PHOTLUN

Pictures manager of the Virtual Moon Atlas

Documentation usable for the version 8

Welcome in"PHOTLUN" (c) the "Virtual Moon Atlas" pictures libraries manger.

As amateur astronomers ourselves, we continue to improve VMA for designing a useful software for lunar obsevers easy to use on the field.. We always try to define new functionalities and a more user-friendly interface.

This is why we have decided to include in the **VMA "Pro"** version, a pictures libraries manager called "**PHOTLUN**" (Copyrighted name) that allows you to select precisely pictures of lunar formations interesting you, that allows you to link them to the corresponding datas with "**DATLUN**" and that allows you to localize them directly on the "**Virtual Moon Atlas**" map

This first version include the functions that have seemed us the most useful. Sure, we are yet thinking to other ones that will be included in future versions.

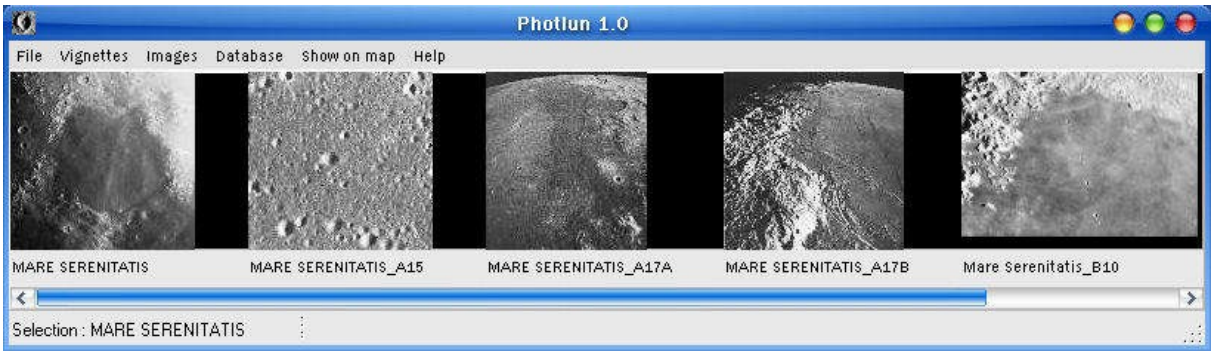
"**PHOTLUN**" is a powerful software dedicated to Moon survey and very powerful because it gives you the possibility to apply a personal processing for each picture of all the libraries. This manual is necessary for discovering all its possibilities panel. We recommend to read it carefully while using the described functions.

Good use and we hope you will appreciate this new software and recommend it to your lunar observers friends.

Thank you very much for your confidence.

Christian Legrand & Patrick Chevalley

THE PHOTLUN SCREEN



The basic **PHOTLUN** screen takes place in a "Windows" reduced window which size can be modified with limits.

It's possible to open simultaneously **ATLUN, DATLUN**, **PHOTLUN, WEBLUN, NOTELUN et CALCLUN,** this allowing you for pictures visualization on the map and database informations reading.

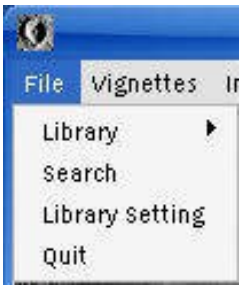
PHOTLUN window includes :

- The **Menu bar**
- The **"Vignettes"** window
- The **State bar**

THE MENUS BAR

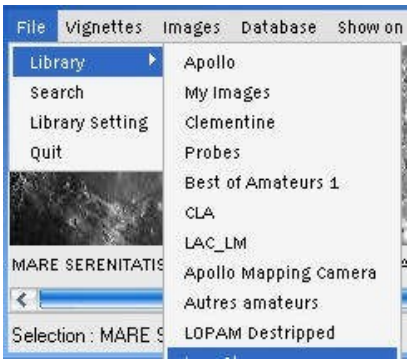
This bar includes different menus accessing various functions lists.

.THE "FILE" MENU



Traditional in every Windows (r) software,It's used in **PHOTLUN** to select the pictures libraries, to search for pictures of a selected lunar formatio in the libraries and to exit the software.

"Library" FUNCTION

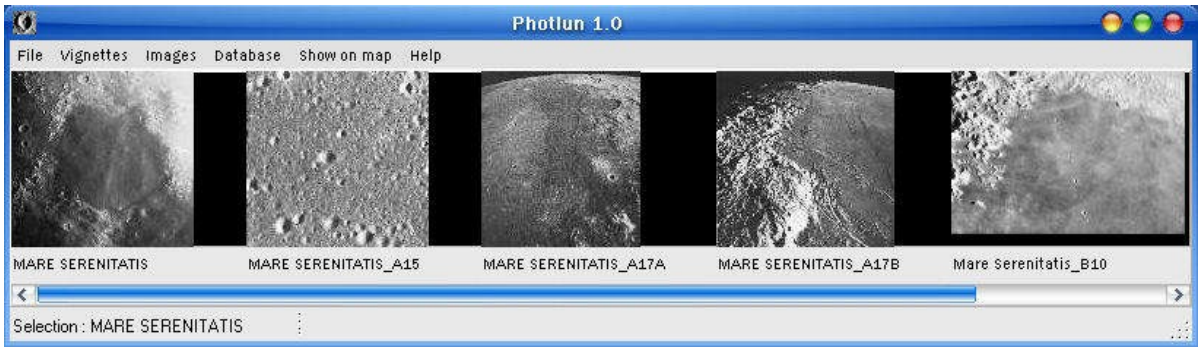


This function displays a list of the usable pictures libraries in which you can choose a special one or the totality.

"Search" FUNCTION

This function allows you to display vignettes concerning a specific lunar formation.

Example : Here, only Mare Serenitatis pictures are visible.

