCB Chair is also the Systems Engineering Manager (SEM) Change Concollection of formal documented procedures used to apply tech- Adm trol Process nical and administrative direction and monitoring processes to the Project. Proposed changes to items under change control must undergo impact analysis to assess their effect(s) on project cost, schedule and performance capabilities. All changes to items under change control must be approved by the Project Manager, or if certain thresholds apply, by the LSST Director and/or the NSF. See LPM-19 Change Con-Those documents which have been designated by the project as Adm trolled Docuunder formal configuration control ments Channel An amplifier on an LSST camera CCD (see sensor). For LSST there CAM are 16 amplifiers for each science sensor, resulting in 16 parallel data channels from each device. The 16 channels comprising a sensor are numbered from "0,0" through '1,7'. This term may also refer to the raw data from a read-out amplifier of a sensor Chargea particular kind of solid-state sensor for detecting optical-band CAM Sci Coupled photons. It is composed of a 2-D array of pixels, and one or more Device read-out amplifiers Chi-squared A Coadd Image that is the weighted sum of multiple input im-DM Coadd Image ages, where for each input: coadd.image += image.image**2 / image.variance coadd.mask |= image.weightMap += weight For bad pixels, coadd and weightMap are not altered. Note that the inputs must be aligned to a common projection and pixel grid and corrected to the same photometric scale and zero-point The principal scientific advisor to the LSST Director; he or she acts Adm Chief Scienas an interface to the science community in order to ensure that tist the LSST program is scientifically and technologically well founded and that the specifications are appropriate for achieving the scientific goals of the project



Citizen the collection and analysis of data relating to the natural world by members of the general public, typically as part of a collaborative ence project with professional scientists. cloud A visible mass of condensed water vapor floating in the atmo-DM sphere, typically high above the ground or in interstellar space acting as the birthplace for stars. Also a way of computing (on other peoples computers leveraging their services and availability). **CMASS** constant mass, a spectroscopic galaxy sample as part of the BOSS Sci survey CmdLineTask A special kind of Task that can read its inputs and write its out-DM puts using a Butler, and can run easily from the command-line. CmdLineTask is a specific implementation of the concept of a command-line task. CmdLineTasks are being phased out in favor of PipelineTasks. Coadd Image An image that is the combination of multiple input images. The in-DM puts are aligned to a common projection and pixel grid, corrected to the same photometric scale and zero-point, with bad pixels and artifacts rejected. (Image PSFs may also be matched prior to coaddition.) Coadd Images have had non-astrophysical background removed **COBRA** The trade name for an integrated suite of project management software programs that work together to track all aspects of an ongoing construction job Collimated The hardware to project a field of sources onto discrete sections DM Beam Projecof the telescope optics in order to characterize spatial variations in the telescope and instrument transmission function, and to tor monitor filter throughput evolution during the survey. Images obtained using the CBP will be used in calibration An enhancement of a Task in the LSST Stack context, it is the DM commandline task equivalent of a data processing pipeline and may be run directly from the shell command-line. A command-line task minimally consists of: a configuration and metadata, an argument parser, and a run method and a runner script



Commissioning A two-year phase at the end of the Construction project during which a technical team a) integrates the various technical components of the three subsystems; b) shows their compliance with ICDs and system-level requirements as detailed in the LSST Observatory System Specifications document (OSS, LSE-30); and c) performs science verification to show compliance with the survey performance specifications as detailed in the LSST Science Requirements Document (SRD, LPM-17) Compliance Adherence to the laws, regulations, award terms and conditions, Adm specifications, and internal policies applicable to the LSST Project Compliance The person who directs activities designed to ensure the LSST Adm Quality Project's compliance with all applicable laws, regulations and in-Administraternal policies. The CQA reports directly to the LSST Project Mantor ager. However, if appropriate and applicable, s/he also may directly report significant compliance issues and matters to the LSST Director and the NSF community Software developed for and shared among a large group of relsoftware atively like-minded users (e.g. astronomers). Typically, but not necessarily, open source software and open development-based. configuration A task-specific set of configuration parameters, also called a 'con-DM fig'. The config is read-only; once a task is constructed, the same configuration will be used to process all data. This makes the data processing more predictable: it does not depend on the order in which items of data are processed. This is distinct from arguments or options, which are allowed to vary from one task invocation to the next Configuration Any component of the LSST system, such as requirements, specifications, designs, characteristics, and/or documents describing Item the aforementioned, that has reached a baseline point and is under change control An external limitation imposed on a delivered item under which Adm TS CAM Constraint it must meet its requirements (e.g. the survey performance must DM SE be met under the constraint of the historical weather pattern of the chosen site). A constraint is not a characteristic possessed by the system or subsystem itself



Construction The period during which LSST observatory facilities, components, Adm

hardware, and software are built, tested, integrated, and commissioned. Construction follows design and development and precedes operations. The LSST construction phase is funded through

the NSF MREFC account

Container a lightweight, standalone, executable package of software that in-

cludes everything needed to run an application: code, runtime,

system tools, system libraries and settings.

Contingency The project's overall reserves in excess of the documented base- Adm

lines for budget, schedule, and technical scope. Held in order to accommodate unexpected events or circumstances that rep-

resent potential risk to the project

Contingency The formal process that provides the ability and flexibility to Adm

Management solve unforeseen issues that may impact the project's budget,

schedule, and technical performance. The process incorporates activity-based uncertainties and high impact event-based uncer-

tainties

Contract A binding legal agreement between parties obligating the one Adm

(typically the 'seller') to furnish certain supplies or services and the other (typically, the buyer) to compensate the seller for the supplies or services with some form of consideration, (typically money). The term, 'contract' is used interchangeably with 'sub-award' 'agreement' 'memorandum of understanding and/or agreement' and 'purchase order' Each is a term used to differentiate between a purchase-order-format type document and a complex purchase in a subcontract/sub-award-format type document. These also include awards and notices of awards; job orders or task letters issued under basic ordering agreements; letter contracts; orders, such as purchase orders and subcontracts under which the order becomes effective by written acceptance

or performance; and bilateral contract modifications

Cost Estimate An approximation of total costs required for completion of the Adm

project based on known resources (staff, physical assets, knowl-

edge, etc.) that will be needed



Critical Deci-Approve Start of Operations or Project Completion. CD-4 apsion 4 proval marks the achievement of the completion criteria (i.e., KPPs) defined in the PEP (or in the PRD, for NNSA projects), and if applicable, subsequent approval of transition to operations. Cyber Infras-Sometimes denoted CI, A term first used by the US NSF, and it DM typically is used to refer to information technology systems that tructure provide particularly powerful and advanced capabilities. The time period over which detailed, short-term plans are defined cycle DM and executed. Normally, cycles run for six months, and culminate in a new release of the LSST Software Stack, however this need not always be the case dashboard A visual display of the most important information needed to DM QA achieve one or more objectives, consolidated and arranged on a single screen so that the information can be monitored at a glance (as in Few, S., 2013, Information Dashboard Design, Analytics Press, 2 edn.) Part of the LSST Data Management System, the US and Chilean Data Access Center DACs will provide authorized access to the released LSST data products, software such as the Science Platform, and computational resources for data analysis. The US DAC also includes a service for distributing bulk data on daily and annual (Data Release) timescales to partner institutions, collaborations, and LSST Education and Public Outreach (EPO). Data Back-The software that provides for data registration, retrieval, storbone age, transport, replication, and provenance capabilities that are compatible with the Data Butler. It allows data products to move between Facilities, Enclaves, and DACs by managing caches of files at each endpoint, including persistence to long-term archival storage (e.g. tape) A data collection in the second-generation (Gen2) Butler (referred data collec-DM to as a data repository in earlier generations) consists of hierarchition cally organized data files, an inventory or registry of the contents (i.e., metadata from the data files) stored in an sqlite3 file, and a Mapper file that specifies to the LSST Stack software the camera model to apply when accessing the data in the data repository



Data Identifier A specification of one or more specific metadata that allow the Selection of data from a collection. The specific metadata vary, depending on the origin of the data, but often include some sort of visit identifier, a sensor or CCD, and a filter. For details of syntax, see the Data Identifiers page

