DigitalAlmanac

COLLABORATORS

	TITLE : DigitalAlmanac		
ACTION	NAME	DATE	SIGNATURE
WRITTEN BY		August 7, 2022	

REVISION HISTORY

NUMBER	DATE	DESCRIPTION	NAME

Contents

Chapter 1

DigitalAlmanac

1.1   main

                         Welcome to Digital Almanac V39.14

Please read the chapters marked with an asterisk, because they contain
important information to ensure a safe working on your Amiga !!

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                     Thanks to

                      Author

                     Internet

1.2 copyright

                Digital Almanac V39.14 © 1997/98 by Achim Stegemann

* Digital Almanac is shareware.

* Digital Almanac consists of two archives, the main archive DAlmanac_Exe.lha
  and the data archive DAlmanac_Data.lha.
  These archives may be freely copied and spread.
  No file may be changed or left !
  No costs may be raised except costs for materials like disks or CD's !!

* If you like to use the program, please register.

* Every comment, critics, suggestion, bug report o.a. is welcome !
  This helps me, to correct and to improve the program in the future. :-)

* The program uses
                MUI
                  .

* All other trademarks named are copyrighted by the corresponding owner.

* THE AUTHOR OF DIGITAL ALMANAC IS NOT RESPONSIBLE FOR ANY EVENT THAT IS
  CAUSED DIRECTLY OR INDIRECTLY BY USING THIS PROGRAM !!

1.3 copyright-mui

                MUI - MagicUserInterface

              (c) Copyright 1993/94 by Stefan Stuntz

MUI is a system to generate and maintain graphical user interfaces. With
the aid of a preferences program, the user of an application has the
ability to customize the outfit according to his personal taste.

MUI is distributed as shareware. To obtain a complete package containing
lots of examples and more information about registration please look for

a file called "muiXXusr.lha" (XX means the latest version number) on
your local bulletin boards or on public domain disks.

           If you want to register directly, feel free to send

                        DM 30.- or US$ 20.-

                              to

                        Stefan Stuntz
                    Eduard-Spranger-Straße 7
                        80935 München
                          GERMANY

1.4   registrierung

                If you like the program and want to continue using it, you can ←
                   register at

            me
               .

The shareware fee is DM 30.- or US$ 20.- (cash or remittance).

When you have remitted the fee, you will receive a keyfile, which disables all the
restrictions. This keyfile is valid for all following versions (no updates needed ←
   !!).

Don't forget to specify your name, address (and phone number) on the remittance ←
   !!.

Restrictions of the unregistered version:
* Deep-sky catalog access limited to the Messier catalog.
* All saving functions are disabled.
* No hardcopy.
* No changing site to a different planet, only Earth enabled.
* No detailed course of eclipses.
* No picture galery.
* Plotting stars only to 6m.
* Plotting other objects only to 10m.
* No changing of pixelsize.
* No events in the calendar.
* The program will terminate after ca. 20 min and all 5 min a requester will ←
   appear.

1.5   vorraussetzungen

Minimum system configuration:

* OS 3.0 (V39) + AGA

```
* MC68020/68881
* 4 MB of free FastRAM (absolute minimum)
* Harddrive (17 MB free diskspace)
* MUI 3.6
```

```
Recommended system configuration:
```

```
* OS 3.1 (V40)
* MC68040 or MC68060
* 16 MB FastRAM
* CyberGraphX V2.25+ (=V40.113) or V3.x
* MUI 3.8
```

```
The main program requires the unpacked data archive 'DAlmanac_Data.lha'
of version 39.6 or 39.7 !!
```

1.6 einführung

```
Digital Almanac is an astronomy program which offers lots of possibilities.
The program is permanantly improved, so that new versions are at your disposal.
```

```
Digital Almanac offers{ub}
```

```
* Complete SAO star catalog and additional PPM stars (380833 stars) up to mag 14.
* About 40000 deep sky objects (Messier, NGC, IC, UGC, Abell, Zwicky and other ←
  misc objects).
* About 36000 minor planets and asteroids as well as the
  Comets Halley, Hyakutake and Hale-Bopp.
* Highly accurate calculation of Moon and planets with JPL's integration tables ( ←
  DE404).
  (Accuracy partly <0.1'' over a period of some thousand years !!).
* Textures for five planets.
* Moons of Jupiter and Saturn.
* Milky way structure.
* View the sky from any solar system object.
* Animation mode (also saving in IFF-ANIM format !!).
* Loading and saving of configuration files.
* Highly optimized algorithms for maximum speed, mostly written in assembler.
* Lots of configuration possibilities.
* Online and menu help with HELP-key and MUI's bubblehelp.
* Export of ephemeris tables (printer or file).
* CyberGfx High- and Truecolor mode support.
* Picture galery creation.
* User editable database of orbital elements.
* Recognizes CPU for maximum speed.
```

1.7 installation

```
Start the installer script and follow the instructions.
```

```
Important:
To run Digital Almanac, you require the main and the data archive !!

Digital Almanac also requires asyncio.library V39.0, which is included
in the archive as V39.2.
If you have an older (or no) version, the library will automatically be copied
to you SYS:Libs drawer.

To have the correct font in some requesters, please follow these steps:
* Start Digital Almanac.
* Click the corresponding MUI gadget or menu item for the local MUI settings
  for Digital Almanac from any window.
  Do not start MUI preferences manually !!
* Select "Windows" in the MUI preferences.
* Type "Astro/11" in Fonts/Normal.
* Save these prefs.

Digital Almanac will now use the Astro font in some error requesters.
The global MUI prefs will not be affected !
MUI preferences will create the file in the "ENVARC:MUI/DIGITALALMANAC.prefs".

VERY IMPORTANT:
It is absolutely necessary to set the flag "Windows/Refresh" in the MUI  ←
   preferences
to "Smart". Otherwise it is possible, that Digital Almanac refuses to work with  ←
   your
selected menuitems. On the other hand you avoid timeconsuming window refreshing
whenever mui feels to update the windows !!
```