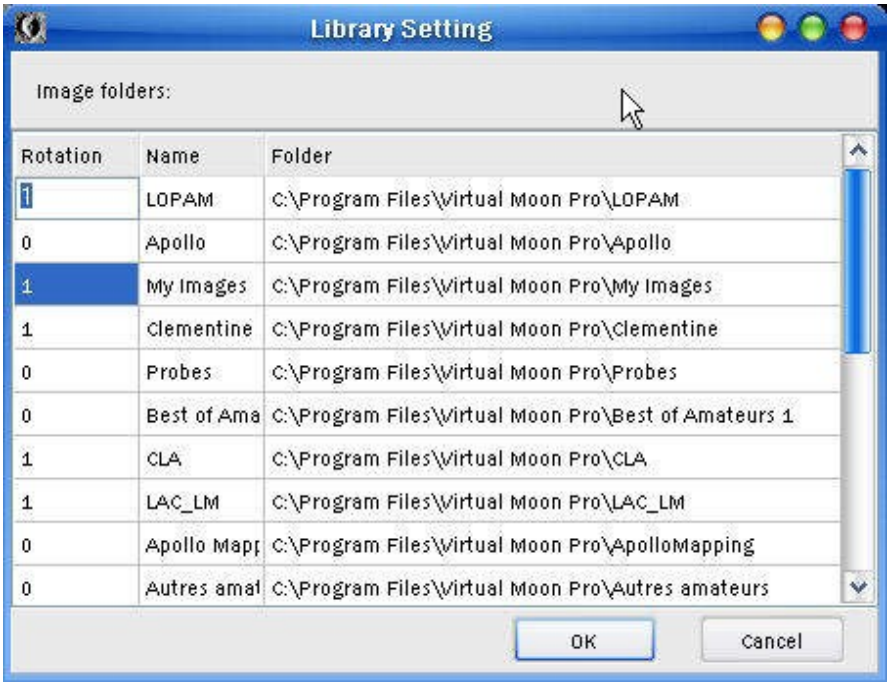


" Libraries setup" FUNCTION

This function indicates to PHOTLUN the downloade or personal pictures librairies.
You must enter successively the boxes from left to right :

- Rotation : This number indicates the general orientation of the pictures in the library..
- Name : The generic name you wish to attribute to the library to remember it easily. This name appears in the "Search" list..
- Directory : The access way to the directory contaning the pictures of the library.

To enter these datas, click on the box with the mouse left button and type the datas.



"Exit" FUNCTION

This function exits **PHOTLUN** and closes all the pictures librairies, keeping all the individual specific setups for each picture and its miniature.

"VIGNETTES" MENU

This menu is used to setup the vignettes size and to sort them :

"Size" FUNCTION

In the sub-menu that appears, you can choose among three vignettes sizes :

- The small ones

- The median ones

- The biggest ones

Please note that the picture name is not displayed with the small miniatures.

"Sort" FUNCTION

This function is used to sort the vignettes within two possible choices :

- Vignettes sorted by name
- Vignettes sorted by pictures libraries

THE "PICTURES" MENU

Three new functions can be accessed by this menu. You can setup the general pictures orientation, the maximal number of pictures windows opened and close all the opened pictures windows.

" Mirror picture" FUNCTION

With this function, you can choose how to rotate the pictures when you open them.

- "No" Shows pictures as seen with the naked eye or binoculars.
- "East <> West" reverses East and West in the pictures.
- "North <> South" reverses North and South in the pictures.

So, you can visualize pictures as seen in your instrument

"Windows number" FUNCTION

This function determines the the maximal number of pictures windows opened simultaneously (until 10) Windows are displayed side by side.

"Close all" FUNCTION

As the name indicates, this function allows you to close all the opened pictures together to clean your screen.

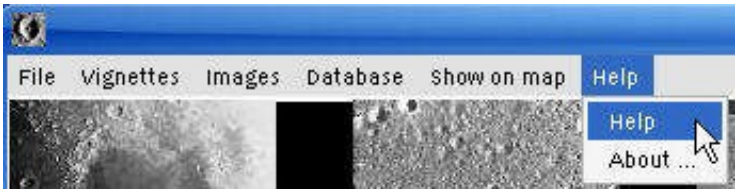
THE "DATABASE" MENU

This is not a menu, but a direct command that will show you the powerful association between **PHOTLUN** and **DATLUN**. If you click it, you open **DATLUN** and will see in the sheet the selected formation and if you have selected the "indiced" databases, the "indiced" formations will be also displayed.

THE MENU "SEE ON MAP"

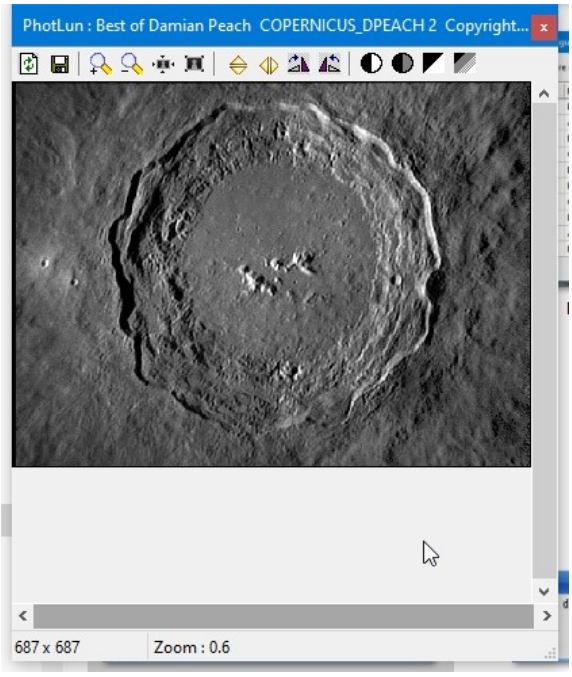
This is not a menu, but a direct command that will show you the powerful association between **PHOTLUN** and **VMA**. If you click it, you open the "**Virtual Moon Atlas Pro**"and you will see on the map the formations selected in **PHOTLUN.** .

THE "HELP"MENU



Traditional in all Windows softawre, in **PHOTLUN,** it shows you this documentation with "**Help**" and displays credits in "**About**".

THE "PICTURE" WINDOWS



The "Picture" windows are independant and are put over the others opened windows. You can resize them as a regular "Windows" window.

In the Title bar, the picture name is displayed.

In the Status bar, you can see the picture size and the picture zoom factor. This one is set to "1:1" when opening the picture, but if picture is too large to be contained in the screen.

The "Picture" windows present a buttons bar with 14 buttons accessing processing functions on the picture These buttons are associted with info-bubbles remaining their function whenstaying above them some seconds with the mouse pointer. Here is the detail of the functions of these buttons from left to right :

The "Default setup" button

This button shows you the original setup of the picture.