Data Management The LSST Subsystem responsible for the Data Management System (DMS), which will capture, store, catalog, and serve the LSST dataset to the scientific community and public. The DM team is responsible for the DMS architecture, applications, middleware, infrastructure, algorithms, and Observatory Network Design. DM is a distributed team working at LSST and partner institutions, with the DM Subsystem Manager located at LSST headquarters in Tucson

Data Management Subsystem The Data Management Subsystem is one of the four subsystems DM which constitute the LSST Construction Project. The Data Management Subsystem is responsible for developing and delivering the LSST Data Management System to the LSST Operations Project

Data Management System The computing infrastructure, middleware, and applications that process, store, and enable information extraction from the LSST dataset; the DMS will process peta-scale data volume, convert raw images into a faithful representation of the universe, and archive the results in a useful form. The infrastructure layer consists of the computing, storage, networking hardware, and system software. The middleware layer handles distributed processing, data access, user interface, and system operations services. The applications layer includes the data pipelines and the science data archives' products and services

Data Product

The LSST survey will produce three categories of Data Products. DM Prompt, Data Release, User Generated. Previously referred to as Levels 1, 2, and 3

Data Release

The approximately annual reprocessing of all LSST data, and the DN installation of the resulting data products in the LSST Data Access Centers, which marks the start of the two-year proprietary period

DM



database

schema

Data Release These products will be made available annually as the result of DM Data Product coherent processing of the entire science data set to date. These will include calibrated images; measurements of positions, fluxes, and shapes; variability information such as orbital parameters for moving objects; and an appropriate compact description of light curves. The Data Release Data Products will include a uniform reprocessing of the difference-imaging-based Prompt Data Products Data Release Deprecated term; see Data Release Production DM **Processing** Data Release An episode of (re)processing all of the accumulated LSST images, DM Production during which all output DR data products are generated. These episodes are planned to occur annually during the LSST survey, and the processing will be executed at the Archive Center. This includes Difference Imaging Analysis, generating deep Coadd Images, Source detection and association, creating Object and Solar System Object catalogs, and related metadata data reposi-A data repository consists of hierarchically organized data files, an DM inventory or registry of the contents (i.e., metadata from the data tory files) stored in an sqlite3 file, and a Mapper file that specifies to the LSST Stack software the camera model to apply when accessing the data in the repository. With the second-generation (Gen2)

> Butler, the term repository will be replaced by data collection A database schema defines how content is structured, as de-

into fields within tables of related information

scribed in a formal language supported by the database management system. It refers to a mapping of the data model to the database structure, as realized in the partitioning of information



deblend Deblending is the act of inferring the intensity profiles of two or more overlapping sources from a single footprint within an image. Source footprints may overlap in crowded fields, or where the astrophysical phenomena intrinsically overlap (e.g., a supernova embedded in an external galaxy), or by spatial co-incidence (e.g., an asteroid passing in front of a star). Deblending may make use of a priori information from images (e.g., deep CoAdds or visit images obtained in good seeing), from catalogs, or from models. A 'deblend' is commonly referred to in terms of 'parent' (total) and 'child' (component) objects declination Often abbreviated Dec, it is a part of an equatorial coordinate Sci pair that expresses the angular distance (usually expressed in degrees) from the Celestial Equator, measured along great circles that intersect the Equatorial poles. Positions south of the equator are given negative sign deepCoadd A Coadd Image designed to produce detections as maximum DM depth. Produced by AssembleCoaddTask deepDiff A Difference Image that results from subtracting a template from DM a CalExp Department cabinet department of the United States federal government; the Adm of Energy DOE has assumed technical and financial responsibility for providing the LSST camera. The DOE's responsibilities are executed by a collaboration led by SLAC National Accelerator Laboratory Deputy Direc-The person who supports the Director in the execution of the Adm overall LSST project and assumes his or her duties and authortor ity during any short term or extended absence, planned or unplanned Descope A strategic downward revision to project objectives Adm deVaucouleurs The radial distribution of flux of an astronomical source that is Sci characterized as: I(r)=I0exp(7.67(r/re)1/4) An elliptical version of profile this profile can be fit to every detected source, yielding the de-Vaucouleurs parameters.



DIAObject A DIAObject is the association of DIASources, by coordinate, that have been detected with signal-to-noise ratio greater than 5 in at least one difference image. It is distinguished from a regular Object in that its brightness varies in time, and from a SSObject in that it is stationary (non-moving) DIASource A DIASource is a detection with signal-to-noise ratio greater than DM 5 in a difference image Difference Refers to the result formed from the pixel-by-pixel difference of DM two images of the sky, after warping to the same pixel grid, scal-**Image** ing to the same photometric response, matching to the same PSF shape, and applying a correction for Differential Chromatic Refraction. The pixels in a difference thus formed should be zero (apart from noise) except for sources that are new, or have changed in brightness or position. In the LSST context, the difference is generally taken between a visit image and template. Difference The detection and characterization of sources in the Difference DM Image that are above a configurable threshold, done as part of Image Analysis Alert Generation Pipeline Differential The refraction of incident light by Earth's atmosphere causes the DM Chromatic apparent position of objects to be shifted, and the size of this shift Refraction depends on both the wavelength of the source and its airmass at the time of observation. DCR corrections are done as a part of DIA Director The person responsible for the overall conduct of the project; the LSST director is charged with ensuring that both the scientific goals and management constraints on the project are met. S/he is the principal public spokesperson for the project in all matters and represents the project to the scientific community, AURA, the member institutions of LSSTC, and the funding agencies Docker A system for packaging and distributing software using self-DM contained containers which may be run on any Linux system; https://www.docker.com/ Document Any object (in any application supported by DocuShare or de- Adm sign archives such as PDMWorks or GIT) that supports project management or records milestones and deliverables of the LSST Project



| Document Specialist | The person responsible for maintaining the Project's document archive (DocuShare) as well as providing editing and technical writing services. He or she also coordinates administrative support to the Project Management Office and the distributed Project team | Adm |
|--------------------------------------|---|----------|
| DocuShare | The trade name for the enterprise management software used by LSST to archive and manage documents | Adm |
| drill down | Move from a higher level aggregation of data to its inputs. For example, given data describing a tract, to drill down to constituent patches and then to objects. Also refers to the act of identifying an issue in a high-level summary of the data (e.g. an aberrant metric value) and interactively investigating its inputs to find the source of the problem | DM QA |
| Earned Value | A measurement of how much work has been completed compared to how much was expected to have been completed at a given point in the project | Adm |
| Earned Value Management | A project management technique for objectively measuring project performance and progress in terms of budget and schedule | Adm Gen |
| Earned Value Management System | A set of tools, techniques and procedures which are used to implement a EVM approach to project management | Adm Gen |
| Education and Public Outreach | The LSST subsystem responsible for the cyberinfrastructure, user interfaces, and outreach programs necessary to connect educators, planetaria, citizen scientists, amateur astronomers, and the general public to the transformative LSST dataset | EPO |
| Eimage | An output product of PhoSim, an Eimage is a simulation of the response of a single sensor, where the outputs of the constituent amps have been integrated, and the effects of variations in pixel-to-pixel sensitivity and amplifier gains have been removed | Sims |
| element Enclave | A node in the hierarchical project WBS Individually defined portions of the computational resources at the Summit, Base, NCSA, and Satellite Facilities, such as the Prompt Enclave, the Archive Enclave, etc. | DM DM |



Encumbrances A contingent liability, contract, purchase order, payroll commitment, tax payable, or legal penalty that is chargeable to an account; it ceases to be an encumbrance when paid out or when the actual liability amount is determined and recorded as an expense ephemeris An ephemeris (pl: ephemerides) gives the predicted positions of Sci astronomical objects or artificial satellites in the sky with time. The ephemerides are computed from mathematical models of motion of the object and the Earth. In LSST Solar System Processing, it refers to a predicted position (RA/Dec/time/etc) of a Solar System Object (SSObject) A self contained work with a concrete deliverable which my be epic DM scheduled to take place with a single cycle and WBS element Sky coordinate reference frame, e.g., J2000. Alternatively refers epoch Sci to a single observation (usually photometric, can be multi-band) of a variable source Escalation Change in the cost or price of specific goods and services in a Adm given economy over a period ExtUPS (usually abbreviated as eups) is the software component eups DM management system that is used for the LSST Stack. It enables a choice of which versions of components should be used for a software build, and ensures that a consistent set is chosen. See the Eups Tutorial for details A versioned tag for eups that identifies a build product with its DM eups-tag git-source SHA-1 identifier The radial distribution of flux of an astronomical source that Sci exponential is characterized: $I(r)=I0\exp(.68(r/re))$ The normalization 1.68 is profile chosen so that the model radius is a half-light radius. An 2dimensional elliptical version of this profile is fit to every detected source Filter A filter in astronomy is an optical element used to restrict the CAM passband of light reaching the focal plane, it transmits a selected range of wavelengths. Filters elements are often named after standard photometric passbands, such as those used in the SDSS survey: u, g, r, i, z