1.8 speicher

```
Digital Almanac is a very memory consuming program. It is therefore important that
you know a little bit about the programs need of memory.

The following sizes were measured with the CLI command "Avail" running Digital  ←
   Almanac
with a 800*600*8 screen resolution:

Absolute minimum:  3.5 MB (may vary due to hardware config)
Stars:             +20*Cachesize Bytes (max. 7.3 MB)
Asteroids:         +0.9 MB + 64*Cachesize (max. 2.3 MB)
Deep sky objects: +2.9 MB (max.)
Textures:          +1.0 MB
Animation:         +0.5 MB (800*600*8 screen)
Save animation:   +1.4 MB
-------------------------------------------------------------
Maximum:           ca. 19 MB
```

1.9 programmstart

```
               From CLI:
```

```
Template: DigitalAlmanac FILE,HOMENAME=HN/K,HOMECOORDS=HC/K,
         ACACHE=AC/K/N,SCACHE=SC/K/N,
         DSO/K,XPK/K,
         NOASTEROIDS=NA/S,NOOBJECTS=NO/S,NOTEXTURES=NT/S,NOINTRO=NI/S,
         SCREENMODEREQUESTER=SMR/S,LIKEWB/S
```

From Workbench:

Tooltypes:
* HOMENAME=Name of City
* HOMECOORDS=Latt. Long. Alt.
* ACACHE=#Number of asteroids
* SCACHE=#Number of stars
* DSO=.......
* XPK=Xpk-PackerID
* NOASTEROIDS
* NOOBJECTS
* NOTEXTURES
* NOINTRO
* LIKEWB
* SCREENMODEREQUESTER

FILE: (CLI only)
Name of a config file to be loaded at program startup.
If you don't supply a filename, DA will try to load the file "Projects/Startup".
In this case time will be set to current system time.

HOMENAME:
Enter the name of observing point.
Example: New York

HOMECOORDS:
Enter the lattitude, longitude in degrees and your altitude in metre.
Example: 34.5 -64.2 123
If you start the program from CLI, set the input string in quotes !

ACACHE:
Set the size of cache memory for the asteroids catalog.
This size should be between 1000 and 36448. Values outside these ranges will
be adapted.
The default size are 3000 asteroids.
If you have enough memory, you can set the cache size to 36448
(max. number of asteroids). The whole catalog will be loaded into memory and all
further disk activities will be avoided.
Each cache entry needs 60 bytes !

SCACHE:
Set the size of cache memory for the SAO catalog.
This size should be between 1000 and 258998. Values outside these ranges will
be adapted.
The default size are 10000 stars.
If you have enough memory, you can set the cache size to 258998
(max. number of stars). The whole catalog will be loaded into memory and all
further disk activities will be avoided.
Each cache entry needs 16 bytes !

```
DSO:
Combination of 7 characters '0' and '1' to en/disable deep-sky catalogs.
For description click
                 here
                      .

XPK:
To save a picture in the IFF-RGFX format with Xpk compression, you need the ID of
an Xpk-Sublibrary. This gives you the default setting.
Default is the first packer in the list.

NOASTEROIDS:
Avoid loading of the asteroid data files. Saves 1 MB of memory.

NOOBJECTS:
Avoid loading of the deep-sky object data files. Saves up to 2.7 MB of memory.
Overrides DSO.

NOTEXTURES:
Avoid loading of the textures. Saves 1 MB of memory.

NOINTRO:
Do not display intro picture during startup.

SCREENMODEREQUESTER:
Opens a requester where you can select the screen mode at startup.
This flag overrides LIKEWB !

LIKEWB:
Opens a screen for Digital Almanac with the Workbench's screen mode.
If this flag is deactivated, it tries to open an 800x600 or 640x480 screen.
```

1.10 dso

```
With this tooltype you can load those deep-sky catalogs into the memory you really ←
    need.
All others won't be loaded.

By default all catalogs will be loaded.

The character '0' disabled, a '1' enables and loads a catalog.

The order of catalogs is:
* Messier
* NGC
* IC
* UGC
* Abell
* Zwicky
* Misc

Examples:

DSO=1000000   Only the Messier catalog will be loaded.
```

```
DSO=1010000   Messier and IC catalogs will be loaded.
DSO=0110001   NGC, IC and the misc catalogs will be loaded.
```

Usually the most interesting objects are the Messier and the NGC catalog, so you ↩
    might want
to set the tooltype to DSO=1100000.

1.11 beschreibung

The program is mostly self explaining. If you have used some other ↩
                   astronomy
software in the past, you should have no difficulties using this program.

Lots of gadgets have bubblehelp.

Online and menu help is available !

Important:
This guide is not ment to be an astronomical encyclopedia. It is designed to give
you brief description of how to use Digital Almanac. If you have difficulties to
understand some specific expressions, you should look them up in a book !

