

# NASA Exoplanet Archive Dataset

The NASA Exoplanet Archive is a public data repository for exoplanet-related data and tools sponsored by NASA. The archive provides access to a comprehensive collection of confirmed exoplanets and candidates, as well as data from various astronomical surveys and follow-up observations.

The official website for the archive is located at <http://exoplanetarchive.ipac.caltech.edu>.

## 1.Dataset Overview

The archive is hosted by the Infrared Processing and Analysis Center (IPAC) at the California Institute of Technology (Caltech). It serves as a centralized resource for astronomers and the public, offering data essential for the study of exoplanets.

Key components of the dataset include:

- **Confirmed Exoplanets:** A regularly updated table of all confirmed exoplanets, including their orbital and physical properties (e.g., mass, radius, period).
- **Kepler/K2 Data:** Stellar and planet candidate data from the Kepler and K2 missions, including light curves and transit parameters.
- **TESS Data:** Data from the Transiting Exoplanet Survey Satellite (TESS) mission.
- **Survey Data:** Results from various ground- and space-based exoplanet surveys.



## 2.Accessing the Data

Data can be accessed through the archive's web interface, which provides tools for filtering, sorting, and downloading the data. Users can select specific tables and columns of interest to customize their data downloads.

Table Name	Description	Example Columns
Confirmed Planets	Parameters for all confirmed exoplanets	Planet Name, Discovery Method, Period (days), Radius (Jupiter)
Planetary Systems	Information on the host stars of exoplanets	Stellar Name, RA, Dec, Effective Temperature
Time Series	Light curves and radial velocity measurements	Time (JD), Flux, Flux Error, Velocity

## Data Usage

Users of the NASA Exoplanet Archive data are typically required to acknowledge the source in any resulting publications or presentations. Specific citation instructions are available on the archive's website.

For technical support or inquiries regarding the dataset, users can refer to the help documentation available on the website

### 3. Key Data Tables

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Category	Sub-Category (if applicable)
Data Column Definitions	Additional Default Columns
	Names
	System Composition
	Planet Discovery
	Detections
	Planet Parameters
	Stellar Data
	System Data
	Position (System Data Subset)
	Photometry (System Data Subset)
	Dates (System Data Subset)
	Additional Data

#### Additional Default Columns:

The parameters in this section are displayed when the interactive table is first loaded, when Reset Filters is clicked, or when a TAP query when all default columns are retrieved, but do not fit in any of the other categories listed on this page. All default columns on this page are noted with a †.

Note: Default column: These columns display in the interactive table when the table is first loaded, and when Reset Filters is clicked.

Database Column Name	Table Label	Description	In PS Table	In PSCompPars Table
default_flag†	Default Parameter Set	Boolean flag indicating whether given set of planet parameters has been selected as default (1=yes, 0=no)	X	
soltype†	Solution Type	Disposition of planet according to given planet parameter set	X	
pl_controv_flag†	Controversial Flag	Flag indicating whether the confirmation status of a planet has been questioned in the published literature (1=yes, 0=no)	X	X

Names:

Database Column Name	Table Label	Description	In PS Table	In PSCompPars Table
pl_name†	Planet Name	Planet name most commonly	X ▾	X ▾

		used in the literature		
hostname†	Host Name	Stellar name most commonly used in the literature	X ▾	X ▾
pl_letter	Planet Letter	Letter assigned to the planetary component of a planetary system	X ▾	X ▾
hd_name	HD ID	Name of the star as given by the Henry Draper Catalog	X ▾	X ▾
hip_name	HIP ID	Name of the star as given by the Hipparcos Catalog	X ▾	X ▾
tic_id	TIC ID	Name of the star as given by the TESS Input Catalog	X ▾	X ▾
gaia_dr2_id	Gaia DR2 ID	Name of the star as given by the Gaia DR2 Catalog	X ▾	X ▾
gaia_dr3_id	Gaia DR3 ID	Name of the star as given by the Gaia DR3 Catalog	X ▾	X ▾

Note: Default column: These columns display in the interactive table when the table is first loaded, and when Reset Filters is clicked.