The "Record picture" button

This button records the setup of the picture if you modified its orientation, its lighting or its contrast. The pictures personal setup are recorded in a special file and you will recover the same picture with its own setup when you will reopen it. These setups are also applied to the picture miniature.

The "Zoom +" button

The "Zoom +" button increases the picture magnification.

The "Zoom -" button

The "Zoom -" button decreases the picture magnification.

The "Real size" button

This button shows the picture in its real size. If it's larger than the window, lifters appear to be used with the mouse.

The "Fill screen" button

This button adapts the picture size so that it will be completely shown in the window.

The "Up / Down " button

This button reverses Up / Down the picture to match the view in your instrument eyepiece.

The "Left / Right" button

This button reverses Right / Left the picture to match the view in your instrument eyepiece. To see the picture as in a refractor or a SCT, you only activate this button. For a Newtonian, you activate this button and the "Up / Down" button.

The "Turn left" button

This button turns the picture on the left with a 15° angle until 165° .

The "Turn right" button

This button turns the picture on the right with a 15° angle until 165° .

The "Brighter picture" button

This button brightens the picture for better seeing details in dark parts.

The "Darker picture" button

This button darkens the picture for better seeing details in bright parts.

The "More contrast" button

This button increases the contrast for better seeing peculiar details.

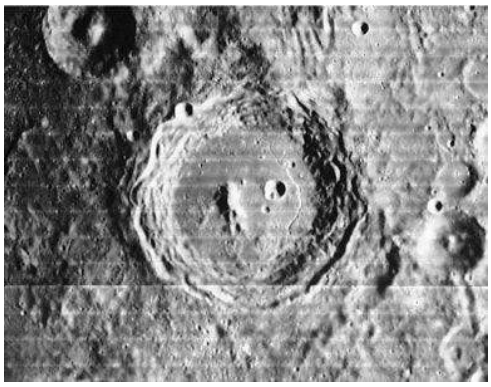
The "Less contrast" button

This button decreases the contrast for better seeing peculiar details.

THE "PICTURE" LIBRARIES

You can download for this version picture files coming from various sources. These files have obtained the necessary authorizations to be used ***only*** in VMA.

"LUNAR ORBITER PHOTOGRAPHIC ATLAS OF THE MOON" PICTURES



These pictures have been extracted from the electronic version of the "**Lunar Orbiter Photographic Atlas of the Moon**" (LOPAM) realized by **Jeff Gillis** and his team at the **Lunar and Planetary Institute**. This remarkable atlas can be consulted on the site

http://www.lpi.usra.edu/resources/lunar_orbiter/

Christian Legrand has extracted from each of the more than 200 LOPAM photos, pictures of each named formation. He compiled about 3000 pictures. Then, he chose the best one for each formation. For some formations, which were spread on several photos, it was necessary to cut and join several peaces. Some others need a new orientation. All these pictures were then compressed so that small size for downloading that doesn't alter quality.

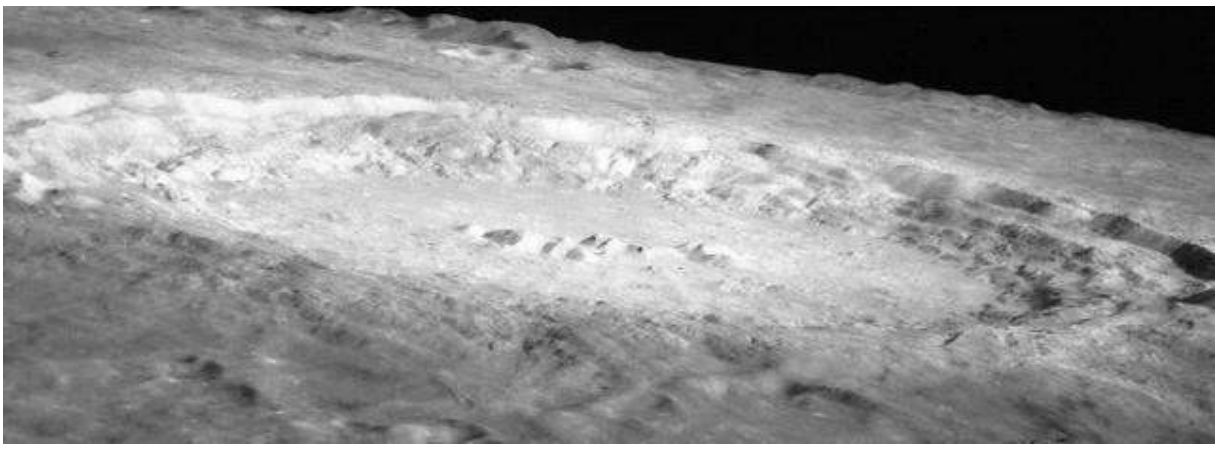
Please note that these pictures have been **"lines removed"** using the powerful software provided by **Niels Noordhoek**

Despite of this important work, about 150 formations haven't been recovered in the LOPAM photos because Lunar Orbiter 4 didn't photography the entire visible face with sufficient resolution.

For those who don't wish to download all the pictures, Christian Legrand has selected the more famous lunar formations (130) and has gathered them in the "**Lunar stars**" library.

LOPAM pictures are in the "LOPAM" sub-directory.

APOLLO MISSIONS PICTURES



With the goal to provide the most complete image of each lunar formation, Christian Legrand has also selected in the Apollo missions pictures more than 400 pictures related to more than 300 different formations. These pictures are very often from the hand-held Hasselblad pictures.

These pictures are provided under the general copyright of the "National Air and Space Administration" (NASA) which own reproduction rights (http://www.nasa.gov) and they can't be used outside of the atlas.

Picture name indicates the formation name and the Apollo mission that took the picture when it's known : so COPERNICUS_A12.JPG is the name of a picture of Copernicus taken during Apollo 12 mission.

APOLLO pictures are in the "**Apollo**" sub-directory.

APOLLO MAPPING CAMERAS MISSIONS

Theophilus seen by Apollo 16 Mapping Camera.

Put online by the "**Lunar and Planetary Institute**", "**Apollo Mapping Cameras**" pictures, who were on board "Apollo Service Modules", are among the most detailed ever realized. Christian Legrand has selected among hundreds of published frames, those which give the most interesting views of Nearside formations as those above.