                Menus

                    Project

                 Configuration

                    Map
                         Project

                 Colors

                 Export
                         Windows

                  Preferences

                  Coordinates

                  Telescope

                  Animation

                 Solar system

                 Asteroids

                    Stars

                   Objects
```

Orbital elements

Extras


Calendar

Solar eclipse

Lunar eclipse


## 1.12  menü-projekt

MUI-Settings

Opens the MUI-Prefs program to adjust the local MUI-Settings of Digital Almanac.


Colors

Opens a window where you can adjust the most important system colors.


Save map as

* ILBM: Saves the main window as an IFF-ILBM file.
  If the icon "ENV:Sys/def_ILBM.info" exists, it will be added to the picture.

* RGFX: Saves the main window as an IFF-RGFX file.
  If the icon "ENV:Sys/def_RGFX.info" exists, it will be added to the picture.
  Important: To use the Xpk support of the new IFF-RGFX format, you
  require the xpkmaster.library V2 or better.
  You can find a datatype for this new format in Aminet:util/dtype/RGFX_DT.lha
  More information in Aminet:dev/misc/IFF-RGFX.lha

* JPEG: Saves the main window as a JPEG file, if you have opened a true- or
  highcolor screen. However, this is not recommended.
  If the icon "ENV:Sys/def_JPEG.info" exists, it will be added to the picture.
  Important: To save a JPEG file, you require the installed Tower-System
  by Christoph Feck, which is available on the Aminet.


Hardcopy

Here you can print the contents of the main window !

There are some restrictions caused by bad programming of the printer.device !

* CyberGfx screens cannot be printed, because the printer.device does not
  support neither High- nor Truecolor modes, and Bitmaps lying in Fast-RAM
  also cannot be printed.

* The picture will always be printed negative, centered and with full size and
  maximum density for highest resolution.

* To avoid loosing darker pixels, it is recommended, to set all colors to white
  and to set the darkest pen to 0

* You should deactivate textures and the milky way.

A support for TurboPrint V3 or higher is planned for the future.

Remember: At the moment only AGA screens can be printed !!


## 1.13  menü-karte

Planetarium

Draws the map in the RA/Dec system.


Local sky

Draws the map in the Aziuth/Altitude system.


Redraw

Redraws the map after in the current mode.


System time

Updates time to current system time and redraws the map.


Direction

Move the telescope to a direction.


## 1.14  menü-konfiguration

Load

Loads a configuration file.


Save as

Saves the current configuration.
The icon "Icons/Project.info" will be saved with the configuration !
You can replace this icon by a differnt icon of your choice.


## 1.15  projekt-farben

Change the colors of some drawing modes.


## 1.16   projekt-export

In this window you find all parameters you need to create an ephemeris table.

* Select your starting parameter (place, time) in the window 'Coordinates' and the
  calculation parameters in the window 'Preferences/Accuracy'.
* Choose an object you want an ephemeris table from the top cycle gadget.
* Choose the output mode (printer or file).
* Select the stepsize and the number of outputs.
* Open the corresponding window for the object of your choice.
* Drag the object with the mouse to the text field of the export window.


With the help of the two lists, you tell the program, what datas you want to be  ↩
    calculated.

Choose an item in the left list and drag it with the mouse to a position of your  ↩
    choice
to the right list.
Multiselection is supported.
Double inputs will be ignored !

To swap an item within the right list, just drag it to a different position.
Only the active item is swapped.

To delete an item from the right list, drag it back to the left list.
Multiselection is supported.


Press the 'Start' button to begin calculation.
The datas will be printed according the order in the right list !
If calculation does not start, check your inputs (empty list, missing filename etc ↩
    . ?).


Important:

1. To get a formated printer output, you must set a nonproportional font on your  ↩
   printer !

2. At the moment all outputs refer to Earth as observing site !!


## 1.17   fenster-einstellungen

                   In this window you can change the most important options of  ↩
                        Digital Almanac.


The window is divided into three pages:

1.

> Display and details
> 2.
> Objects
> 3.
> Magnitudes

## 1.18   einstellungen-ad

1.1 Objekts

(De-)Activate one of the different categories of objects.


1.2 Accuracy

Select the accuracy of calculation.

Geocentric parallax:
Difference between a geocentric (in the centre of the Earth) and a topocentric
(on the Earth's surface) observer.
Important for Moon (up to 0.5\textdegree{} difference) and near planets.

Refraction:
Effect caused by the atmosphere at lower heights.
Important for calculation of rises and sets (some minutes difference !).

Precession:
Difference of coordinates caused by the Earth axis.
If this option is disabled, all calculations are referred to the equinox J2000.0.
Important for comparison of tables of eohemeris or star maps.

Nutation:
Second effect caused by the Earth axis.
Small effect (some arcseconds).

Proper motion:
Consideration of proper motion of the stars.
Very small effect. Use only during long time periods.

Planetary aberration:
Difference of the position of a planet caused by the time travelling
from a planet to Earth.
Important during calculations of eclipses or observing details on a
planet's surface (deviation of some arcminutes).

Stellar aberration:
Deviation caused by Earth orbiting around the Sun.
Small effect (max. 20").

Daily aberration:
Deviation caused by the rotation of the Earth.
Very small effect (max. 0.3").

```
Remark:
These options have no influence on the calculation in the calendar or eclipse mode ←
    !!
They also don't make sense, when you have selected a site outside Earth. All  ←
   coordinates
are then calculated for the equinox J2000.0.



1.3 Display

Map:
Choose between planetarium and local sky.