Fink Fink is a community driven project, open to anyone, that pro-OPS cesses time-domains alert streams and connects them with follow-up facilities and science teams. https://fink-broker.org A framework of software components written by IPAC for build-Firefly DM ing web-based user interfaces to astronomical archives, through which data may be searched and retrieved, and viewed as FITS images, catalogs, and/or plots. Firefly tools will be integrated into the Science Platform Flexible an international standard in astronomy for storing images, tables, lm-DM and metadata in disk files. See the IAU FITS Standard for details age Transport System flux Shorthand for radiative flux, it is a measure of the transport of radiant energy per unit area per unit time. In astronomy this is usually expressed in cgs units: erg/cm2/s A focal plane array (FPA) is the arrangement of multiple sensors CAM Focal plane in the focal plane of a camera. For LSST, the FPA is divided into array an array of contiguous rafts, upon which 9 science sensors are mounted 3x3. Additional engineering sensors are mounted on rafts near the periphery to support wavefront sensing and telescope guiding footprint See 'source footprint', 'instrumental footprint', or 'survey foot-DM print', 'Footprint' is a Python class representing a source footprint FORCE11 a community of scholars, librarians, archivists, publishers and re-Sci search funders interested in the Future of Research Communications and e-Scholarship forced pho-A measurement of the photometric properties of a source, or ex-DM pected source, with one or more parameters held fixed. Most tometry often this means fixing the location of the center of the brightness profile (which may be known or predicted in advance), and measuring other properties such as total brightness, shape, and orientation. Forced photometry will be done for all Objects in the **Data Release Production** ForcedSource DRP table resulting from forced photometry DM Full-Time A unit equivalent to one person working full time for one year Adm Gen Equivalent with normal holidays, vacations, and sick time. No paid overtime is assumed



| Gaia | a space observatory of the European Space Agency, launched in 2013 and expected to operate until 2025. The spacecraft is designed for astrometry: measuring the positions, distances and motions of stars with unprecedented precision | Sci |
|---|--|--------|
| GalSim | GalSim is open-source software for simulating images of astronomical objects (stars, galaxies) in a variety of ways. | Sci |
| GEANT | pan-European data network for the research and education community | Gen |
| General Parallel File System | The bulk data storage provided through a POSIX filesystem interface at the LSST Data Facility. Refers specifically to IBM's General Parallel File System; also known as IBM Spectrum Scale | DM QA |
| git | A distributed revision control system, often used for software source code. See the Git User Manual for details. Not developed by LSST DM | DM |
| git-tag | The tag assigned to a particular SHA-1 identifier which associates the git source with an eups-tag of the build product | DM |
| Global Inter- lock System | A safety system that makes mechanisms or functions of the observatory system mutually dependent in order to prevent equipment from harming people or equipment by preventing one element from changing state due to the state of another element, and vice versa | TS |
| Handle | The unique identifier assigned to a document uploaded to DocuShare | Adm |
| Head of Safety | See Safety Manager | Adm |
| Hierarchical Triangular Mesh | is a partitioning scheme to divide the surface of the unit sphere into spherical triangles. It is a hierarchical scheme and the subdivisions have roughly equal areas. HTM is used to index the coordinates in the object databases for faster querying speeds | DM Sci |
| Image Decor- relation | A method of improving the noise properties of the Difference Image in cases where the Template Image has a significant amount of noise, in order to use the same detection thresholds for defining DIASources | DM |
| Image Reduc- tion and Anal- ysis Facility | a collection of software written at the National Optical Astronomy Observatory (now NOIRLab) geared towards the reduction of as- tronomical images in pixel array form. | DM |



High fidelity end-to-end simulations of the sky; these simulated Image Simulation images are used in designing and testing algorithms for use by Data Management; evaluating the capabilities and scalability of the reduction and analysis pipelines; testing and optimizing the scientific returns of the LSST survey; and providing realistic LSST data to the science collaborations to evaluate the expected performance of LSST. Under the direction of the Systems Engineering group, the Image Simulation group's principle goal during construction is to deliver a simulator to support commissioning Incident An undesired event, which under slightly different circumstances, Adm could have resulted in harm to people, damage to property, or loss to process Independent Externally supported and administered versions of the DAC to DM Data Access serve the full, or a limited subset of, the LSST data products and/or Center software to authorized users. Information Internal LSST Project Office committee charged with managing Adm Technology project IT services, including advising management on which ser-Services vices LSST should use. The ITSC's goals are 1) to ensure inter-Committee operability exists among products, 2) to combine, reuse and/or, recycle existing services when possible, 3) to prevent applications from becoming stagnant or security hazards, 4) to make recommendations on whether a particular tool remains 5) to keep the project informed of what is going on at all spectrums, and 6) to make recommendations for how the Project Office will transition into commissioning and operations Information The person responsible for maintaining the Project Office's Adm servers, networks, and computing hardware; he or she also pro-Technology vides technical support to the Project Management Office and the Systems Administrator distributed Project team Instance Cat-A catalog of astronomical sources containing source type, coordi-Sims nates, brightnesses, and SEDs for use in creating simulated LSST alog images with PhoSim. Synonym with trim file interoperability the ability of systems or software to exchange and make use of DM information between them.



| Institutional Member Interactive | An organization such as an institute, observatory, university, or company committed to making an intellectual, financial, or other significant contribution to LSST operations or to preparing the scientific community to use the LSST dataset. They are members of the LSST Corporation and pay an annual membership fee in an amount established by the LSSTC Board of Directors a programming language used for data analysis. Harris Geospa- | Adm |
|--|---|------|
| Data Lan- guage | tial https://www.harrisgeospatial.com/Software-Technology/IDL | DIVI |
| Instrument Signature Removal | Instrument Signature Removal is a pipeline that applies calibration reference data in the course of raw data processing, to remove artifacts of the instrument or detector electronics, such as removal of overscan pixels, bias correction, and the application of a flat-field to correct for pixel-to-pixel variations in sensitivity | DM |
| instrumental footprint | The size and shape of a region on the sky that is covered by the field of view of an instrument, or part of an instrument, e.g., the LSST Camera, or ComCam, or a single LSST CCD. Often represented by a geometric region defined in field-angle space | DM |
| Integrated Project Schedule | Complete picture of the entire project life cycle. By incorporating all project phases into the same model, the IPS allows the project team to plan the critical interfaces not only among project work elements but also among the design, construction, commissioning, and operations phases | Adm |
| Interface Control Doc- ument | A Document that describes, defines, and controls the interface(s) of a system, thereby bounding its requirements. The description includes the inputs and outputs of a single system or element. An ICD may also describe the interface between two systems or subsystems. The purpose of the ICD is to communicate all possible inputs to and all potential outputs from a system for some potential or actual user of the system in operations. The internal interfaces of a system or subsystem are typically not documented in an ICD, but rather in a system design document | Adm |