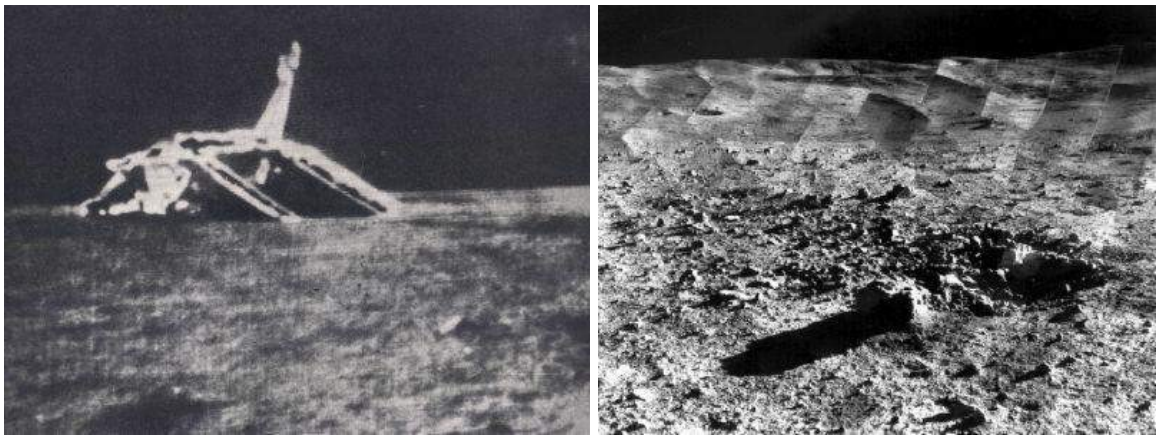
Christian Legrand has extracted about 1000 pictures and has choosen about 700 ones.

These pictures are provided under the general copyright of the "Lunar and Planetary Institute" and they can't be used outside of the atlas.

Picture name indicates the formation name and the Apollo mission that took the picture when it's known : so COPERNICUS_A12.JPG is the name of a picture of Copernicus taken during Apollo 12 mission.

APOLLO MAPPING pictures are in the "**Apollomapping**" sub-directory.

LUNAR PROBES PICTURES



Soviet **Luna 17** pictured by mobile robot Lunakhod 1 (Left) and Tycho crater walls panorama taken by american probe **Surveyor 7** (Right).

Many other automatic probes than Lunar Orbiter 4 have measured and photographed the Moon. These are american Ranger, Lunar Orbiter 1,2,3,5 and Surveyor. In the historical "Moon race" context, ex USSR has also launched a great number of Luna probes.

This picture library realized by Christian Legrand contains about 120 pictures taken by these probes. Found on the Web, these pictures are provided under the general copyright of the "National Air and Space Administration" (NASA) which own reproduction rights (http://www.nasa.gov) and they can't be used outside of the atlas. Soviet probes pictures have no identified copyright owners.

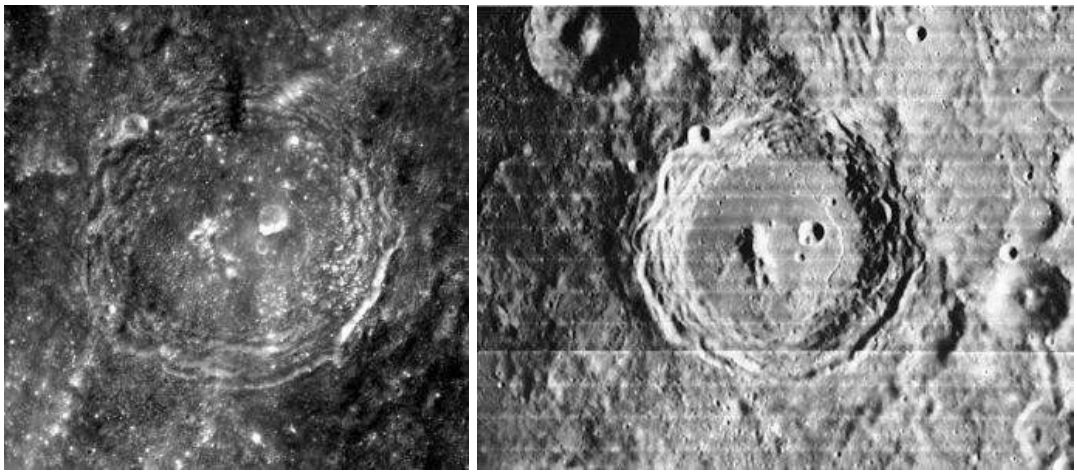
Picture name indicates the formation name and the probe or Apollo mission that took the picture when it's known : The following code is used associated with XX as the mission number :
- AXX : Apollo
- LOXX : Lunar Orbiter
- LUXX : Luna
- RAXX : Ranger
- SUXX : Surveyor

For example, LUNA 9_LU9.jpg is a picture of Luna 9 site taken by Luna 9 probe itself.

These pictures are provided under the general copyright of the "National Air and Space Administration" (NASA) which own reproduction rights (http://www.nasa.gov) and they can't be used outside of the atlas.

Probes pictures are in the "**Probes**" sub-directory.

CLEMENTINE PROBE PICTURES



Arzachel crater picture taken by Clementine (Left) compared to LOPAM (Right).

The other great source of lunar formations pictures is the american Clementine mission. This small probe has mapped the lunar surface with à 100 to 200 m per pixel.

Christian Legrand works on the general files and extracts pictures of each formation.

Clementine pictures are complementary to those of LOPAM. If their resolution and general quality are better, they have a big defect for terrestriel observers. They were taken with Meridian passing Sun, with the most vertical possible lighting that erases shadows and gives the formation albedo.

For formations situated in a + 45 ° North and - 45 ° South, Pictures show first the albedo. Compare for example with Bessarion LOPAM and Clementine pictures to see the difference.

For formations above these latitudes, shadows reappeared and many pictures are better than LOPAM. Compare with Anaxagoras for example.

Connect periodically to our site to discover the new additions.

Clementine pictures are in the "**Clementine**" sub-directory.

