The Arcetri
Lunar Occultation
Data Archive

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Introduction.

This document describes the contents of the Arcetri Lunar Occultation Data Archive. It is available in electronic format, and it has links or references to the following documents:

table.doc	This document
table.xls	The Archive Table, full format
tableweb.xls	The Archive Table, for distribution
pub_lo.doc	List of publications
telcode.doc	Telescope and Instrument Codes
refdata.doc	Criteria for Quick Reference Data
maint.doc	Archive update (compiler use only)

The Archive Table is an Excel spreadsheet with links to the documents above, as well as to the actual Data Archive. The Data Archive and some link functionalities might not be fully available for distribution.

The Archive Table table.xls includes several worksheets. They are briefly described below, and a full explanation is provided separately in the remainder of this document.

Table	Main Summary Table
Stats	Statistical summary, magnitude histograms, etc
AD Map	Sky distribution of the sources
Locations	Directory root names (compiler use only)
Coords	Coordinates for Catalog updates (compiler use only)
Coords2	Alternate format of Source Coordinates
WEB Archive	Reduced-format archive for WEB publishing

Part I: Main Table

N   Sequential order in the table. This is a free index, which is updated when the table is sorted or regenerated. See also: Ser.

Ser   Serial order in the table. This is an index fixed at the time of release. See also: N, Date.

Source   Link to the directory which contains the source data. The name is chosen arbitrarily, although care has been taken to use the designation of the catalogue which is most relevant for the specific source (lowercase, stripped of +/– and special symbols). Clicking on the link will open the directory. In case of repeated observations, the directory names are embedded as a combination of Source and #. See also: Cross-Identifications, #.

Repeated observations flag. A 0 (zero) in this field means that only one observation is archived. Numbers greater than zero indicate sources for which repeated observations are available, in which case 1 is the first one, 2 the second one and so forth. One disadvantage of these scheme is that the user has to search manually for the actual number of repeated observations and for the directories related to the same source.

Date   The UT date of the event. This is also the main indexing criterium. Events are ordered according to their UT time (disappearance or reappearance time is chosen according to the type of the event), however there is no explicit indication of this time in the Table, if not under a link in Pred. See also Ser, Pred.

Tel   Code to designate the telescope and instrument used. The codes are reported in the separate document telcode.doc.

Pred   Prediction circumstances for the event. When available, this is a link to the file prev.dat in the source directory. Typically, this is a file generated by ALOP. The format is described in the separate document prev.doc.

Cross-Identifications   A multi-column field (4 fields in the first release, but the actual number in the next versions may change). The choice of identifications is arbitrary, but as a rule of thumb 1-2 are from visual catalogues (usually SAO and HD when available), and 1-2 are from IR surveys (usually IRC and IRAS when available). In case of a bright or famous object, HR numbers or Flamsteed names may be used.

Dia   Aperture used for the observation, in arcseconds. This is the diaphragm diameter for photometers, and the side of the subarray for array detectors.

Fil   Wavelength of observation, if given in the paper. This is listed in different ways, depending on the type of measurement:
-   one or two numbers, in which case it means λ (and Δλ) in μm;
-   a filter type. The usual standard photometric names apply (for instance: V, K, N)
a symbol, for special or narrow filters. Examples can be: CVF (Circular Variable Filter, i.e. a narrow bandwidth filter used in the near-IR), Hα, Brγ.

Timing   This field has two columns, the sampling time Δt and the integration time τ, both expressed in ms. For some instruments, such as non-integrating IR photometers, τ is not meaningful and is not given. Note that in some cases the instrument output might be filtered during acquisition, but there is no specific entry for this in the table. See also Gain.

Gain   Some instruments have specific gain settings, which should be accounted for during the data reduction. These are usually entered as a code. For TIRGO/FIRT, the codes are H=high gain, L=low gain. See also Timing.

Diameter   Angular diameter, if resolved. This is usually reported for stellar sources, and can be either a published or unpublished value. This entry has 3 columns, where the values are all expressed in milliarcseconds (mas). These are the the angular diameter, its error, and an upper limit estimate, respectively. The entries for the angular diameter and the upper limit should be mutually exclusive, and the error is not always given.