### System Composition:

Database Column Name	Table Label	Description	In PS Table	In PSCompPars Table
sy_snum†	Number of Stars	Number of gravitationally bound stars in the planetary system	X	X
sy_pnum†	Number of Planets	Number of confirmed planets in the planetary system	X	X
sy_mnum	Number of Moons	Number of moons in the planetary system	X	X
cb_flag	Circumbinary Flag	Flag indicating whether the planet orbits a binary system (1=yes, 0=no)	X	X

#### Planet Discovery:

Database Column Name	Table Label	Description	In PS Table	In PSCompPars Table
discoverymethod†	Discovery Method	Method by which the planet was first identified	X ▾	X ▾
disc_year†	Discovery Year	Year the planet was discovered	X ▾	X ▾
disc_refname	Discovery Reference	Reference name for discovery publication	X ▾	X ▾

disc_pubdate	Discovery Publication Date	Publication Date of the planet discovery referee publication	X ▾	X ▾
disc_locale	Discovery Locale	Location of observation of planet discovery (Ground or Space)	X ▾	X ▾
disc_facility†	Discovery Facility	Name of facility of planet discovery observations	X ▾	X ▾
disc_telescope	Discovery Telescope	Name of telescope of planet discovery observations	X ▾	X ▾
disc_instrument	Discovery Instrument	Name of instrument of planet discovery observations	X ▾	X ▾

#### Detections:

Database Column Name	Table Label	Description	In PS Table	In PSCompPars Table
rv_flag	Detections by Radial Velocity Variations	Flag indicating if the planet host star exhibits radial velocity variations due to the planet (1=yes, 0=no)	X ▾	X ▾

pul_flag	Detected by Pulsar Timing Variations	Boolean flag indicating if the planet host star exhibits pulsar timing variations due to the planet (1=yes, 0=no)	X ▾	X ▾
ptv_flag	Detected by Pulsation Timing Variations	Boolean flag indicating if the planet host star exhibits pulsation timing variations due to the planet (1=yes, 0=no)	X ▾	X ▾
tran_flag	Detected by Transits	Flag indicating if the planet transits its host star (1=yes, 0=no)	X ▾	X ▾
ast_flag	Detected by Astrometric Variations	Flag indicating if the planet host star exhibits astrometrical variations due to the planet (1=yes, 0=no)	X ▾	X ▾
obm_flag	Detected by Orbital Brightness Modulations	Flag indicating whether the planet exhibits orbital modulations on the phase curve (1=yes, 0=no)	X ▾	X ▾
micro_flag	Detected by Microlensing	Boolean flag indicating if the planetary system acted as a lens during an	X ▾	X ▾



		observed microlensing event (1=yes, 0=no)		
etv_flag	Detected by Eclipse Timing Variations	Flag indicating whether a circumbinary planet that orbits an eclipsing binary induces eclipse timing variations (ETVs) in the binary pair (1=yes, 0=no)	X ▾	X ▾
ima_flag	Detected by Imaging	Flag indicating if the planet has been observed via imaging techniques (1=yes, 0=no)	X ▾	X ▾
dkin_flag	Detection by Disk Kinematics	Boolean flag indicating if the presence of the planet was inferred due to its kinematic influence on the protoplanetary disk of its host star (1=yes, 0=no)	X ▾	X ▾

#### Planet Parameters:

Database Column Name	Table Label	Description	Uncertainties Column	Limit Column	In PS Table	In PSCompParameters Table
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			(positive +) (negative -)			
pl_refname†	Planetary Parameter Reference	Reference of publication used for given planet parameter set			X	
pl_orbpert†	Orbital Period [days]	Time the planet takes to make a complete orbit around the host star or system	(+) pl_orbpere rr1 (-) pl_orbpere rr2	pl_orbperli m	X	X
pl_orbper_ reflink	Orbital Period Reference	Reference of publication used for given planet parameter set				X

pl_orbsma x†	Orbit Semi-Major Axis [au]	The longest radius of an elliptic orbit, or, for exoplanets detected via gravitational microlensing or direct imaging, the projected separation in the plane of the sky	(+) pl_orbsma xerr1 (-) pl_orbsma xerr2	pl_orbsma xlim	X	X
pl_orbsma x_reflink	Orbit Semi-Major Axis Reference	Reference of publication used for given parameter set				X