JAPANESE PROBE KAGUYA PICTURE

Rupes Recta photographied by Kaguya (c) JAXA

These pictures have been obtained from datas returned by the japanese probe KAGYA et put online on the **Japan_Aerospace_eXploration_Agency (JAXA) Web site.** You can see the original pictures here :

http://wms.selene.jaxa.jp/index_e.html

Christian Legrand has extracted from each original picture, a picture of each present formation. 160 useful pictures have been collected today. The pictures are taken with an angle from the surface. This feature brings new informations about the real shape of the formations. (see Rupes Recta above)

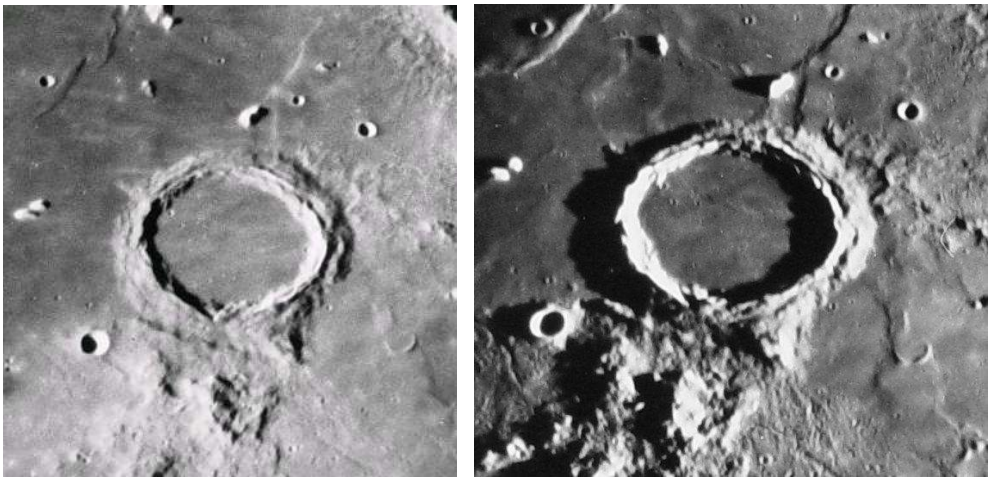
CONSOLIDATED LUNAR ATLAS PICTURES

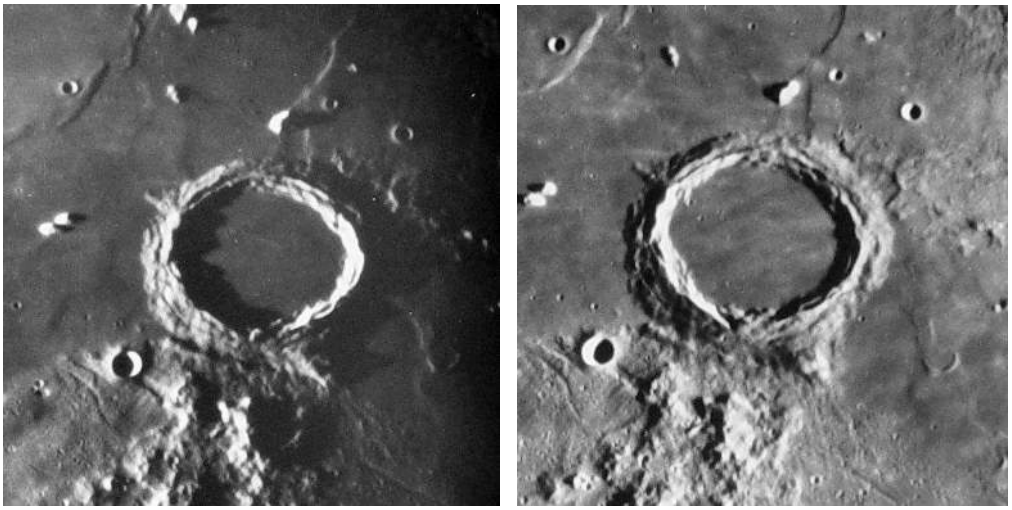
The best ever published lunar atlas for the lunar observer is the "Consolidated Lunar Atlas " by Gerard Kuiper and al.

It copiles best Moon pictures taken from Earth by some great observatories as Catalina and Pic du Midi. Resolution of some pictures are about 1 km. Only since little time, amateurs equiped with webcams and large telescope begin to have better results than those ones.

This atlas has an unvaluable value because, as "Georges Viscardy's Photographic Atlas", it shows the formations under sevearl sun lightings and at the Full Moon.

For example, here are the pictures extracted for Archimedes :





These pictures allows you to see the aspects of a given formation related to the observing day. This library is presently not complete. It contains more than 2000 pictures and will be updated regularly. Priority is given to CLA pictures above Clementine pictures because they are more useful for terestrial observers. And our "Clementine 500 m resolution" texture replaces them momentarily. Check regularly our Web site to see if CLA library updates are available.

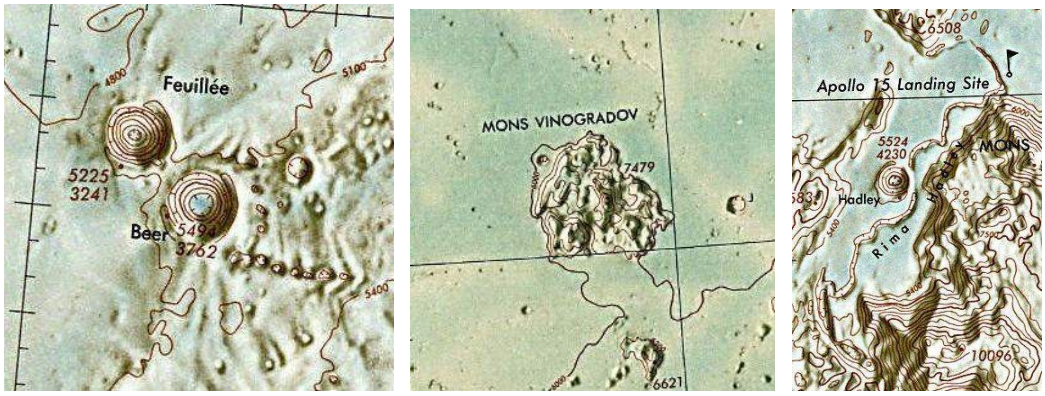
This fabulous work is visible on the site :

http://www.lpi.usra.edu

The CLA pictures are in the "**CLA**" sub-file.