Interface Constrains an ICD through such things as dictionaries, protocols, Support or definitions of system-wide architectural frameworks by which Document the subsystem teams must abide. However, ISDs do NOT contain requirements. ISDs are written by the subsystem teams with a stake in the subject matter; they are change controlled documents International An organization outside of the United States or Chile such as an Adm Affiliate institute, university, consortium, or government agency that has agreed to share in the annual operating costs of the LSST in exchange for data rights for a specified list of principal investigators during LSST operations and commissioning. These data rights may include access to specified project resources prior to operations. Rights also come with responsibilities, similar to those required of U.S.-based scientists, regarding unauthorized redistribution of data 12000 Julian Date referring to the instant of 12 noon (midday) on January Sci 1, 2000. IAU standard equinox. JIRA issue tracking product (not an acronym but a truncation of Gojira Gen the Japanese name for Godzilla) Joint Overoversight body comprised of representatives from the NSF and Adm sight Group DOE; the JOG meets regularly with LSST senior management to coordinate the Project's activities jointcal The jointcal package optimizes the astrometric and photometric DM calibrations of a set of astronomical images that cover a sky tract and were obtained as a series of visits, which may be spread out in time. The jointcal algorithms incorporates object matching both between visits and to reference star catalogs, and produces more accurate distortion and throughput models than if the astrometry and photometry were fit independently. Jointcal is a part of the Science Pipelines



| Julian Date | The Julian Date (JD) of any instant is the Julian day number for the preceding noon (UTC), plus the fraction of the day elapsed since that instant. The Julian day number is a running sequence of integral days, starting at noon, since the beginning of the Julian Period; JD 0.0 corresponds to noon on 1 January 4713 BCE. Various Julian Date converters are available on the Web. For example, 18h 00m 00.0s UT on 2014-July-01 (near the start of LSST construction) corresponds to JD 2456840.25 | Sci |
|-------------------------|---|-----|
| K2 | NASA mission that provides precise photometric data from numerous target fields in the ecliptic. | Sci |
| Kubernetes | A system for automating application deployment and management using software containers (e.g. Docker); https://kubernetes.io | DM |
| Lasair | a broker for astronomers studying transient and variable astrophysical sources. It is being developed as a collaboration between the University of Edinburgh and Queen's University, Belfast to build a broker service for alerts generated by the LSST at the Vera Rubin Observatory. https://lasair.roe.ac.uk/ | OPS |
| Level 1 Data Product | Deprecated term; see Prompt Data Product | DM |
| Level 1 Pro- cessing | Deprecated term; see Prompt Processing | DM |
| Level 2 Data Product | Deprecated term; see Data Release Data Product | DM |
| Level 2 Pro- cessing | Deprecated term; see Data Release Production | DM |
| Level 3 Data Product | Deprecated term; see User Generated Data Product | DM |
| Level 3 Pro- cessing | Deprecated term; see User Generated Processing | DM |
| LSST Change Request | document that proposes a change to a configuration item; after evaluation by the CCB and decision by the Project Manager, the change request is updated with the outcome, action items, and necessary notification | Adm |



An Arizona 501(c)3 not-for-profit corporation formed in 2003 for Adm LSST Corporation the purpose of designing, constructing, and operating the LSST System. During design and development, the Corporation stewarded private funding used for such essential contributions as early site preparation, mirror construction, and early data management system development. During construction, LSSTC will secure private operations funding from international affiliates and play a key role in preparing the scientific community to use the LSST dataset LSST Project Official name of the stand-alone AURA operating center responsi-Adm Office ble for execution of the LSST construction project under the NSF MREFC account A magnitude determined from a fit to a Petrosian brightness promagnitude, Sci Petrosian file: Rp(r) = stuf f Appropriate for galaxiesUsually simply magnitude, it is a logarithmic measure of intemagnitude, Pogson grated source brightness, usually within a standard photometric passband, such that: MM0=2.5log(F/F0) where the zero-point flux is defined by a photometric standard For isolated stars that are well described by the PSF, the optimal magnitude, Sci **PSF** measure of the total flux is determined by fitting a PSF model to the object M31 also known as the Andromeda galaxy, can be seen with the naked Sci eye in the constellation of Andromeda. Major the NSF account through which large facilities construction Adm search Equipprojects such as LSST are funded ment and Facility Construction Manifest Various files (and file formats) which define sets of build products having some shared attribute. There are release manifests which enumerate the eups-tags of all eups build products a the validated suite Mapper A piece of software that abstracts persisting and unpersisting DM data; specifically, it knows how to navigate a data repository to locate data that match selection criteria that are relevant for data obtained with a particular camera. Used by the Butler



| metadata | General term for data about data, e.g., attributes of astronomical | DM |
|---------------|---|--------|
| | objects (e.g. images, sources, astroObjects, etc.) that are characteristics of the objects themselves, and facilitate the organization | |
| | teristics of the objects themselves, and facilitate the organization, preservation, and query of data sets. (E.g., a FITS header contains | |
| | metadata) | |
| metric | A measurable quantity which may be tracked. A metric has a | DM QA |
| | name, description, unit, references, and tags (which are used for | • |
| | grouping). A metric is a scalar by definition. See also: aggregate | |
| | metric, model metric, point metric | |
| metric value | The result of computing a particular metric on some given data. | DM QA |
| | Note that metric values are typically computed rather than mea- | |
| | sured. See also: metric | |
| middleware | Software that acts as a bridge between other systems or software | DM OPS |
| | usually a database or network. Specifically in the Data Manage- | |
| | ment System this refers to Butler for data access and Workflow | |
| | management for distributed processing. | |
| Mini-Broker | A tool provided by the LSST Science Platform that provides a lim- | DM |
| N 4: | ited amount of alert filtering capabilities | ODC |
| Micro-survey | Mini-surveys whose use of observing time is up to 3% of LSST surveys time for regions outside of the baseline featherint. Examples | OPS |
| | vey time for regions outside of the baseline footprint. Examples include ToO follow-up to ID counterparts to GW sources, or short | |
| | twilight visits for near-Sun objects incl. NEOs. | |
| Mini-survey | portions of the sky that will be observed with a different cadence | OPS |
| wiii sai vey | to the main survey, but not necessarily to a greater depth, to ad- | 0.5 |
| | dress science goals beyond the scope of the main survey, e.g the | |
| | Galactic Plane, Ecliptic, or South Pole. They are different to DDFs | |
| | in that DDFs are single pointings. | |
| model metric | A metric describing a model related to the data. For example, the | DM QA |
| | coefficients of a 2D polynomial fit to the background of a single | |
| | CCD exposure | |
| monitoring | In DM QA, this refers to the process of collecting, storing, aggre- | DM QA |
| | gating and visualizing metrics | |
| Moving Ob- | Deprecated term; see Solar System Processing | DM |
| ject Process- | | |
| ing System | | |



| My Database | The notion of having a local storage beside the queriable database to store either temporary tables or uploaded catalogs | DM Gen |
|--------------------------------|--|--------|
| National Science Foundation | primary federal agency supporting research in all fields of fundamental science and engineering; NSF selects and funds projects through competitive, merit-based review | Adm |
| New General Catalogue | an astronomical catalogue of deep-sky objects compiled by John Louis Emil Dreyer in 1888 | Adm |
| NCSA Facility | The data center at the National Center for Supercomputing Applications (NCSA) in Urbana, Illinois, USA. The NCSA Facility is composed of the NCSA portion of the Prompt Enclave, the Offline Production Enclave hosting all offline Data Release and calibration activities, an Archive Enclave holding data products, and the US Data Access Center | DM |
| Nightly Alert Processing | Deprecated term; see 'Alert Production' | DM |
| Nightly Archive Processing | Deprecated term; see 'Prompt Processing' | DM |
| Non- Standard Visit | Any single observation of a LSST field that is not comprised of either two 15 second 'Snap' exposures (a standard visit) or one 30 second exposure (an alternative standard visit). For example, exposure times for Special Programs might be significantly shorter or longer than a standard visit (or of random length) | DM |
| nublado | The service underpinning the Notebook Aspect of the Rubin Science Platform | DM |
| Object | In LSST nomenclature this refers to an astronomical object, such as a star, galaxy, or other physical entity. E.g., comets, asteroids are also Objects but typically called a Moving Object or a Solar System Object (SSObject). One of the DRP data products is a table of Objects detected by LSST which can be static, or change brightness or position with time | DM |