Projection:
The map will be either displayed as on an area or on a sphere.

Az/He system:
There exist two different measuring systems fpr the azimuth angle.
The first one starts measuriung from south (default), the second one from north.

Date:
Put the date, local, universal und sidereal time in the upper left corner.

Night palette:
Switch between normal and night colors.
Important: Currently only star and texture colors are converted.



1.4 Grid

Ecliptic:
Draws the ecliptic.

Horizon:
Simply plots the horizon with direction labels.

Kind:
Choice of some different coordinte grids.

Draw as:
Display either as dots or as a line.

Distance:
Distance between grid lines in degree,

Step:
Increment in degree.
1 = slow, but accurate  ->  90 = very fast, but inaccurate
```

1.19   einstellungen-obj

```
2.1 Solar system

Planetname / Asteroidname:
Kind of name.
```

Show phase:
Draw phase of moons and planets.

Show grid:
Draw a planetographic coordinate grid.

Texture:
Show planets with a surface texture.

Autozoom:
Enlarge a selected object when centering.

2.2 Constellations

Lines:
Draw constellation figures.

Limits:
Draw constellation borders.

Names:
Choice of language.

2.3 Stars

Names:
Draw names of stars.

Symbol:
Draw greek letter of stars.

Flamsteed:
Draw Flamsteed number of stars.

Plotting mode:
Here you can select four different modes for the stars.
* Graylevel Pixel
* Graylevel Area
* Spectra Pixel
* Spectra Area

Mag factor:
With this factor you can take influence on the size of a star begin plotted.
Actually this factor works like a filter to avoid that stars are drawn too bright
The greater the value the darker a star appears.

2.4 Deep-Sky Objectnames

Messier / NGC /IC / UGC / Abell / Zwicky / Misc:
Draw objectnames from the catalogs.

Mark:

```
Simple:  The object will be marked with a little cross and its size in the sky  ←
   will
        be displayed.
Picture: Since V39.9 you can fill the sky area of an object with its picture from  ←
   your
        galery. When using an 8-bit screen, areas are displayed only grey-leveled ←
         .
```

1.20   einstellungen-hell

```
Min. mag. stars:
Minimum magnitude for the SAO catalog.

Min. mag. Objects:
Minimum magnitude for planets, asteroids and deep-sky object catalogs.

Darkest pen:
Darkest colors that is used during drawing.
Serves to make dark object more visible.

Note:
When zooming at an object, the object will become brighter !!
Actually it is: The half field angle increases the magnitude by factor four.
```

1.21   fenster-koordinaten

```
                  Input of place, time and environmental parameters of the observer.


How to change my observing site ?

* Open one of the windows
              Solar system
              ,
              Asteroids
               or
              Orbital elements
                and drag an object to the text field.



How to handle different places ?