pl_angsep	Angular Separation [mas]	Angular separation on the sky between the star and planet. Note: This may be derived in several ways, but is typically either an actual reported angular separation at a given epoch (for which the literature source will be provided in the reference column), or a calculated angular separation using the semi-major axis and the distance to the system (which may or may not be equivalent to the maximum	(+) pl_angsep_err1 (-) pl_angsep_err2	pl_angsepl im		X
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		angular separation, depending on orbital eccentricity and orientation) . Refer to original data source for further information .				
pl_angsep_reflink	Angular Separation Reference	Reference of publication used for given parameter set				X
pl_rade†	Planet Radius [Earth Radius]	Length of a line segment from the center of the planet to its surface, measured in units of radius of the Earth	(+) pl_radeerr 1 (-) pl_radeerr 2	pl_radelim	X	X
pl_rade_reflink	Planet Radius [Earth Radius] Reference	Reference of publication used for given parameter set				X

pl_radjt	Planet Radius [Jupiter Radius]	Length of a line segment from the center of the planet to its surface, measured in units of radius of Jupiter	(+) pl_radjerr1 (-) pl_radjerr2	pl_radjlim	X	X
pl_radj_reflink	Planet Radius [Jupiter Radius] Reference	Reference of publication used for given parameter set				X
pl_masse	Planet Mass [Earth Mass]	Amount of matter contained in the planet, measured in units of masses of the Earth	(+) pl_masseerr1 (-) pl_masseerr2	pl_masselim	X	
pl_massj	Planet Mass [Jupiter Mass]	Amount of matter contained in the planet, measured in units of masses of Jupiter	(+) pl_massjerr1 (-) pl_massjerr2	pl_massjlim	X	

pl_msinie	Planet Mass*sin(i) [Earth Mass]	Minimum mass of a planet as measured by radial velocity, measured in units of masses of the Earth	(+) pl_msiniee rr1 (-) pl_msiniee rr2	pl_msinieli m	X	
pl_msinij	Planet Mass*sin(i) [Jupiter Mass]	Minimum mass of a planet as measured by radial velocity, measured in units of masses of Jupiter	(+) pl_msinijer r1 (-) pl_msinijer r2	pl_msinijli m	X	

pl_cmasse	Planet Mass*sin(i) /sin(i) [Earth Mass]	A calculated quantity indicating the quotient of the lower limit of the measured planet mass, denoted as its mass times the sine of its inclination, and the sine of its inclination, measured in units of the mass of the Earth. This is specified for references in which the inclination is provided as well as the planet mass limit, but the true mass is not reported.	(+) pl_cmasse err1 (-) pl_cmasse err2	pl_cmassel im	X	
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pl_cmassj	Planet Mass*sin(i) /sin(i) [Jupiter Mass]	A calculated quantity indicating the quotient of the lower limit of the measured planet mass, denoted as its mass times the sine of its inclination, and the sine of its inclination, measured in units of the mass of Jupiter. This is specified for references in which the inclination is provided as well as the planet mass limit, but the true mass is not reported.	(+) pl_cmassje rr1 (-) pl_cmassje rr2	pl_cmassjli m	X	
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pl_bmasse†	Planet Mass or Mass*sin(i) [Earth Mass]	Best planet mass estimate available, in order of preference : Mass, $M\sin(i)/\sin(i)$ , or $M\sin(i)$ , depending on availability, and measured in Earth masses	(+) pl_bmasse err1 (-) pl_bmasse err2	pl_bmasse lim	X	X
pl_bmasse_reflink	Planet Mass or Mass*sin(i) [Earth Mass] Reference	Reference of publication used for given parameter set				X
pl_bmassj†	Planet Mass or Mass*sin(i) [Jupiter Mass]	Best planet mass estimate available, in order of preference : Mass, $M\sin(i)/\sin(i)$ , or $M\sin(i)$ , depending on availability, and measured in Jupiter masses	(+) pl_bmassj err1 (-) pl_bmassj err2	pl_bmassjlim	X	X