Offer A response to a solicitation that, if accepted, would bind the offeror to perform the work described in resultant contract. Responses to sealed bidding are offers that are often referred to as 'bids' or 'sealed bids;' responses to a request for proposals (RFP, negotiated-type procurements) are offers often referred to as 'proposals' responses to a request for quotations (RFQ) are not offers and are generally called 'quotes' open devel-A process for developing software that emphasizes all code con-DM tribution and decision-making be done in the open, available to opment as wide a group as possible (This usually means anyone with internet access). OpenEXR a high dynamic range raster file format, released as an open standard along with a set of software tools created by Industrial Light & Magic (ILM) http://www.openexr.com/index.html Open source software is a type of software in which source code DM open source software is released under a license in which the copyright holder grants users the rights to study, change, and distribute the software to anyone and for any purpose. Note that this is *not* necessarily the same as open to contribution (see open development). Operations The 10-year period following construction and commissioning Adm during which the LSST Observatory conducts its survey Operations A data management system prototype project employing the DM Rehearsal same methods, tools, personnel, and technologies as the real system in order to introduce and validate new algorithms, functionality, and infrastructure. Previously referred to as a data challenge Operations OpSim uses a sophisticated model to simulate 10 years of LSST Sims Simulation operations using realistic seeing distributions, historical weather data, scheduled engineering downtime, and the most current telescope, dome, and camera design parameters. Under the direction of the Systems Engineering group, the OpSim group also works closely with the Telescope and Site group to ensure coordination with the OCS Scheduler development



| Opportunity | The degree of exposure to an event that might happen to the benefit of a program, project, or other activity. It is described by a combination of the probability that the opportunity event will occur and the consequence of the extent of gain from the occurrence, or impact. There are two levels of opportunities. At the macro level, a project itself is the manifestation of the pursuit of an opportunity. At the element level, tactical opportunities exist, whereby certain events, if realized, provide a cost or schedule savings to the project or increase technical performance | Adm |
|---------------------------|---|-----|
| Opportunity Management | The proactive art and science of planning, assessing, and handling future events to seek favorable impacts on project, cost, schedule, or performance to the extent possible. Opportunity management is a structured, formal, and disciplined activity focused on the necessary steps and planning actions to determine and exploit opportunities to the extent possible | Adm |
| Overscan | Refers to the portion of the channel read-out of either a) non photo-active pixels, or b) additional read-out of the serial register after all science pixels have been accumulated (sometimes called virtual overscan). The overscan is often appended to the science pixels in the assembled amplifier image as a separate region. This region is useful to science processing software for estimating the stability of the DC offset in the read-out electronics | CAM |
| Pan-STARRS1 | the first telescope of the Panoramic Survey Telescope and Rapid Response System | Sci |
| parquet | see Apache Parquet | Sci |
| passband | The window of wavelength or the energy range admitted by an optical system; specifically the transmission as a function of wavelength or energy. Typically the passband is limited by a filter. The width of the passband may be characterized in a variety of ways, including the width of the half-power points of the transmission curve, or by the equivalent width of a filter with 100% transmission within the passband, and zero elsewhere | Sci |
| patch | An quadrilateral sub-region of a sky tract, with a size in pixels chosen to fit easily into memory on desktop computers | DM |



| PLAnetary Transits and Oscillations of stars | the third medium-class mission in ESA's Cosmic Vision programme | Sci |
|---|--|-------|
| PhoSim | The Photon Simulator (PhoSim) simulate realistic astronomical images by tracing photons through the atmosphere and a telescope and camera into pixels. | Sci |
| photometric redshift | Often abbreviated to photo-z, this is an estimate of the true red- shift (of a galaxy) determined from multi-band photometry. Gen- erally determined from a fit of source colors to grid of model SEDs with redshift | Sci |
| pipeline | A configured sequence of software tasks (Stages) to process data and generate data products. Example: Association Pipeline | DM |
| PipelineTask | A special kind of Task that can read its inputs and write its outputs using a Butler, in addition to being able to have them passed in and out directly as Python objects. PipelineTasks may be connected together dynamically and executed by a generic workflow system. PipelineTasks typically (but not always) delegate most of their work to nested regular Tasks | DM |
| Pitt-Google | a cloud-based alert distribution service designed to provide near real-time processing of data from large-scale astronomical surveys like the LSST. https://pitt-broker.readthedocs.io | OPS |
| point metric | A metric that is associated with a single entry in a catalog. Examples include the shape of a source, the standard deviation of the flux of an object detected on a Coadd, the flux of an source detected on a difference image | DM QA |
| point spread function | The point-spread function (PSF) is the distribution of intensity on a sensor (or image) originating from an unresolved point-source (i.e., a star). Often the PSF is not the same Airy shape as would be expected from a finite-aperture optical system, owing primarily to atmospheric effects and imperfections in the optical system and the detector | Sci |
| Policy file | A structured ASCII file that contains set of attributes for input to a pipeline. Deprecated | Adm |
| postage stamp | Image cutouts that are 30x30 arcseconds, centered on an Object, and included in every Alert | DM |



| precovery | The process of finding, or putting upper limits on, detections of a newly discovered DIAObject in previously obtained images, typically using forced photometry. Alert Packets will contain precovery data derived from the past 30 days of images that include the location of a new DIAObject | DM |
|---|---|-----|
| Preferred Version | The default version of a document served to a DocuShare user. For change controlled documents, the preferred version represents the document's current, approved baseline. For other documents, the preferred version represents the most current iteration | Adm |
| Predominantly Black Institu- tion | A college or university with at least 1,000 enrolled students, of whom at least 40% are Black or African American and at least 50% are low income or first generation to college. | DEI |
| Primavera | The trade name for the project management software suite used by LSST to maintain its program plan and schedule | Adm |
| Processed Visit Image | A fully-qualified LSST image from a single visit that includes the science pixel array and concomitant data including a quality mask and a variance array, in addition to a PSF characterization and metadata (including calibration metadata) about the image. It is stored with the background already subtracted | DM |
| Procurement | The activities involved with or the actual purchase, subcontract, lease, rent, or otherwise acquire supplies or services, and actions associated therewith | Adm |
| Project Exe- cution Plan | primary document defining how the LSST Project will be undertaken; it details the project's scope, activities, quality and technical specifications, resources, schedule, and organization | Adm |
| Project Management Controls Specialist | The person responsible for maintaining the Project Management Control System (PCMS); he or she works closely with the Project Manager and each of the Subsystem Managers | Adm |
| Project Man- agement Controls System | suite of tools used to organize and manage a project, including cost and schedule databases, a qualified accounting system, and change control | Adm |



Project Manthe work element responsible for achieving the project's objecagement tives Office The person responsible for exercising leadership and oversight Adm Project Manover the entire LSST project; he or she controls schedule, budget, ager and all contingency funds an operational unit within LSST that carries out specific scien-Project Sci-Adm ence Team tific performance investigations as prioritized by the Director, the Project Manager, and the Project Scientist. Its membership includes key scientists on the Project who provide specific necessary expertise. The Project Science Team provides required scientific input on critical technical decisions as the project construction proceeds Project Scien-The principal scientific advisor to the LSST Project Manager to en-Adm sure that LSST system specifications are appropriate for achieving tist the scientific goals of the project; the Project Scientist also works closely with the Systems Engineering group and chairs the LSST Science Council Prompt Data Products are generated continuously based on the Prompt Data DM Product image stream from the telescope by the Prompt Processing system. They include low-latency alerts on transient and variable sources, as well as a variety of image data products and source catalogs. Compare Data Release Data Product. Prompt Pro-The data processing which occurs at the Archive Center based DM on the stream of images coming from the telescope. This incessing cludes both Alert Production, which scans the image stream to identify and send alerts on transient and variable sources, and Solar System Processing, which identifies and characterizes objects in our solar system. It also includes specialized rapid calibration and Commissioning processing. Prompt Processing generates the Prompt Data Products. Prompt Data products within LSST data releases relating to LSST Alert Pro- DM **Products** duction DataBase