Shell   Marks the presence of a circumstellar shell, either as a flag ("Y", or "shell"), or with a characteristic size in mas.

Binary   In case the source is a binary or multiple star, the following entries are listed:

        sep: separation in mas, as reported in the reference. For LO measurements, this is often only the projected separation along the occultation PA (see below). In case of multiplicity (triple and higher), only one entry is reported, without a specific rule. In general, the result listed is the one which constituted the specifi contribution of the corresponding reference. See also PA and Type.

        PA: position angle in degrees. This can be the true position angle, or the angle of the projection in case of 1-D measurements such as is in general the case for LO. In case of a multiple star, only one entry is present and the same considerations apply as for sep.

        R: brightness ratio (brighter to fainter), at the observation wavelength as reported in lambda and/or in the corresponding reference. In case of a multiple star, only one entry is present and the same considerations apply as for sep.

Typ: The type of binary. At the time of the initial release of the catalogue, the codes used are: D (double), T (triple), Q (quadruple), M (multiple, i.e. triple or higher), ND (not detected, in case of a source reported as binary or multiple in the literature). A missing Typ entry implicitly indicates a double star.

SNR   The signal-to-noise ratio, i.e. flux (of the whole system in case of multiplicity) divided by the standard-deviation of the best fit. This is not always reported, expecially for older data.

Comments   Comments inserted by the catalogue compiler.

Coordinates   Source coordinates. The five columns list right ascension, declination, proper motions and epoch, respectively. The proper motions values are set to zero when not available. The format of right ascension is hh.mmsss. The format of declination is (-)dd.mmssss. Proper motions are expressed in "/year.

Quick Reference Data This field has several columns, whose number and nature can vary in future releases as needed on the basis of practical experience. A description is included in the separate document refdata.doc. Entries are compiled from different sources. In the most common case, they are extracted from the *Simbad* database. They can also include data from the corresponding reference, or from private unpublished data. See also Simbad , Phot, Spec, References.

Simbad   This is a link to the information on the specific source, as listed in the Simbad database. It can be a local file on disk (code Y), or a URL that allows to look up Simbad directly (code U). Both codes can be present. A code N means that no Simbad entry is available for the source. The choice to have both stored information and an active link allows for the maximum flexibility: D links are immediate, and should have most of the information always available with a click. U links provide always complete and updated information (expecially for what concerns literature references), but require Internet connection and can be slow.

Phot   Link to a private compilation of photometric data on the source. The data may be unpublished. See also Spec.

Spec   Same as Phot, for spectroscopic data.

Chart   Link to a finding chart, if available. The chart is an image of Digital Sky Survey (DSS) in JPG format, covering 10'x10'. DSS-1 is used, but extensions to DSS-2 can be foreseen and therefore a code D1 is used. Future extensions might add the D2B and D2R codes (blue and red). See also: Simbad.

References   Publications of the Arcetri group which include the source under consideration. This is usually a code with a sequential number. For instance, RP5 means the fifth publication in Refereed Papers. For the sake of convenience, this is usually also

a link to the list of publications [pub_lo.doc](). In turn, this has a link to the corresponding publication in electronic format (available only in the local implemtentation of the archive).

Part II: Secondary Worksheets

Stats	This worksheet displays some summary statistics. Included are: histograms of available V and K magnitudes; histogram of sources according to the year of observation; summary of available data, type of results and publications.

AD Map	This worksheet displays a plot of the source positions in the sky, according to the coordinates computed in Coords2. No correction for precession is applied.

Locations	This worksheet is used to store the root names of the directories in the Data Archive. It is intended for internal management only.

Coords	This worksheet is used to store the source coordinates in a format specific for ALOP catalog updates. It is intended for internal management only.

Coords2	This worksheet is used to store the source coordinates in a general format which can be used to generate coordinates lists for proposals, for plotting the positions in AD Map, etc.

WEB Archive	This worksheet is used to store a reduced version of the Archive Table, that can be published on the WEB or distributed to interested persons.