* Enter your geogr. lattitude, longitude etc. in the left column.
* Press the 'Add' button.
  The paramters from the left side will be added to the list.
* To save the list, press the 'Save' button.
  The list will be saved as 'Data/place.data'.
* To delete an entry from the list, press the 'Del' button.
  The currently activated entry will be deleted.
* The list is always sorted in alphabetical order.
```

1.22   fenster-teleskop

Moving of the telescope.
Shows the coordinates of the screen's center nd the angle of the field of view.

Note:
The modes 'Planetarium' und 'Local sky' have their own telescope !
Changing from one mode to the other won't transform the centering coordinates !

If you haven't chosen Earth as observing site, the output will only be made in the
R.A./Decl. system !

1.23   fenster-animation

                  Adjust the parameter of an animation.

An animation will only be saved as an IFF-ANIM file, when the Option 'Save' is ↩
    activated.

Frames:
This limits the number of frames of an animation (0 = no limit).
E.g you wnt to make an animation over a period of 24 h with a 5 min step,
then simply set this parameter to the value 1440 min/5 min = 288 frames.

Follow telescope:
The telescope will stay at the selected coordinates during the whole animation.

Follow object:
The telescope centers chosen object during the while animation.
The field of view has to be adjusted first.
With this option you can, for example, watch a planet rotating or trace eclipses !
Simply drag an object from the window
                Solar system
                ,
                Asteroids
                 or
                Orbital elements
                in the text field.

It is recommended to reduce the screen resolution if you want to save an animation ↩
    .
Use for example DblPAL-Hires-NoFlicker or CyberGfx 640x480.

If the icon "ENV:Sys/def_anim.info" exists, it will be added to the animation !

Restriction:
The IFF-ANIM-Format does not support High- und Truecolor modes.
If you run a screen with more than 8 bit depth, saving of an animation is disabled ↩
     !

IMPORTANT:
* TO STOP AN ANIMATION, ACTIVATE THE MAIN WINDOW AND PRESS THE ESC-KEY !!

1.24   fenster-smp

In this window you can choose several actions that refer to ←
objects of the solar system.

The objects in the list are draggable.
See also

Export

,

Coordinates

and

Animation

.

Actions are: Look for, Center and Ephemeris.

1.25   fenster-asteroide

In this window you can choose several actions that refer to minor ←
planets and asteroids.

The objects in the list are draggable.
See also

Export

,

Coordinates

,

Animation
and @"Orbital elements" link "Fenster-Orbit"}.

Actions are: Look for, Center and Ephemeris.

If you want to search the list for a name, simply enter the name in the string ←
gadget.
All names matching your input (case-sensitive) will be shown in an extra window.
Example: Enter 'Cer' and all names matching are displayed.

1.26   fenster-sterne

In this window you can choose several actions that refer to stars

The objects in the list "Complete" and the string gadget "SAO (click aat the frame ←
!!)
are draggable.
See also

Export

and

Animation

.

Actions are: Look for, Center and Ephemeris.

1.27   fenster-objekte

In this window you can choose several actions that refer to ←
objects outside the solar system.

The objects of all lists are draggable.
See also
Export
and
Animation
.

Actions are: Look for, Center and Ephemeris.

If you want to search the list for a text, simply fill out the string gadget.
All names including objects description and notes that match your input (case- ←
sensitive)
will be shown in an extra window.
Example: Enter 'Orion' and all objects matching are displayed.

Since V39.10 you can create your own table of common object names with a text ←
editor.
Each entry constists of two lines. The first one is the common name, the second ←
its
internal name.
The file name is "Data/ngcnames.data".

Example:
Great Nebula in Orion
M42

1.28   ,

Here you can create your own database of solar system bodies, as ←
long as you have the
orbital elements.

First choose the type of object: Asteroid or comet.
When you have chosen "Asteroid" you have to know the mean anomaly at a given time ←
(epoche)
and the semi major axis.
If you have selected "Comet", you need the perihelion time and the periheion ←
distance.

JD Epoche:
Julian date of the epoche of the orbital elements (Asteroid).

JD Perihelion:
Julian date of the perihelion (Comet).

Mean anomaly:
Mean anomaly at epoche time.
Only used for "Asteroid".

Eccentricity:
Also values >=1 (parabel, hyperbel) are allowed !!
For "Asteroid" you should avoid values >0.9.

Mag. Parameter H:
Describes the absolute magnitude of the object in standard distance of 1 AU.
Is often called V(1,0).

Mag. Parameter G:
This is a phase-depending parameter of the magnitude.
Is currently not used and may be supported in the future !

Note: All parameters must refer to the equinox J2000 !!

The objects of the list are draggable.
See also
                    Export
                     ,
                    Coordinates
                     and
                    Animation
                     .

Actions are: Look for, Center and Ephemeris.

All other gadgets are self-explaining.

This window also offers three special drag&drop features:

1. Make a copy of an asteroid's elements.
Simply drag an object from the asteroid window to the list here. All parameters ↩
    are
copied into the list. For example you now can alter these parameters.

2. Calculate the current osculating elements of a planet for J2000.
Just drag a planet from the window "Solar system" to the list. The program will ↩
    then
calculate its orbital elements. You can do this to speed up some planet-relating
calculations.
You can only drag planets, no Sun or moons !

3. Drag the "Julian date" gadget from the coordinates window over the ↩
    korresponding
"JD ..." gadget to copy its value (and vice versa !).

1.29   extras-kalender

In this window you can inform yourself of some different events at a certain
day or month.

Events of the day:
Select a day of the month.
The apparent positions of Sun and Moon at 0h GMT and their time of rise and set

```
will be displayed.
Special events of the Sun or the Moon will be also shown.


Events of the month:
Press the button 'Events'.
The program will calculate for each day of the month special events of Sun, Moon,
planets and asteroids (if activated !) and displays them.
Depending on your hardware, this may take some time !!
```

1.30   extras-sonnenfinsternis

```
If you know the date of a solar eclipse, for example with the help of the calendar ←
   ,
you can trace the course of the eclipse.

1. Input the date of the solar eclipse.
   Input a time two to three hours before the center of the eclipse.

2. Input the number of steps and the step size in the window 'Solar eclipse' and
   start calculation.

In the listview below you can see the course of the solar eclipse:

- Local time of the observer
- Geographic lattitude and longitude of the main shadow
- Duration and phase of the eclipse

The drawer 'Projects' contains an example file 'SolarEclipse1999', which contains ←
    the
parameter of the total solar eclipse at 11-Aug-1999 over Middle Europe.
You can immediatly watch an animation of this eclipse.


Currently only a minor graphical output the course is supplied.
Only when there is a total solar eclipse, the course of the umbra will be diplayed
as a black line.
The area of the penumbra will currently not be diplayed.
```

1.31   extras-mondfinsternis

```
If you know the date of a lunar eclipse, for example with the help of the calendar ←
   ,
you can trace the course of the eclipse.

1. Input the date of the lunar eclipse.
   Input a time two to three hours before the center of the eclipse.

2. Input the number of steps and the step size in the window 'Lunar eclipse' and
   start calculation.

In the listview below you can see the course of the lunar eclipse:
```

- Local time of the observer
- Phase of the eclipse

The drawer 'Projects' contains an example file 'LunarEclipse1997', which contains ←
    the
parameter of the total lunar eclipse at 16-Sep-1997 over Middle Europe.
You can immediatly watch an animation of this eclipse.

1.32   picturesupport

Create your own picture galery !
To view a picture simply select the name of the picture in the listview from the ←
    new
menu item "Extras/Pictures" or from the ephemeris window.
The program loads the pictures via datatypes.

The picture.datatype V43 is supported !

Installation of a picture for the galery:

Digital Almanac distinguishes between three different names of a picture:
1. The filename itself.
2. The name that appears in the list.
3. The internal name of the object.

2 and 3 are stored in the filecomment, seperated by the character '&'.

Rules:

* If you don't specify a filecomment, the filename must equal to the internal name ←
    .
  It will also appear with this name in the list.

* If you specify a single filecomment (without '&'), then the filename must be ←
    equal
  to the internal name too, but the filecomment will appear in the list.

* If you specify two names in the filecomment (with '&') the the first part is the ←
    list
  name and the second part MUST be the internal name.

Examples:
You have a picture for the object Messier 42 (The Great Orion Nebula).
Its internal name is "M42".

Example 1:
Your picture is called "M42", and you want it to appear as "M42" in the list.
In this case you don't need to specify a filecomment.

Example 2:
Your picture is called "M42", and you want it to appear as "Orion" in the list.
The filecomment is "Orion"