Information about how LSST images, Sources, and Objects were provenance created (e.g., versions of pipelines, algorithmic components, or templates) and how to recreate them PSF match To convolve an image to obtain a desired point spread function DM (PSF), typically in order to match it to another image. For example, Template Images are PSF matched to the new image before image subtraction when Difference Images are created **QAWG** QA Strategy Working Group DM QA Qserv LSST's distributed parallel database. This database system is used LSST DM for collecting, storing, and serving LSST Data Release Catalogs and Project metadata, and is part of the Software Stack Quality Assur-All activities, deliverables, services, documents, procedures or ar-DM QA tifacts which are designed to ensure the quality of DM deliverance ables. This may include QC systems, in so far as they are covered in the charge described in LDM-622. Note that contrasts with the LDM-522 definition of "QA" as "Quality Analysis", a manual process which occurs only during commissioning and operations. See also: Quality Control Services and processes which are aimed at measuring and mon-Quality Con-DM QA trol itoring a system to verify and characterize its performance (as in LDM-522). Quality Control systems run autonomously, only notifying people when an anomaly has been detected. See also Quality Assurance Raft The sensors in the LSST camera are packaged into replaceable electronic assemblies, called rafts, consisting of 9 butted sensors (CCDs) in a 3x3 mosaic. Each raft is a replaceable unit in the LSST camera. There are 21 science rafts in the camera plus 4 additional corner rafts with specialized, non-science sensors, making for a total of 189 CCDs per focal plane image. The 21 science rafts are numbered from "0,1" through "0,3", "1,0" through "3,4", and "4,1" through "4,3". (In other words, the 25 combinations from "0,0" through "4,4" minus the four corners which are non-science.) Raw Image The output from a camera, consisting of a set of image sections DM from each amplifier on each sensor on the focal plane array, including overscan



releasable A software package or other component of the DM system which product is expected to be included in the next tagged release of the system. This implies inclusion in a standard top-level package. See also release-tag Release Publication of a new version of a document, software, or data DM Adm product. Depending on context, releases may require approval from Project- or DM-level change control boards, and then form part of the formal project baseline release-tag Refers to a tag which groups an entire stack of packages that DM are verified as unit and package-integration tested; this is also an eups-tag A declaration of a specified function or quantitative performance Requirement that the delivered system or subsystem must meet. It is a statement that identifies a necessary attribute, capability, characteristic, or quality of a system in order for the delivered system or subsystem to meet a derived or higher requirement, constraint, or function Retarget In the context of task construction, a task may substitute a class Adm sub-task to change the behavior of a particular step in the processing Review Programmatic and/or technical audits of a given component of Adm the project, where a preferably independent committee advises further project decisions, based on the current status and their evaluation of it. The reviews assess technical performance and maturity, as well as the compliance of the design and end product with the stated requirements and interfaces A panel of independent reviewers performing a programmatic Adm Review Comand/or technical audit of a given component of the project; committee mittees consist of subject matter experts external to the reviewed team and preferably external to the LSST project. The committee submits a post-review report including findings (observations), comments (concerns), and recommendations (requests for action)

Adm



Review Data Package The set of documents and data to be made available to Review Committee members during a review of a project component; the package has two parts: management data and product data. Management data includes appropriately mature and detailed versions of management plans, budgets and/or cost estimates, schedule, and procurement plans. Product data includes appropriately mature and detailed versions of the product technical documentation such as requirements, ICDs, models and analysis reports, and integration and verification plans

Review Decision Making Authority The person responsible for a project component who calls a review and consequently makes programmatic and/or technical decisions based on the Review Committee's findings, comments, and recommendations

Review Hub

An LSST website that acts as a clearinghouse for information Adm about external reviews of all LSST components planned to occur in the next six months. The site links to review-specific websites for both planned reviews and reviews that have been conducted already

Review Plan

An enumeration of the necessary components for a proposed review of a project component; the review plan defines the Review Committee chair and members, the charge to the Review Committee, the Review Data Package, and the expected/required participants, including key team members presenting review material

right ascension Often abbreviated RA, it is a part of an equatorial coordinate pair Sci that expresses the angular distance along the Celestial Equator. It is analogous to terrestrial longitude. RA increases to the east along the projection of the Earth's equator, from the origin (i.e., the Vernal Equinox). Positions are customarily expressed in degrees (0 < RA < 360), or hours (0 < RA < 24, usually in sexagesimal format)



Risk

The degree of exposure to an event that might happen to the detriment of a program, project, or other activity. It is described by a combination of the probability that the risk event will occur and the consequence of the extent of loss from the occurrence, or impact. Risk is an inherent part of all activities, whether the activity is simple and small, or large and complex

Risk Management The art and science of planning, assessing, and handling future events to avoid unfavorable impacts on project cost, schedule, or performance to the extent possible. Risk management is a structured, formal, and disciplined activity focused on the necessary steps and planning actions to determine and control risks to an acceptable level. Risk Management is an event-based management approach to managing uncertainty

Risk, Cost

The possibility that available budget will be exceeded. Cost risk exists if a) the project must devote more resources than planned to achieve technical requirements, b) the project must add resources to support slipped schedules due to any reason, c) if changes must be made to the number of items to be produced, or d) if changes occur in the organization or national economy. Cost risk can be predicted at the total project level or for a system element. The collective effects of element-level cost risk can produce cost risk for the total project

Risk, Programmatic

Produced by events that are beyond the control of the project Adm manager. These events often are produced by decisions made by personnel at higher levels of authority, such as reductions in project priority, delays in receiving authorization to proceed with a project, reduced or delayed funding, changes in organization or national objectives, etc. Programmatic risk can be a source of risk in any of the other three risk categories



Risk. Sched-The possibility that the project will fail to meet scheduled mileule stones. Schedule risk exists if there is inadequate allowance for acquisition delays or if difficulty is experienced in achieving scheduled technical accomplishments, such as the development of software. Schedule risk can be incurred at the total project level for milestones such as deployment of the first system element. The cascading effects of element-level schedule risks can produce schedule risk for the total project Risk, Techni-The possibility that a technical requirement of the system may Adm cal not be achieved in the system life cycle. Technical risk exists if the system may fail to achieve performance requirements; to meet operability, producibility, testability, or integration requirements; or to meet environmental protection requirements. A potential failure to meet any requirement that can be expressed in technical terms is a source of technical risk RRab RRL subgroup of fundamental-mode pulsators, most common Sci and display the steep rises in brightness typical of RRL RRc RRL subgroup with shorter periods and more sinusoidal variation. Sci These are the less common population of RRL RRd RRL subgroup of double mode pulsars and are the most rare RRL Sci Rucio Rucio is a project that provides services and associated libraries **OPS** for allowing scientific collaborations to manage large volumes of data spread across facilities at multiple institutions and organizations. Rucio has been developed by the ATLAS experiment Safety The control of accidental loss Adm Safety Coun-A consulting body providing policy advice and evaluation of safety Adm program effectiveness; the council is composed of independent cil safety professionals and representatives of LSST institutional members Safety Man-The person who manages, executes, and verifies compliance with Adm the LSST Safety Policy (LPM-18); the Safety Manager is also chair ager of the Safety Council SAL script A program which communicates via SAL messages and adheres to TS a specific API, performing coordinated telescope and instrument control operations, such as 'slew to a target and take an image', or 'take a series of flats'



| Satellite Facil- ity | The data center at CC-IN2P3 in Lyon, France | DM |
|---|---|----------|
| schema | The definition of the metadata and linkages between datasets and metadata entities in a collection of data or archive. | DM |
| Science Advisory Commit- tee | An advisory body which provides a formal and two-way connection to the external science community served by LSST; comprised of scientists familiar with but external to the LSST Project, the SAC advises the LSST Director on both policy questions and technical topics of interest to the Project and the science community | LSST Adm |
| Science Collaboration | An autonomous body of scientists interested in a particular area of science enabled by the LSST dataset, which through precursor studies, simulations, and algorithm development lays the groundwork for the large-scale science projects the LSST will enable. In addition to preparing their members to take full advantage of LSST early in its operations phase, the science collaborations have helped to define the system's science requirements, refine and promote the science case, and quality check design and development work | Adm |
| Science Collaboration Chair | The leader of and spokesperson for a Science Collaboration | Adm |
| Science Data Quality As- sessment | An analysis system that examines and reports on the quality of LSST data and data products from a scientific perspective, and determines whether the data meets the science requirements in LPM-17 | DM |
| Science Pipelines | The library of software components and the algorithms and processing pipelines assembled from them that are being developed by DM to generate science-ready data products from LSST images. The Pipelines may be executed at scale as part of LSST Prompt or Data Release processing, or pieces of them may be used in a standalone mode or executed through the LSST Science Platform. The Science Pipelines are one component of the LSST Software Stack | DM |



| Science Plat- form | A set of integrated web applications and services deployed at the LSST Data Access Centers (DACs) through which the scientific community will access, visualize, and perform next-to-the-data analysis of the LSST data products | DM |
|----------------------------------|---|-----|
| Science Quality Analysis Harness | provides a minimal infrastructure for monitoring the LSST verification metrics. It can be used and extended to preserve the code and knowledge developed during LSST construction https://squash.lsst.codes/ | DM |
| Science Verification | The second phase of Commissioning for the LSST Construction Project, Science Verification demonstrates the system's compliance with the survey performance specifications detailed in the LSST Science Requirements Document (SRD, LPM-17). These activities are based solely on the measured 'on-sky' performance of the LSST system | DM |
| SCons | A piece of software developed externally to LSST. An automated build tool used for DM software development. See the SCons website for details | DM |
| Scope | The work needed to be accomplished in order to deliver the product, service, or result with the specified features and functions | Adm |
| script queue | A CSC which manages SAL scripts, running one script at a time until the queue is exhausted or paused | TS |
| SDQA Metric | The name of a quantity that is calculated for image data by SDQA-related pipeline processes (e.g., mean, standard deviation, number of saturated pixels, mean PSF width, etc.). Associated with the metric name are the physical units of the calculated quantity and whether the quantity's data type is integer or floating-point | DM |
| SDQA Rating | The value and error associated with an SDQA metric. An image can have a set of different SDQA ratings | DM |
| SDQA Status | The status assigned to an image by the SDQA subsystem (e.g., pass, fail, unknown, etc.). Database tables that store image metadata will include a field containing an ID number that corresponds to an SDQA status | DM |
| SDQA Threshold | The set of lower and upper thresholds associated with an SDQA Metric. Some metrics have only either a lower or upper threshold. In general, the thresholds depend on observing conditions (e.g., atmospheric seeing, filter, etc.) | DM |