LUNAR ASTRONAUTICAL CHARTS AND LUNAR MAPS PICTURES

The best drawn Moon maps ever published are the "Lunar Astronautical Charts" and the "Lunar Maps". Their scale is 1 / 1 000 000. Most of them include altimetric levels curves allowing to determine heights or depths of formations.



Christian Legrand has extracted from LAC / LM more than 800 formations pictures of the Nearside. Because of their precision and their colors, these pictures have not been compresses. This library is then heavy to download.

These pictures are under "Lunar and Planetary Institute" copyright and cannot be used outside VMA.

This fabulous work is visible on the site :

http://www.lpi.usra.edu

The Lunar Astronautical Charts and the Lunar Maps pictures are in the "**LAC / LM**" sub-file.

All this unique set of pictures librairies provides you numerous views of formations for comparing or studying them.

"BEST OF AMATEURS" LIBRARIES

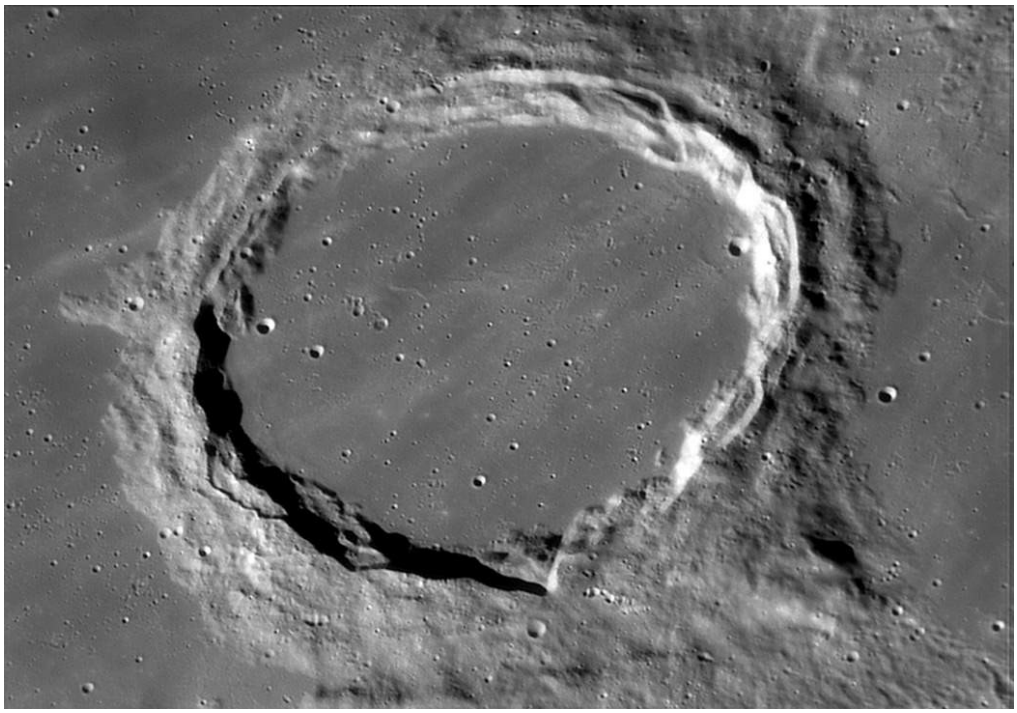
Some of the world best lunar imagers have accepted to show their pictures in a special VMA pictures library only usable with VMA.. Compiled by Christian Legrand, this new library contains presently more than 350 images from **Craig Zerbe, Mike Wirths, Wes Higgins, Zac Pujic, Paolo Lazzarotti, Damian Peach, Luc Cathalla and the 1m Pic du Midi telescope team.** Others amateurs have been contacted and their pictures will be added in this library whose pictures are very often better than those of Consolidated Lunar Atlas, and which rival sometimes with lunar automatic probes.

Because of the great numbers of pictures they provided, pictures by Paolo Lazzarotti, Wes Higgins, Damian Peach and Luc Cathala are in separate libraries.

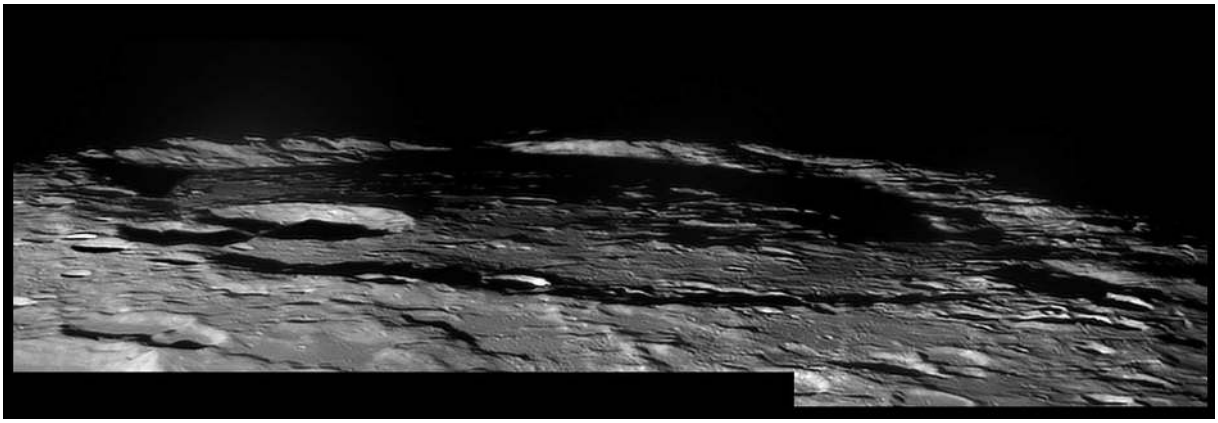
Christian Legrand has treated, with the authorization of the authors some of the pictures for harmonicizing contraste and luminosity to boost the resolution.

ATTENTION : These pictures are provided under the copyright of the original author who have the reproduction rights and can't be used outside the VMA. Any other use needs an explicit demand to the original author. All our thanks to these authors for permitting us to use their pictures in the VMA.

- **T1MPDM / 1 meter Pic du Midi telescope** : It contains pictures realized by JL Dauvergne , F. Colas, C. Mansion, T. Legault and C. Villadrich with the 1 m Pic du Midi telescope which are the lunar pictures taken from the surface of Earth (Archimedes below).