```
Example 3:
Your picture is called "M42.jpg", and you want it to appear as "Orion Nebula" in  ←
    the list.
The filecomment is "Orion Nebula&M42"

Example 4:
Your picture is called "M42.jpg", and you want it to appear as "M42" in the list.
The filecomment is "M42&M42"

You see: Whenever the filename is different to the internal name, you MUST supply  ←
    a file
comment with '&', otherwise the program can't find the picture !


Important:
If you use CGX V2 on your system, you must have cybergraphics.library V40.113
or higher installed, otherwise pictures on true- or highcolor screens won't be  ←
    scaled !
If you use CGX V2 in True/Highcolor mode, it may happen, that non-24-bit pictures
are displayed corrupt ! When using CGX V3, there are no problems.
```

1.33 geschichte

```
01-Aug-97  V39.0
  * Internal release.

20-Aug-97  V39.1
   * First public release.
   * VSOP87 tables replaced by DE404 tables.
   * Shortened catalogs.

21-Aug-97  V39.2
   * Minor change in planetary calculations, should be a little bit faster now.
   * Added string input for HR, GC and YBS number.
   * Added listview with different cities.
   * Big fix in the installer script. Now MINUSER=EXPERT
   * Bug fix in MUI's string gadgets. Input of angles no more blocked.
   * Some bug fixes in the docs, specially installation.
   * Added new tooltypes.
   * Added possibility to break drawing of map.
   * Rewrote timer part. Should work on American NTSC Amigas.

02-Sep-97  V39.3
   * Archive now contains asyncio.library 39.2.
   * Default value in "Minimum magnitude for objects" now 15m.
   * Added Saturn rings.
   * Added French catalog and Installer script.
     Thanks to SillyCat and Jürgen Schröder.
   * Added textures for Jupiter and Venus
   * Added tooltype NOTEXTURES.
   * Added Milky way structure.
     Thanks to Peter Knight.
   * Made some corrections in the catalogs.
   * Fixed a bug in star's proper motion calculation.
```

* Better clipping when using Area-commands.
* Fixed a serious bug in drawing textures.
  Jupiter now will be drawn correctly.
* Color config can be saved.
* Added Jovian (I-IV) and Saturnian (I-VIII) moons.

20-Sep-97 V39.4
* Improved documentation.
* New asteroid data base.
* Fixed a bug in calculating Sun with planetary abberation.
* Correct display of a planet's position angle in local sky mode.
* Fixed a bug in calculating Saturn's magnitude.
* Fixed a bug in calculating Jovian moons.
  Moons were orbiting Jupiter in the wrong direction.
* Fixed a serious bug in the location's listview.
  Altitude and longitude were shown correct, but were internally wrong.
* Fixed a serious bug in parsing CLI parameters.
  The star cache was always set to maximum.
* Added Earth's shadow.
* Added Rings of Jupiter, Uranus and Neptun.
* All screen resolutions higher than 640x480 are supported,
  including CyberGfx High- and Truecolor modes.
* Added tooltypes LIKEWB and ACACHE.
  CACHE replaced by SCACHE.
* View the solar system now from any planet.
* Added texture for Earth.
* Added Picture support. Create your own picture galery.
* Slightly improved texture and phase drawing.
* Changed menu structure for faster access.
* Added string gadget for limiting the number of asteroids to be drawn.
* Calculation of Sun and Moon related events up to factor 10 faster using
  Chebyshev approximation.
* More magnitude grey levels.
* "Prefs" drawer name changed to "Projects". "Init" is now obsolete.
* Project icons are supported.
* Saving an animation is a bit faster now.
* Added an intro picture.
* Improved color allocation.
  Should look well even on systems with very strange Workbench colors.
* The archive is now split into two parts.

13-Oct-97 V39.5
* Fixed a serious bug in the tooltype LIKEWB.
  DA seemed to crash on some Amigas when LIKEWB was set.
  Workbench screens with a resolution lower than 640x480 are now supported.
* Spelling of tooltype HOMECOORDS in the DA's icon was wrong.
  Location will now be set correctly at startup.
* Fixed a serious bug in ASCII->Float functions.
  Some negative inputs were converted to positiv.
* Oops ! The archive contained asyncio.library V39.1, not V39.2.
* Julian date <-> calendar date rewritten and now bug free.
  You now can enter negative julian dates.
* Fixed a bug when starting DA with a project.
  Colors were corrupt.
* Fixed a bug when drawing earth shadow.
* Fixed some minor bugs in the calendar.
  Calculations were not refering to Earth, when site was not Earth.

```
   * Added tooltypes NOINTRO and SCREENMODEREQUESTER.
   * Sidereal time (ST) will be displayed when in Local sky mode and Earth as site ←
     .
   * Added Hardcopy function.
   * Added calculation of lunar eclipses.