pl_bmassj_reflink	Planet Mass or Mass*sin(i) [Jupiter Mass] Reference	Reference of publication used for given parameter set				X
pl_bmassprov†	Planet Mass or Mass*sin(i) Provenance	Provenance of the measurement of the best mass. Options are: Mass, $M\sin(i)/\sin(i)$ , and Msini			X	X
pl_dens	Planet Density [g/cm**3]	Amount of mass per unit of volume of the planet	(+) pl_denserr1 (-) pl_denserr2	pl_denslim	X	X
pl_dens_reflink	Planet Density [g/cm**3] Reference	Reference of publication used for given parameter set				
pl_orbeccent†	Eccentricity	Amount by which the orbit of the planet deviates from a perfect circle	(+) pl_orbeccenterr1 (-) pl_orbeccenterr2	pl_orbeccentlim	X	X

pl_orbecce n_reflink	Eccentricit y Reference	Reference of publication used for given parameter set				
pl_insolt†	Insolation Flux [Earth Flux]	Insolation flux is another way to give the equilibrium temperatur e. It's given in units relative to those measured for the Earth from the Sun.	(+) pl_insolerr 1 (-) pl_insolerr 2	pl_insollim	X	X
pl_insol_re flink	Insolation Flux [Earth Flux] Reference	Reference of publication used for given parameter set				X

pl_eqt†	Equilibrium Temperature [K]	The equilibrium temperature of the planet as modeled by a black body heated only by its host star, or for directly imaged planets, the effective temperature of the planet required to match the measured luminosity if the planet were a black body	(+) pl_eqterr1 (-) pl_eqterr2	pl_eqtlim	X	X
pl_eqt_reflink	Equilibrium Temperature [K] Reference	Reference of publication used for given parameter set				X

pl_orbincl	Inclination [deg]	Angle of the plane of the orbit relative to the plane perpendicu lar to the line-of-sigh t from Earth to the object	(+) pl_orbincl err1 (-) pl_orbincl err2	pl_orbinclli m	X	X
pl_tranmid	Time of Conjunctio n (Transit Midpoint) [days]	The time given by the average of the time the planet begins to cross the stellar limb and the time the planet finishes crossing the stellar limb.	(+) pl_tranmid err1 (-) pl_tranmid err2	pl_tranmidl im	X	X
pl_tranmid _systemref	Transit Midpoint Time Reference Frame and Standard	Time system basis for time of conjunctio n (Transit Midpoint)				X
pl_tranmid _reflink	Time of Conjunctio n (Transit Midpoint) Reference	Reference of publication used for given parameter set				X

pl_tsystem ref	Time Reference Frame and Standard	Time system basis for temporal and orbital parameter s			X	
ttv_flag†	Data show Transit Timing Variations	Flag indicating if the planet orbit exhibits transit timing variations from another planet in the system (1=yes, 0=no). Note: Non-transit ing planets discovered via the transit timing variations of another planet in the system will not have their TTV flag set, since they do not themselve s demonstrat e TTVs.			X	X

pl_imppar	Impact Parameter	The sky-projected distance between the center of the stellar disc and the center of the planet disc at conjunction, normalized by the stellar radius	(+) pl_imppare rr1 (-) pl_imppare rr2	pl_impparlim	X	X
pl_imppar_reflink	Impact Parameter Reference	Reference of publication used for given parameter set				X
pl_trandep	Transit Depth [%]	The size of the relative flux decrement caused by the orbiting body transiting in front of the star	(+) pl_trandep err1 (-) pl_trandep err2	pl_trandep_lim	X	X
pl_trandep_reflink	Transit Depth [%] Reference	Reference of publication used for given parameter				X



		set				
pl_trandur	Transit Duration [hrs]	The length of time from the moment the planet begins to cross the stellar limb to the moment the planet finishes crossing the stellar limb	(+) pl_trandur err1 (-) pl_trandur err2	pl_trandurli m	X	X
pl_trandur_reflink	Transit Duration [hrs] Reference	Reference of publication used for given parameter set				X
pl_ratdor	Ratio of Semi-Major Axis to Stellar Radius	The distance between the planet and the star at mid-transit divided by the stellar radius. For the case of zero orbital eccentricity , the distance at mid-transit is the semi-major	(+) pl_ratdorer r1 (-) pl_ratdorer r2	pl_ratdorli m	X	X