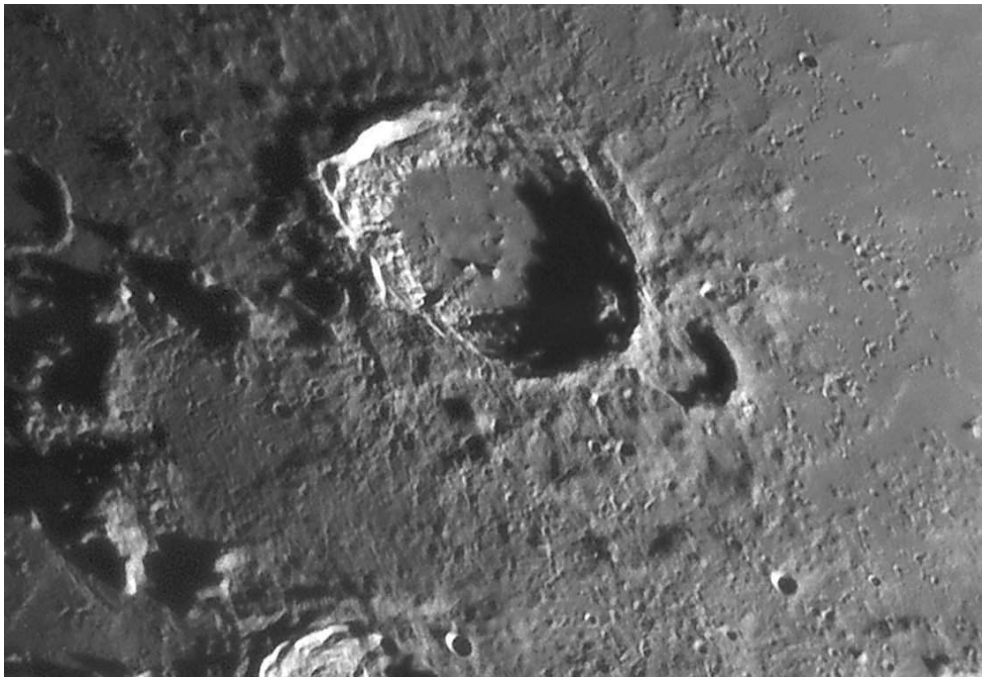


- **Best of Peach**: It contains pictures taken by Damian Peach with his Celestron 14 et un Celestron 9,25 (Bailly below). It's one of the most important amateur pictures library.

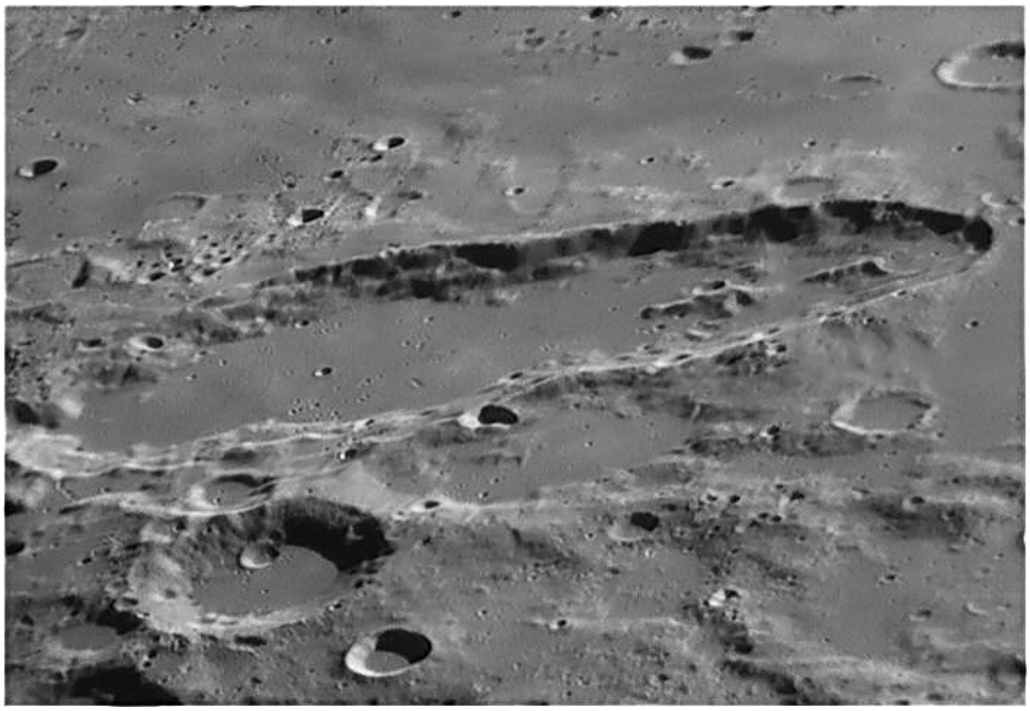


Best of Lazzarotti

Contains pictures realized by Paolo Lazzarotti with his 12" Gladius (Aristoteles here)

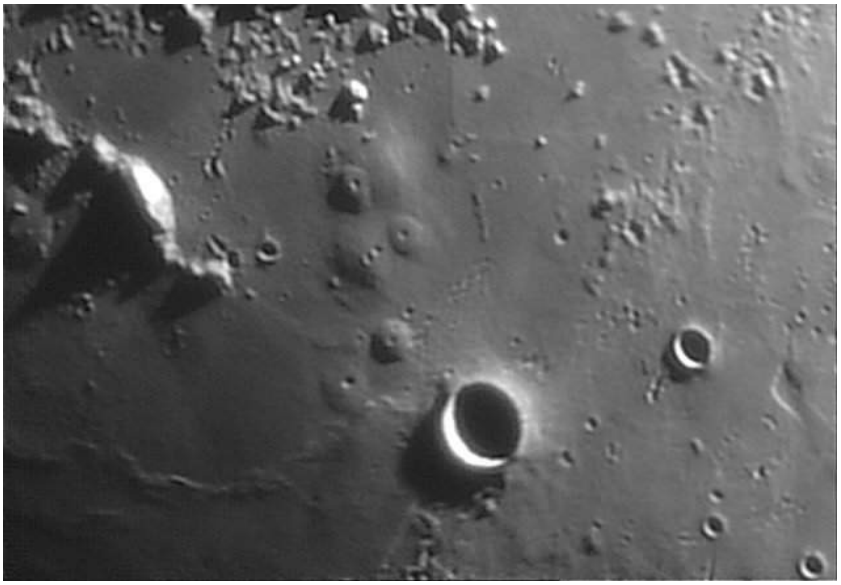


- **Best of Higgins** : Contains pictures realized by Wes Higgins with his 18" Dobson (Schiller here)