21-Oct-97  V39.6
   * Fixed a bug in calculating Neptune's magnitude.
     Neptune was most time invisible.
   * Under CGX V3 (15/16/24 bit) some stars were plotted in a wrong color.
     This has been fixed.
   * Added menu item "Center/Direction".
   * Added NewIcons.
   * Added JPEG support.

01-Nov-97  V39.7
  * New GUI !!
     Support of MUI's Drag&Drop ability.
   * Updated docs.
   * Added printing of ephemeris tables.
   * Added online and menu help with HELP-key.

10-Nov-97  V39.8
   * Fixed a bug with Earth shadow.
     The flag "Earth shadow" was not recognized.
   * Fixed a heavy bug in calculating Earth's axis.
     RA/Decl. angles were useless for dates in the far past or future.
   * Fixed a bug in calculating milky way and constellation borders.
     Precession matrix was used in wrong way.
   * Added window "Orbital elements".
   * Added night palette.
   * Data archive updated to V39.5.
   * Improved Jupiter texture.
   * Calculation of star and deep-sky object positions is a little bit faster now.
   * Converted some functions to assembler.
   * Put more constant datas into the data archive.
   * The keyfile will now be read from the S:-directory

02-Dec-97  V39.9
   * Fixed a bug made in V39.8 when drawing constellation lines in
     high/truecolor screens.
   * Fixed bugs in the file "ngcnames.data".
     Some names were referenced to wrong objects.
   * Fixed a bug that appeared again.
     Color palette was corrupt when starting with a project.
   * Support of the new graphic file format IFF-RGFX by Andreas Kleinert.
   * Added tooltype XPK.
   * Added Xpk packer selection window for IFF-RGFX.
     Includes public MUI-Subclass Xpk.mcc.
   * You now can watch the picture of an object directly from the ephemeris window ←
     .
     The handling of the filecomment has changed with it too !
   * Deep-Sky objects can now be marked as a picture !