		axis of the planetary orbit.				
pl_ratdor_reflink	Ratio of Semi-Major Axis to Stellar Radius Reference	Reference of publication used for given parameter set				X
pl_ratror	Ratio of Planet to Stellar Radius	The planet radius divided by the stellar radius	(+) pl_ratrorerr1 (-) pl_ratrorerr2	pl_ratrorlim	X	X
pl_ratror_reflink	Ratio of Planet to Stellar Radius Reference	Reference of publication used for given parameter set				X
pl_occdep	Occultation Depth [%]	Depth of occultation of secondary eclipse	(+) pl_occdeperr1 (-) pl_occdeperr2	pl_occdeplim	X	X
pl_occdep_reflink	Occultation Depth [%] Reference	Reference of publication used for given parameter set				X
pl_orbtper	Epoch of Periastron [deg]	The time of the planet's periastron passage	(+) pl_orbtperr1 (-) pl_orbtperr2	pl_orbtperlim	X	X

pl_orbtper_reflink	Epoch of Periastron [deg] Reference	Reference of publication used for given parameter set				X
pl_orblper	Argument of Periastron [deg]	The angular separation between the orbit's ascending node and periastron. Note: there are a varying conventions in the exoplanet literature regarding argument of periastron (or periapsis). For example, some publications refer the planet's orbit, others to the host star's reflex orbit, which differs by 180 deg.	(+) pl_orblpere rr1 (-) pl_orblpere rr2	pl_orblperli m	X	X

		The values in the Exoplanet Archive are not corrected to a standardized system, but are as-reported for each publication.				
pl_rvamp	Radial Velocity Amplitude [m/s]	Half the peak-to-peak amplitude of variability in the stellar radial velocity	(+) pl_rvamper <sub>r1</sub> (-) pl_rvamper <sub>r2</sub>	pl_rvamp <sub>m</sub>	X	X
pl_rvamp_reflink	Radial Velocity Amplitude Reference [m/s]	Reference of publication used for given parameter set				X

pl_projobli q	Projected Obliquity [deg]	The angle between the angular momentum vector of the rotation of the host star and the angular momentum vector of the orbit of the planet, projected into the plane of the sky. Depending on the choice of coordinate system, projected obliquity is represented in the literature as either $\lambda$ or $\beta$ , where $\lambda$ is defined as the negative of $\beta$ (i.e., $\lambda = -\beta$ ). Since $\lambda$ is reported more often than $\beta$ , all values of $\beta$ have been converted	(+) pl_projobli qerr1 (-) pl_projobli qerr2	pl_projobli qlim	X	X
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		to $\lambda$ .				
pl_projobli q_reflink	Projected Obliquity [deg] Reference	Reference of publication used for given parameter set				X
pl_trueobli q	True Obliquity [deg]	The angle between the angular momentum vector of the rotation of the host star and the angular momentum vector of the orbit of the planet	(+) pl_trueobli qerr1 (-) pl_trueobli qerr2	pl_trueobli qlim	X	X
pl_trueobli q_reflink	True Obliquity [deg] Reference	Reference of publication used for given parameter set				X

#### Stellar Data:

Database Column Name	Table Label	Descriptio n	Uncertaint ies Column (positive +) (negative -)	Limit Column	In PS Table	In PSCompP ars Table
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st_refname†	Stell... ▾	Refe... ▾			X	
st_spectype	Spec... ▾	Clas... ▾			X	X
st_spectype_reflink	Spec... ▾	Refe... ▾				X
st_teff†	Stell... ▾	Tem... ▾	(+) st_tefferr1 (-) st_tefferr2	st_tefflim	X	X
st_teff_reflink	Stell... ▾	Refe... ▾				X
st_rad†	Stell... ▾	Leng... ▾	(+) st_raderr1 (-) st_raderr2	st_radlim	X	X

st_rad_reflink	Stell... ▾	Refe... ▾				X
st_mass†	Stell... ▾	Amo... ▾	(+) st_masserr 1 (-) st_masserr 2	st_masslim	X	X
st_mass_reflink	Stell... ▾	Refe... ▾				X
st_mett†	Stell... ▾	Mea... ▾	(+) st_meterr1 (-) st_meterr2	st_metlim	X	X
st_met_reflink	Stell... ▾	Refe... ▾				X
st_metratio†	Stell... ▾	Ratio... ▾	(+) st_metratio err1 (-) st_metratio err2	st_metratio lim	X	X