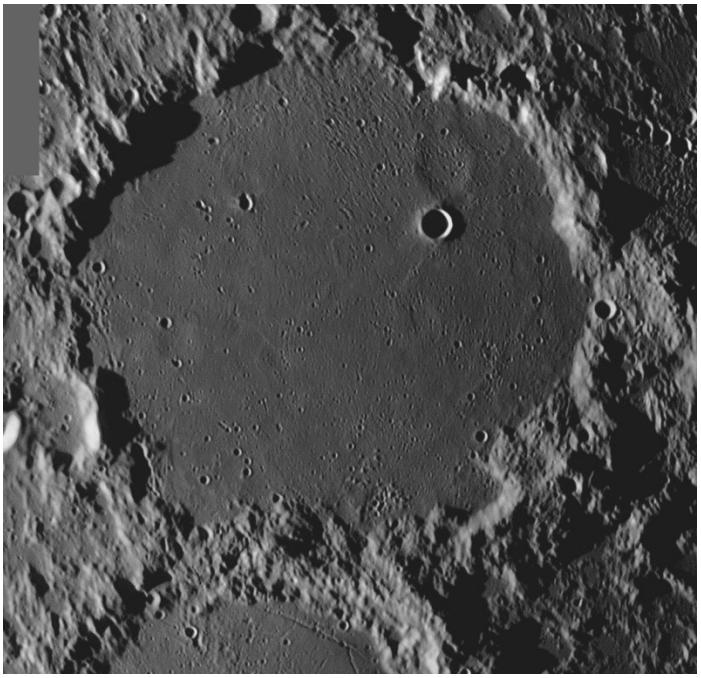
- **Best of Amateurs**

Contains pictures realized by Mike Wirths (Hortensius domes here) and Craig Zerbe



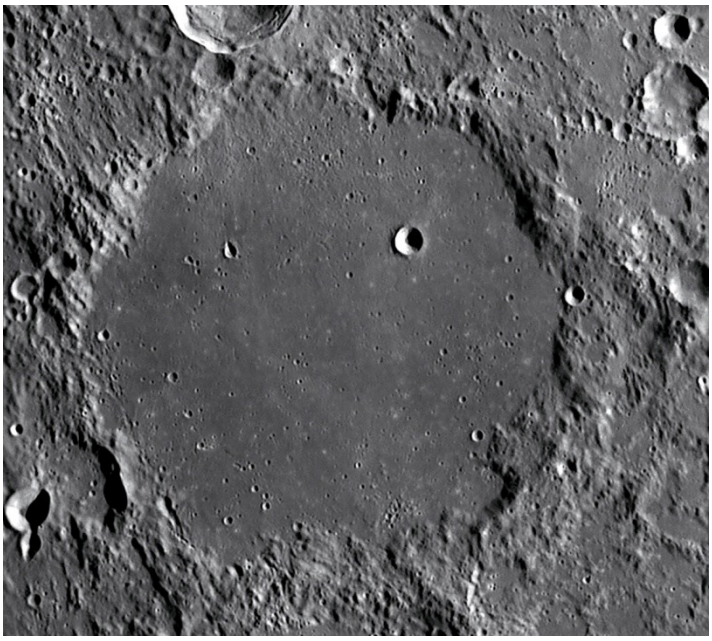
Best of Cathala

It contains the images taken by Luc Cathala with a motorized Dobson telescope of personal manufacture of 625 mm in diameter with a QHYSIII178M camera. It is the most supplied "amateur astronomer" library with nearly 700 very high resolution images.



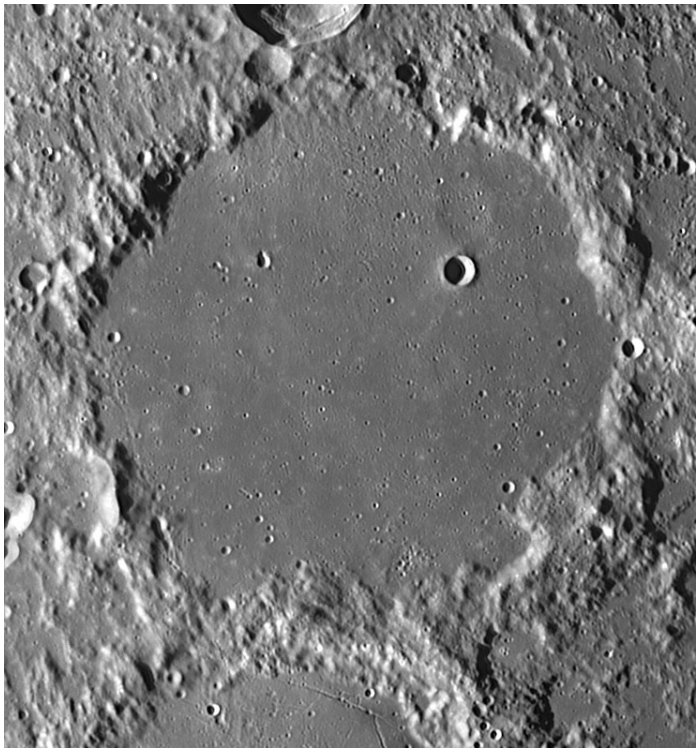
Best of Brahic

It contains the images taken by Jean-Pierre Brahic with a C 14 telescope.



Best of Viladrich

It contains the images taken by Christian Viladrich with with a C 14 telescope



Pictures name indicate the formation name and that of the author. For example, Plato_Lazzarotti.jpg is a picture of Plato crater taken by Paolo Lazzarotti.

These pictures are under the general copyright of Christian Legrand and each copyright of the author and cannot be used outside of VMA.

All these libraries give now more than 11 000 formations pictures available to VMA users.

"PHOTLUN" USER'S MANUAL END

The authors thank users for indicating all found mistakes in this manual using the VMA Web site forum..