10-Dec-97  V39.10
   * Fixed some bugs in the NGC datas.
     Lots of object diameters were wrong.
```

* Fixed a bug that existed trough all versions.
  The stellar aberration vector of a planet was calculated correctly only for ↩
    Pluto.
* Fixed a bug in the export list.
  Couldn't remove the active entry.
* Support of a "Projects/Startup" file.
* Added a "Horizon" and an "Ecliptic" switch.
* Drawing of horizon improved.
* Choice of an azimuth system (S=0\textdegree{} or N=0\textdegree{}).
* Minor improvements in translating object's description.
* The file "Data/ngcnames.data" is now dynamical and can be altered by the user ↩
  .
* Lots of corrections in the french catalog (-> Gilles Francois).
* Updated the asteroid database. Also constains more entries now.
* Added UGC, Abell and Zwicky catalogs.
* Added tooltype DSO to filter deep-sky catalogs not being needed.
* Stars area enlarged when drawing in dot-size mode.
* Improved search in asteroids and deep-sky lists (multiple search).
* Planets can now be dragged into the list of orbital elements.
* Included diameter of asteriods and orbital elements.

20-Jan-98 V39.11
* When a planet was dragged to the orbital elements list, the diameter was not
  put into the list.
* Fixed an Enforcer hit.
* Fixed a little bug in reading star indices.
* Night palette doesn't destroy system and MUI colors, but its therefor ↩
    incomplete.
* Changed SAO catalog for faster calculation of proper motion.
* Added PPM stars and PPM indices to star catalog.

26-Jan-98 V39.12
* Fixed some problems in Kepler functions.
  Some values for near parabolic orbits caused false values or an endless loop.
  Calculation is now much more precise for parabolic and near parabolic orbits.
* Fixed a bug in "Inclination" gadget.
  Values greater than 90\textdegree{} were cropped.
 * Fixed a very little bug in calculating magnitudes at zooming.
  The magnitude is rising proportional to the square of zoom, not linear.
* Added gadget to limit number of frames during animation.
* Added cycle gadget in "Orbital Elements" for choosing between comet or ↩
    asteroid.
* Now four plotting modes for stars.
* Changed some FPU instructions that caused a GURU due to false emulation by ↩
    the
  68060.library (phase5 V43.0).
* Optimized FPU instructions for MC68040 and MC68060.
  Significantly speed-up on those CPU's.
* Fixed a minor Enforcer hit.
* Corrected indices of star catalog.
* Fixed a little bug in the world map in the eclipse window.
  Colors were corrupt.
* UGC catalog fixed. Lots of magnitudes were too bright.
* Fixed bug a in calculating the daily aberration vector.

28-Feb-98 V39.13

  * As I use the latest 68060.library (V43.1c) from phase5, I have removed ←
     optimizations
     from V39.12. However, the program is now even faster than V39.12 on a MC68060 ←
       .
  * FPU command "fmod" replaced by a faster function on MC68040/060.
  * Added installer script for the data archive.
  * The exe archive now contains the rgfx.datatype.

03-Mar-98 V39.14
  * UGC catalog recompiled. All invalid entries should now be fixed.
  * The rgfx.datatype had to be removed from the archive.
  * Updated guide.
  * Removed usage of public Xpk.mcc and made it a private class.
    It caused too many problems and the installer also was unable to detect
    version id. This caused a heavy failure during startup of DA.
  * There were no error messages during startup with problems. This has been ←
     fixed.

1.34   probleme

                    This program is designed to work on all those different Amigas ←
                        that fulfill the
hard- and software requirements.
However, it is possible, that on some systems the program crashes or shows an
unexpected behaviour.

This is not a mistake of Digital Almanac !!

Because of those many different hardware configurations and background patches
being installed, it can happen, that Digital Almanac does not work correctly.
In this case, you should check your system configuration. Degrade your system
(deactivate all those utilities you do not need) and restart Digital Almanac.
This will work in most cases.

Known problems:

* Digital Almanac shows some problems when running under CyberGfx with the
  PLANES2FAST flag disabled. Because if an internal bug of CGX the animation mode
  showed some strange behaviour of the system. It even sometimes caused a guru.
  To avoid these problems, it is absoultely recommended to set the PLANES2FAST
  flag to TRUE (1) !!

* It seems that sometimes the menu freezes for a little time.
  This behaviour can be caused by some menu patches (Magic Menu etc).
  I myself have installed Magic Menu V2.19 with no problems at all.

* If Digital Almanac shows no reaction when a menu item has been selected or ←
   rendering
  seems to be very slow, you must set the flag "Windows/Refresh" of the MUI ←
     preferences
  to "Smart".
  See also the chapter
                FAQ
                 .

* The program may crash on some systems that use Blitter<->CPU patches.

* Digital Almanac does not work correctly with Picasso96 (on my Amiga).
  Maybe this will improve in the future, because this new driver is under ↩
     development.

Restrictions:

* Saving an animation is only possible with lots of ChipRAM (or FastRAM under ↩
   CyberGfx)
  To save a 640x512 animation, you need additional 1.3 MB (Chip-)RAM !!
  Note this, if you only have 1 MB ChipRAM !!

* If you have replaced the Floattext.mui class by the new MUI class NList,
  there may be some output errors !

If you should detect any bug, strange behaviour etc., please report this to

                me
                  with a detailed description of your system
(hardware, background patches etc.).

1.35 rgfx

What is IFF-RGFX ?

The IFF-RGFX format is a new image format to save images efficiently und up-to- ↩
   date.
It was designed by Andreas Kleinert to replace the old and obsolete IFF-ILBM ↩
    format.

The IFF-RGFX format offers following features;
 * Saving of images up to 24 bit depth.
 * Saving as planar datas or as chunky pixels.
 * Xpk compression.
 * Saving of display ID's from AGA, CyberGraphX and Picasso96.

Especially when using Xpk and chunky pixels together, you receive very small files ↩
   .
Depending on the packer, those files are even smaller than corresponding GIF or
PNG files !!

Because of its IFF design, the user still has got all advantages of IFF like the
possibility of extension.

Where can I get the RGFX datatype ?

Currently, there exist only one datatype to read the IFF-RGFX format.
It is available on the Aminet in util/dtype/rgfx-dt.lha and was also written by me
This archive als contains a Datatype->RGFX converter.

1.36   faq

Q: When I try to start DA, I only get the message "Can't find ↩
   catalog.".

A: Your Local prefs does not support one of DA's languages.
   Simply start your SYS:Prefs/Locale and select one of DA's languages as an
   alternative language. Save this configuration and restart DA.

Q: DA won't start. Either the system crashes, or I receive a memory error.

A: Does your machine has got the minimum hardware configuration ?
   Well, if yes, DA is very memory consuming. You need a minimum of 4 MB free RAM.
   To run all features you need at least 12 MB, but 24 MB are recommended to run ↩
      at
   highest possible speed.
   If you have low memory, just set the tooltype NOASTEROIDS, NOOBJECTS and ↩
      NOTEXTURES
   and set the caches to a low value (for ex. 1000).
   Also read the chapter
                Memory Usage
                Q: DA runs very slow although I have a fast CPU in my Amiga.

A: The problem is to be found in MUI's window refresh handling.
   Read the chapter
                Installation
                 how to solve this problem.

Q: Why are the ephemeris of DA different compared to others programs ?

A: DA uses planetary theories and algorithms that may be different than
   to other programs. It is usual that coordinates with the same input may differ
   up to several arcseconds or arcminutes compared to other programs.

Q: I have a 68040(68060) accelerator board.
   DA seems to produce false calculations or even sometimes crashes. What's wrong ↩
      ?

A: The built-in FPU in these CPU's do not know all FPU instructions. Some
   have to be emulated by the 68040(68060).library. Usually that works, but not ↩
      all
   missing instructions are emulated or emulated correctly. There is a utility ↩
      called
   'CyberPatcher', that comes out with a Cyberstorm accelerator board (maybe for ↩
      other
   bords too), which I recommend to use in your startup-sequence. DA should work ↩
      then
   without any problems.
   Since there is an updated 68060.library (V43.1c) from phase5, this one should ↩
      solve
   all problems on an MC68060.

1.37 zukunft

        See
        Internet
        .

1.38 danke

Special thanks to following people:

Mark Fuller: Detecting dozens of bugs.

Peter Knight: Mathematical advices and lots of other useful things.

Jürgen Barthmann: Hardware support.

Stefan Leideck: TurboPrint support.

Andreas Kleinert: His new IFF-RGFX graphics format.

Gilles Francois und Silly Cat: French catalog and ideas.

Christine Mench: Psychological support.

1.39 autor

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Important:
* Cheques in foreign currency will not be accepted, except euro-cheques !!
* If you send me a letter, make sure you provide your address, phone number and
  your hardware configuration !!

1.40   internet

If you have access to the Internet, please visit my homepage.

http://www.rzuser.uni-heidelberg.de/~astegema

Here you can get the latest news about Digital Almanac and other projects.