st_lum	Stell... ▾	Amo... ▾	(+) st_lumerr1 (-) st_lumerr2	st_lumlim	X	X
st_lum_reflink	Stell... ▾	Refe... ▾				X
st_logg†	Stell... ▾	Grav... ▾	(+) st_loggerr1 (-) st_loggerr2	st_logglim	X	X
st_logg_reflink	Stell... ▾	Refe... ▾				X
st_age	Stell... ▾	The ... ▾	(+) st_ageerr1 (-) st_ageerr2	st_agelim	X	X
st_age_reflink	Stell... ▾	Refe... ▾				X
st_dens	Stell... ▾	Amo... ▾	(+) st_denserr 1 (-) st_denserr 2	st_denslim	X	X
st_dens_reflink	Stell... ▾	Refe... ▾				X

st_vsin	Stell... ▾	Rota... ▾	(+) st_vsinerr1 (-) st_vsinerr2	st_vsinlim	X	X
st_vsin_ref link	Stell... ▾	Refe... ▾				X
st_rotp	Stell... ▾	The t... ▾	(+) st_rotperr1 (-) st_rotperr2	st_rotplim	X	X
st_rotp_ref link	Stell... ▾	Refe... ▾				X
st_radv	Syst... ▾	Velo... ▾	(+) st_radver 1 (-) st_radver 2	st_radvlim	X	X
st_radv_ref link	Syst... ▾	Refe... ▾				X

#### System Data:

Database Column Name	Table Label	Description	Uncertaintie s Column (positive +) (negative -)	In PS Table	In PSCompPar s Table
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sy_refname†	System... ▾	Refere... ▾		X	
sy_pm	Total Pr... ▾	Angula... ▾	(+) sy_pmerr1 (-) sy_pmerr2	X	X
sy_pm_reflink	Total Pr... ▾	Refere... ▾			X
sy_pmra	Proper ... ▾	Angula... ▾	(+) sy_pmraerr1 (-) sy_pmraerr2	X	X
sy_pmra_reflink	Proper ... ▾	Refere... ▾			X
sy_pmdec	Proper ... ▾	Angula... ▾	(+) sy_pmdecerr 1 (-) sy_pmdecerr 2	X	X
sy_pmdec_reflink	Proper ... ▾	Refere... ▾			X
sy_dist†	Distanc... ▾	Distanc... ▾	(+) sy_disterr1 (-) sy_disterr2	X	X

sy_dist_reflink	Distanc... ▾	Refere... ▾			X
sy_plx	Paralla... ▾	Differe... ▾	(+) sy_plxerr1 (-) sy_plxerr2	X	X
sy_plx_reflink	Paralla... ▾	Refere... ▾			X
pl_nnotes	Numbe... ▾	Numbe... ▾		X	X

**Position (System Data Subset):**

Database Column Name	Table Label	Description	Uncertainties Column (positive +) (negative -)	In PS Table	In PSCompParams Table
rastr†	RA \[sexagesimal \]	Right Ascension of the planetary system in sexagesimal format		X	X
decstr†	Dec \[sexagesimal \]	Declination of the planetary system in sexagesimal notation		X	X

ra	RA \[decimal\]	Right Ascension of the planetary system in decimal degrees	(+) raerr1 (-) raerr2	X	X
ra_reflink	RA \[decimal\ Reference	Reference of publication used for given parameter set			
dec	Dec \[decimal\]	Declination of the planetary system in decimal degrees	(+) decerr1 (-) decerr2	X	X
glat	Galactic Latitude \[deg\]	Galactic latitude of the planetary system in units of decimal degrees	(+) glaterr1 (-) glaterr2	X	X
glon	Galactic Longitude \[deg\]	Galactic longitude of the planetary system in units of decimal degrees	(+) glonerr1 (-) glonerr2	X	X
elat	Ecliptic Latitude \[deg\]	Ecliptic latitude of the planetary system in units of decimal degrees	(+) elaterr1 (-) elaterr2	X	X

elon	Ecliptic Longitude \[deg\]	Ecliptic longitude of the planetary system in units of decimal degrees	(+) elonerr1 (-) elonerr2	X	X
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#### Photometry (System Data Subset):