An astronomical term for characterizing the stability of the atmoseeing sphere, as measured by the width of the point-spread function on images. The PSF width is also affected by a number of other factors, including the airmass, passband, and the telescope and camera optics Sensor A sensor is a generic term for a light-sensitive detector, such as a CAM CCD. For LSST, sensors consist of a 2-D array of roughly 4K x 4K pixels, which are mounted on a raft in a 3x3 mosaic. Each sensor is divided into 16 channels or amplifiers. The 9 sensors that make up a raft are numbered from "0,0" through "2,2" In reference to a Source or Object, the shape is a functional charshape DM acterization of its spatial intensity distribution, and the integral of the shape is the flux. Shape characterizations are a data product in the DIASource, DIAObject, Source, and Object catalogs SHE Plans SHE plans are site-specific guidelines for safe working conditions. Adm LSST expects that each collaborating organization and contractor has established safety programs to govern the specific activities at that location. LSST has a minimum expectation for the criteria established in these plans and expects all staff, permanent to the location or visiting, to follow these local procedures. When LSST specific sites are established the project will issue specific SHE plans for those locations Signature Au-The individual designated by the LSSTC policy as authorized to Adm thority approve the use of funds from a specific account; he or she must approve each Purchase Requisition for the account listed on the **Purchase Requisition** The telescope at the Rubin Observatory that will perform the LSST Simonyi Sur-(this refers to all physical components: the mirror, the mount asvey Telescope sembly, etc.). Simulations The person who oversees the activities of the LSST simulations ef-Sims Adm Lead forts (ImSim, OpSim, PhoSim, etc.). The Simulations Lead is part of the Systems Engineering group and reports to the Systems Engineering Manager Single Visit See CalExp DM **Image**



Singularity A software containerization system; an alternative to Docker; DM https://sylabs.io Site Manager The LSST-delegated representative at the Cerro Pachón, Chile Adm Summit site who is authorized to approve and accept work, provide technical liaison, monitor safety, and interpret LSST plans and specifications on behalf of AURA/LSST sky map A sky tessellation for LSST. The Stack includes software to define DM a geometric mapping from the representation of World Coordinates in input images to the LSST sky map. This tessellation is comprised of individual tracts which are, in turn, comprised of patches SLAC Na- A national laboratory funded by the US Department of Energy tional (DOE); SLAC leads a consortium of DOE laboratories that has as-Accelerator sumed responsibility for providing the LSST camera. Although the Camera project manages its own schedule and budget, including Laboratory contingency, the Camera team's schedule and requirements are integrated with the larger Project. The camera effort is accountable to the LSSTPO. is a digital survey of roughly 10,000 square degrees of sky around Sloan Digital Sci Sky Survey the north Galactic pole, plus a 300 square degree stripe along the celestial equator Snap One 15 second exposure within a Standard Visit in the LSST ca-DM dence software The programs and other operating information used by a com-DM puter. Software Often referred to as the LSST Stack, or just The Stack, it is the col-DM Stack lection of software written by the LSST Data Management Team to process, generate, and serve LSST images, transient alerts, and catalogs. The Stack includes the LSST Science Pipelines, as well as packages upon which the DM software depends. It is open source and publicly available Solar System A solar system object is an astrophysical object that is identified Object as part of the Solar System: planets and their satellites, asteroids, comets, etc. This class of object had historically been referred to within the LSST Project as Moving Objects



| Solar System Processing | | |
|-------------------------|---|-----|
| Sole Source | cessing identifies new SSObjects using unassociated DIASources. A purchase of a commodity or a service that is noncompetitive in price specifications or user or is 'only source' and must be as | Adm |
| | in price, specifications, or use; or is 'only source' and must be accompanied by a sole source justification | |
| Sole Source | A document accompanying a Purchase Requisition that provides | Adm |
| Justification | the justification(s) for procuring the items must be from the single | |
| _ | vendor listed on the Purchase Requisition | |
| Source | A single detection of an astrophysical object in an image, the char- | DM |
| | acteristics for which are stored in the Source Catalog of the DRP | |
| | database. The association of Sources that are non-moving lead to | |
| | Objects; the association of moving Sources leads to Solar System | |
| | Objects. (Note that in non-LSST usage "source" is often used for | |
| | what LSST calls an Object.) | |
| Source Asso- | The process of associating source detections on multiple images | DM |
| ciation | taken at different epochs, or in multiple passbands, with a single | |
| | astronomical Object | |
| source foot- | A set of pixels that are determined to be part of a Source (or DI- | DM |
| print | ASource). It is implemented as a list of spans. A span contains | |
| | coordinates of a stripe of pixels: row (y) given span belongs to, | |
| | and a section of a column (xStart, xEnd). In DM code, the term | |
| | 'footprint' refers to a 'source footprint' | |
| Speakers Bu- | A volunteer body promoting LSST's visibility by identifying, initiat- | Adm |
| reau | ing, and coordinating opportunities for LSST-related talks, espe- | |
| | cially at large conferences | |
| Speakers Bu- | An LSST website used by the LPO as a tool for screening and ap- | Adm |
| reau Website | proving participation of LSST project personnel at various exter- | |
| | nally hosted meetings; the site also provides a mechanism for the | |
| | Speakers Bureau to accept speaker requests, coordinate speak- | |
| | ers, and maintain a record of requests received and talks given. | |
| | With this tool the Director and Project Manager can review and | |
| | approve/deny requests for LSST financial support for travel be- | |
| | fore such meetings occur. Project personnel use the site to report | |
| | their intended participation in a meeting even if they are request- | |
| | ing neither a speaker nor LSST funding | |
| | | |



Any LSST mini-survey or deep drilling field that is observed inde-Special Propendently of the Wide-Fast-Deep (WFD) main survey gram Specification One or more performance parameter(s) being established by a Adm requirement that the delivered system or subsystem must meet the radiated energy of an astrophysical object as a function of Sci Spectral Energy Distrienergy (or wavelength) across the entire spectrum of light bution sqlite3 A software package external to DM, sqlite3 provides a SQL inter-DM face compliant with the DB-API 2.0 specification for SQLite, a selfcontained public-domain SQL database engine stack a grouping, usually in layers (hence stack), of software packages DM and services to achieve a common goal. Often providing a higher level set of end user oriented services and tools Standard Visit A single observation of a LSST field comprised of two 15 second DM 'Snap' exposures that are immediately combined. An 'Alternate Standard Visit' is a single observation of a LSST field comprised of one 30 second exposure Stop The authority of any individual to stop work if unanticipated/un- Adm Work safe conditions are identified or non-compliant practices are ob-Authority served at the site. Workers shall be instructed stop the work immediately and notify their supervisor(s), safety and health representative(s), and the LSST site manager of this action. Disagreements or differences of opinion about the need to terminate an activity shall occur only after the activity is stopped and people are removed from the hazard. All workers at the site have the authority to stop work. Work may not proceed until the circumstances are investigated and deficiencies corrected A JIRA issue type describing a scheduled, self-contained task story DM worked as part of an epic. Typically, stories are appropriate for work worth between a fraction of a SP and 10 SP; beyond that, the work is insufficiently fine-grained to schedule as a story. While fractional SP are fine, all stories involve work, so the SP total of an in progress or completed story should not be 0 A 2.5° wide equatorial band of sky covering roughly 300 square Stripe 82 degrees that was observed repeatedly in 5 passbands during the course of the SDSS, In part for calibration purposes



| Structure Function | measure of variance of observations separated in time | Sci |
|------------------------------------|---|----------|
| Subcontract | An agreement under which another entity will perform part or all of the project's contract obligations | Adm |
| Subsystem | A set of elements comprising a system within the larger LSST system that is responsible for a key technical deliverable of the project | Adm |
| Subsystem Manager | responsible manager for an LSST subsystem; he or she exercises authority, within prescribed limits and under scrutiny of the Project Manager, over the relevant subsystem's cost, schedule, and work plans | Adm |
| Subsystem Scientist | The principal science advisor to a Subsystem Manager; he or she ensures that the subsystem specifications are appropriated for achieving the project's goals | Adm |
| Subsystem Systems Engineer | A subsystem team member who works closely with the Subsystem Manager and the project Systems Engineering group on internal integration of the subsystem's component parts and the subsystem's integration with the larger LSST system | Adm |
| Summit | The site on the Cerro Pachón, Chile mountaintop where the LSST observatory, support facilities, and infrastructure will be built | Adm |
| Summit Facil- ity | The main Observatory and Auxiliary Telescope buildings at the Summit Site on Cerro Pachón, Chile | DM |
| supertask survey foot- print | Deprecated term; see PipelineTask The portion of the sky covered by data from an astronomical survey, e.g., the main wide-fast-deep LSST 10-year survey, the LSST deep drilling fields, or the Science Validation data taken during commissioning. Sometimes represented by Boolean maps or other summary statistics in an all-sky representation, e.g., the IVOA MOC standard | DM DM |
| Synthetic Source Injection | injecting fake objects onto images to test the detection and measurement process | Sci DM |



System Integration and Test

The first year of the two-year Commissioning phase of the LSST Construction Project, during which the various technical components of the three subsystems will be integrated and compliance with ICDs and system level compliance as detailed in the LSST Observatory System Specifications document (OSS, LSE-30) will be shown. Roughly 4-6 months into the System I&T phase, the telescope and camera will be fully integrated and periodically producing science grade images over the full field of view, at which point 'System First Light' will be declared

TS CAM DM SE

Systems Engineer

A member of the Systems Engineering group who works closely with the Systems Engineering Manager and the Systems Scientist on the integrated LSST system's various technical issues spanning the full life cycle of the entire project

Adm

Systems Engineering

an interdisciplinary field of engineering that focuses on how to design and manage complex engineering systems over their life cycles. Issues such as requirements engineering, reliability, logistics, coordination of different teams, testing and evaluation, maintainability and many other disciplines necessary for successful system development, design, implementation, and ultimate decommission become more difficult when dealing with large or complex projects. Systems engineering deals with workprocesses, optimization methods, and risk management tools in such projects. It overlaps technical and human-centered disciplines such as industrial engineering, control engineering, software engineering, organizational studies, and project management. Systems engineering ensures that all likely aspects of a project or system are considered, and integrated into a whole

Systems Engineering Manager

individual responsible for the oversight and coordination of the Adm LSST systems engineering efforts as well as the management of the Systems Engineering group and work package. The SEM is also the CCB Chair and as such is responsible for the execution, technical oversight, and coordination of configuration control activities



A member of the Systems Engineering group and chief liaison to **Systems** Scientist all project scientists; the Systems Scientist works closely with the Systems Engineering Manager and is responsible for the flowdown of science requirements. The Systems Scientist ensures that acceptance testing and commissioning address the science requirements Task Tasks are the basic unit of code re-use in the LSST Stack. They DM perform a well defined, logically contained piece of functionality. Tasks come standard with configuration, logging, processing metadata, and debugging features. For further details, see How to Write a Task in the source code documentation. Tasks can be nested, providing a natural way to structure - and configure - high level algorithms that delegate work to lower-level algorithms Technical An index linking to the various requirements documents, specifi-Adm Baseline cations documents, ICDs, design documents, budgets and alloca-Classified tions, and WBS dictionaries defining the current baseline of the Index LSST project's technical scope (LSE-90) Telescope The LSST subsystem responsible for design and construction Adm and Site of the telescope structure, telescope mirrors, optical wavefront measurement and control system, telescope and observatory control systems software, and the summit and base facilities. **Template** A co-added, single-band image of the sky that is deep, and created DM in a manner to remove transient or fast moving objects from the final image. Constituent images for templates may be selected from a limited range of quality parameters, such as PSF size or airmass. Such images are used to perform Difference Image Analysis in order to detect variable, transient, and Solar System astrophysical objects a proprietary type of processor designed by Google in 2016 for Tensor DM cessing Unit use with neural networks and in machine learning projects test stand An environment used for testing the operation of the LSST Cam-DM CAM era, or some component thereof. In the Data Management context, this generally refers to a simulated Camera readout system used to test the interface between the Camera and the DM system (see, for example, NTS)



| Then-Year Cost | An extrapolation from the base year cost of a project element out to the year the cost actually will be incurred that accounts for es- calation rates | Adm |
|-------------------------------------|---|-------|
| tidy data | Tidy datasets have a specific structure: each variable is a column, each observation is a row, and each type of observational unit is a table (Wickham, H., 2014, Journal of Statistical Software, Articles, 59, 1) | DM QA |
| tile | Obsolete form of sky tessellation, superseded by tracts/patches | DM |
| timebox | A limited time period assigned to a piece of work or other activity. Useful in scheduling work which is not otherwise easily limited in scope, for example research projects or servicing user requests | DM |
| tracklet | Links between unassociated DIASources within one night to identify moving objects | DM |
| tract | A portion of sky, a spherical convex polygon, within the LSST all-sky tessellation (sky map). Each tract is subdivided into sky patches | DM |
| transient | A transient source is one that has been detected on a difference image, but has not been associated with either an astronomical object or a solar system body | Sci |
| Travel Admin- istrator | The person responsible ensuring compliance with the LSST Travel Policy. S/he makes all travel arrangements for all individuals whose travel is paid by LSST. S/he also reviews all Travel Expense Reports (TER) to vet claimed expenses as allowable before submitting them for approval by the LSST Business Manager | Adm |
| User Generated Data Product | The products of User Generated Processing pipelines; these products will originate from the community, including project teams | DM |
| User Gener- ated Process- ing | Any (re)processing of LSST data performed by a user, with either custom pipelines or reconfigured LSST software, to create User Generated Data Products. This processing will originate from the community, including project teams | DM |
| Validation | A process of confirming that the delivered system will provide its desired functionality; overall, a validation process includes the evaluation, integration, and test activities carried out at the system level to ensure that the final developed system satisfies the intent and performance of that system in operations | Adm |



| Verification | The process of evaluating the design, including hardware and software - to ensure the requirements have been met; verification (of requirements) is performed by test, analysis, inspection, and/or demonstration | Adm |
|------------------------------|--|------------|
| Visit | A sequence of one or more consecutive exposures at a given position, orientation, and filter within the LSST cadence. See Standard Visit, Alternate Standard Visit, and Non-Standard Visit | DM TS Sims |
| warp | (noun) The pixels from a single CCD Exposure that overlap a given coadd patch, trimmed and resampled into the patch's coordinate system; in other words, an image that has been astrometrically registered to the common coordinate system of a tract | DM |
| Wide-Fast- | The main survey of the LSST to cover at least 18000 square de- | DM TS |
| Deep | grees of the southern sky | |
| Work Break- | a tool that defines and organizes the LSST project's total work | Adm |
| down Struc- ture | scope through the enumeration and grouping of the project's discrete work elements | |
| Work Ele- ments | The critical tasks of the LSST Project as represented in the WBS | Adm |
| World Coordi- nate System | a mapping from image pixel coordinates to physical coordinates; in the case of images the mapping is to sky coordinates, generally in an equatorial (RA, Dec) system. The WCS is expressed in FITS file extensions as a collection of header keyword=value pairs (basically, the values of parameters for a selected functional representation of the mapping) that are specified in the FITS Standard | Sci |
| zBEAMS | Extension of BEAMS light curve classification method to include redshift (z) information | Sci |