Database Column Name	Table Label	Description	Uncertainties Column (positive +) (negative -)	In PS Table	In PSCompParams Table
sy_bmag	B (Joh... ▾)	Brightn... ▾	(+) sy_bmagerr1 (-) sy_bmagerr2	X	X ▾
sy_bymag_reflink	B (Joh... ▾)	Refere... ▾			X ▾
sy_vmag†	V (Joh... ▾)	Brightn... ▾	(+) sy_vmagerr1 (-) sy_vmagerr2	X	X ▾
sy_vmag_reflink	V (Joh... ▾)	Refere... ▾			X ▾

sy_jmag	J (2MA... ▾)	Brightn... ▾	(+) sy_jmagerr1 (-) sy_jmagerr2	X	X ▾
sy_jmag_reflink	J (2MA... ▾)	Refere... ▾			X ▾
sy_hmag	H (2MA... ▾)	Brightn... ▾	(+) sy_hmagerr1 (-) sy_hmagerr2	X	X ▾
sy_hmag_reflink	H (2MA... ▾)	Refere... ▾			X ▾
sy_kmag†	Ks (2M... ▾)	Brightn... ▾	(+) sy_kmagerr1 (-) sy_kmagerr2	X	X ▾
sy_kmag_reflink	Ks (2M... ▾)	Refere... ▾			X ▾
sy_umag	u (Sloa... ▾)	Brightn... ▾	(+) sy_umagerr1 (-) sy_umagerr2	X	X ▾

sy_umag_reflink	u (Sloa... ▾	Refere... ▾			X ▾
sy_gmag	g (Sloa... ▾	Brightn... ▾	(+) sy_gmagerr1 (-) sy_gmagerr2	X	X ▾
sy_gmag_reflink	g (Sloa... ▾	Refere... ▾			X ▾
sy_rmag	r (Sloa... ▾	Brightn... ▾	(+) sy_rmagerr1 (-) sy_rmagerr2	X	X ▾
sy_rmag_reflink	r (Sloa... ▾	Refere... ▾			X ▾
sy_imag	i (Sloan... ▾	Brightn... ▾	(+) sy_imagerr1 (-) sy_imagerr2	X	X ▾
sy_imag_reflink	i (Sloan... ▾	Refere... ▾			X ▾



sy_zmag	z (Sloa... ▾	Brightn... ▾	(+) sy_zmagerr1 (-) sy_zmagerr2	X	X ▾
sy_zmag_reflink	z (Sloa... ▾	Refere... ▾			X ▾
sy_w1mag	W1 (WI... ▾	Brightn... ▾	(+) sy_w1magerr1 (-) sy_w1magerr2	X	X ▾
sy_w1mag_reflink	W1 (WI... ▾	Refere... ▾			X ▾
sy_w2mag	W2 (WI... ▾	Brightn... ▾	(+) sy_w2magerr1 (-) sy_w2magerr2	X	X ▾
sy_w2mag_reflink	W2 (WI... ▾	Refere... ▾			X ▾
sy_w3mag	W3 (WI... ▾	Brightn... ▾	(+) sy_w3magerr1 (-) sy_w3magerr2	X	X ▾

sy_w3mag_reflink	W3 (WI... ▾	Refere... ▾			X ▾
sy_w4mag	W4 (WI... ▾	Brightn... ▾	(+) sy_w4magerr1 (-) sy_w4magerr2	X	X ▾
sy_w4mag_reflink	W4 (WI... ▾	Refere... ▾			X ▾
sy_gaiamag†	Gaia M... ▾	Brightn... ▾	(+) sy_gaiamagerr1 (-) sy_gaiamagerr2	X	X ▾
sy_gaiamag_reflink	Gaia M... ▾	Refere... ▾			X ▾
sy_icmag	I (Cous... ▾	Brightn... ▾	(+) sy_icmagerr1 (-) sy_icmagerr2	X	X ▾
sy_icmag_reflink	I (Cous... ▾	Refere... ▾			X ▾

sy_tmag	TESS ... ▾	Brightn... ▾	(+) sy_tmager1 (-) sy_tmager2	X	X ▾
sy_tmag_reflink	TESS ... ▾	Refere... ▾			X ▾
sy_kepmag	Kepler ... ▾	Brightn... ▾	(+) sy_kepmager r1 (-) sy_kepmager r2	X	X ▾
sy_kepmag_reflink	Kepler ... ▾	Refere... ▾			X ▾

#### Dates (System Data Subset):

Database Column Name	Table Label	Description	In PS Table	In PSCompPars Table
rowupdate†	Date of Last Update	Date of last update of the planet parameters	X ▾	
pl_pubdate†	Planetary Parameter Reference Publication	Date of the publication of the given planet parameter set	X ▾	
releasedate†	Release Date	Date that the given planet parameter set was publicly	X ▾	

		released by the NASA Exoplanet Archive		
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**Additional Data:**

Database Column Name	Table Label	Description	In PS Table	In PSCompPars Table
st_nphot	Number of Photometry Time Series	Number of photometric time series records, including planet transit light curves, general transit light curves, and amateur light curves.	X ▾	X ▾
st_nrvc	Number of Radial Velocity Time Series	Number of literature radial velocity curves available for this star in the NASA Exoplanet Archive.	X ▾	X ▾
pl_ntranspec	Number of Transmission Spectroscopy Measurements	Number of literature transmission spectrum measurements for this planet in the NASA Exoplanet Archive	X ▾	X ▾

pl_nespec	Number of Eclipse Spectroscopy Measurements	Number of literature eclipse spectrum measurements for this planet in the NASA Exoplanet Archive	X ▾	X ▾
st_nspec	Number of Stellar Spectra Measurements	Number of literature spectra available for this star in the NASA Exoplanet Archive	X ▾	X ▾
pl_ndispec	Number of Direct Imaging Spectroscopy Measurements	Number of literature direct imaging spectrum measurements for this planet in the NASA Exoplanet Archive	X ▾	X ▾

## 4. Dataset Features

Key features of the NASA Exoplanet Archive dataset include:

- Cross-matched astronomical data from multiple surveys
- Stellar and planetary physical parameters
- Discovery and characterization information
- Time-series photometric data
- Interactive filtering, plotting, and downloading tools

These features make the archive suitable for both research and machine learning applications. ([exoplanetarchive.ipac.caltech.edu](https://exoplanetarchive.ipac.caltech.edu))

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## 5. Data Access Methods

Users can access the dataset through several methods:

## 5.1 Interactive Tables

The archive provides web-based tables that allow filtering, sorting, plotting, and downloading datasets directly from the browser. ([exoplanetarchive.ipac.caltech.edu](https://exoplanetarchive.ipac.caltech.edu))

## 5.2 API Access

Data can be retrieved programmatically using the archive's API, enabling automation and integration with Python or other programming tools. ([exoplanetarchive.ipac.caltech.edu](https://exoplanetarchive.ipac.caltech.edu))

## 5.3 Bulk Data Download

Bulk download scripts allow users to retrieve large datasets such as light curves or catalog data for offline analysis. ([exoplanetarchive.ipac.caltech.edu](https://exoplanetarchive.ipac.caltech.edu))

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# 6. Advantages of Using This Dataset

- High-quality curated scientific data
- Regular updates with new discoveries
- Multiple access formats (API, web, bulk download)
- Suitable for both beginners and researchers

The archive aims to provide a consistent set of parameters drawn from published references to maintain data reliability. ([exoplanetarchive.ipac.caltech.edu](https://exoplanetarchive.ipac.caltech.edu))

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# 7. Limitations

- Some tables may have missing values depending on available research data.
  - Composite tables may combine parameters from different studies, which can affect consistency. ([exoplanetarchive.ipac.caltech.edu](https://exoplanetarchive.ipac.caltech.edu))
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# 8. Conclusion

The NASA Exoplanet Archive is a comprehensive and continuously updated repository of exoplanetary data. It integrates stellar and planetary parameters, observational data, and discovery information into accessible tables suitable for scientific research and machine learning applications. Its structured datasets and programmatic access make it a powerful resource for students and researchers interested in space science and data analysis.