



New Virtual Moon Atlas freeware version 7

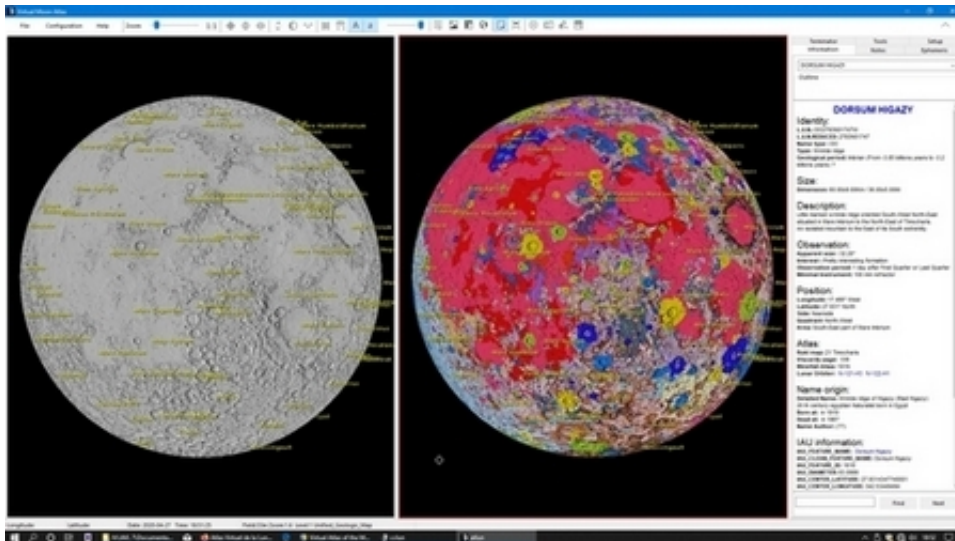
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Introduction:

Since 2002, we develop a freeware to help Moon observing, to improve interest for Moon in general public, and to provide a basic tool for aggregating informations on the Moon for professionals.



Double windows with "Kaguya / LRO Shaded relief" and "Unified geologic 2020" textures

Presentation :

VMA uses datas coming from NASA, USGS, JPL, LPI and from Dr Robinson, Binder, Gaddis, Zuber, Salamuniccar and Robbins teams, and from Kaguya, Chandrayann 1 and Chang'é missions.

The software includes management of a complete database (Near 1 400 000 entries) of named, satellite, anonymous or human features on the Moon.

Pictures libraries presenting each named formations from LPI resources and best amateurs shootings are associated and contain more than 8 000 pictures.

VMA 7.0 is only available for Windows 7/8/10.

VMA software has been reviewed in main amateur astronomy magazines (Sky & Telescope, Astronomy , Ciel & Espace, L'Astronomie...) and downloaded more than 1 800 000 times worldwide since 2002.

French, English complete translations and others languages (GE / ES / IT / NL / ...) partial translations are included.

VMA software is used by several professional organizations such as IAP Paris, Kitt Peak Observatory, National Japan Observatory, University College London, BBC Sky at night, several astronomy magazines and astronomy writers (P. Harrington, G Cannat...). Recommended by ESA (B. Foing) during SMART 1 mission, registered as educational software by French ministry for education, it has also yet been presented to professionals at 2006 & 2007 LPSC, PCC2 in 2011 and EPSC 2015 in Nantes (France) and to amateurs at 2012, and 2018 "Rencontres du Ciel et de l'Espace" in Paris. Also used in NELIOTA program by ESA / Athens Observ. and for SCHIAMACHY survey on ENVISAT DLR / ESA

Manual :

A 200 pages complete PDF and an online manual are provided.

VMA 7 Software features :

- « Map » window with tabs « Information », « Ephemeris », « Notes », « Tools », « Setup », ...
- Complete rotating Moon globe with coordinates grid and scales
- Second window opening permitting comparisons
- Map and thumbnails display on separate monitors
- Real time or chosen phase and librations display
- Orientation of the lunar disk with powerful zoom
- Formations search function starting from name
- Formations names display according to zoom power
- Orbital viewing simulation
- Integrated notepad for personal notes on formations
- Size and distance measurement tool on maps
- Context menu on right mouse click
- Maps and databases printing with captions setup
- Eyepieces and CCD cameras field simulation
- Full screen display for public videoprojections
- 3D profile of chosen formation when available

Databases :

Included databases contains more than 1 300 000 formations:

- Named formations
- Satellites formations
- Anonymous craters (From S. Robbins & G. Salamuniccar databases teams)
- Human exploration sites (Historical)
- Lisa Gaddis team pyroclastic deposits
- ALPO domes databases
- NELIOTA meteoritic impacts database

For each formation, included informations about :

- Formation geology (except historical)
- Formation localization on lunar disk
- Formation detailed description
- Detailed formation name origin
- Official IAU 2012 datas

All these databases include the "LUN / Lunar Universal Number" conceived by us and permitting quick "naming" and localization of any lunar formation more than 100 m wide (Example : AA2741S114220 > Crater located at 02,741° South and 114,220° East

DEN	NAME	LUN	LUN_REDUCED	NAME_TYPE	TYPE	TYPE_JAU	SUBTYPE	PROCESS	PERIOD
NSN	ABBE	AA579517477E	579517477	AA	Cater				
NSN	ABBOT	AA0959095474E	0959095474	AA	Cater				Inbian (From -3:85
NSN	ABEL	AA3462500570E	3462500570	AA	Cater				Pre-Nectarian (Fron
NSN	ABENEZRA	AA2099501189E	2099501189	AA	Cater				Upper Inbian (Fron
NSN	ABETTI	AA2011N02782E	2011N02782	AA	Cater				Inbian (From -3:85
NSN	ABUL Wafa	AA0096N11663E	0096N11663	AA	Cater				
NSN	ABULFEDA	AA1367501391E	1367501391	AA	Cater				Typical Nectarian (
NSN	ACOSTA	AA0965506014E	0965506014	AA	Cater				Copernican (Fron -
NSN	ADAMS	AA3189506839E	3189506839	AA	Cater				Nectarian (From -3:
NSN	AEPHUS	AA8796N10969W	8796N10969	AA	Cater, crater				
NSN	AGATHARCHIDES	AA1985503111W	1985503111	AA	Cater				Pre-Inbian (Fron -
NSN	AGRIPPA	AA0410N01047E	0410N01047	AA	Cater				Eratosthenian (Fron
NSN	AIRY	AA1814500561E	1814500561	AA	Cater				Pre-Inbian (Fron -
NSN	AITKEN	AA1644517296E	1644517296	AA	Cater				
NSN	AKIS	AA2001N02176W	2001N02176	AA	Cater, crater				
NSN	AL BIRUNI	AA1807N03262E	1807N03262	AA	Cater				
NSN	AL BAKRI	AA1434N02025E	1434N02025	AA	Cater				Inbian (From -3:85
NSN	AL KHUWAFIZH	AA0702N10701E	0702N10701	AA	Cater				

Row: 1/9231 Selection: DEN in (1,2,3,4,5,6,7)

Datlun : a specific database manager using menus or SQL requests for sortings and extractions on every word of all the databases (600 Mo datas).

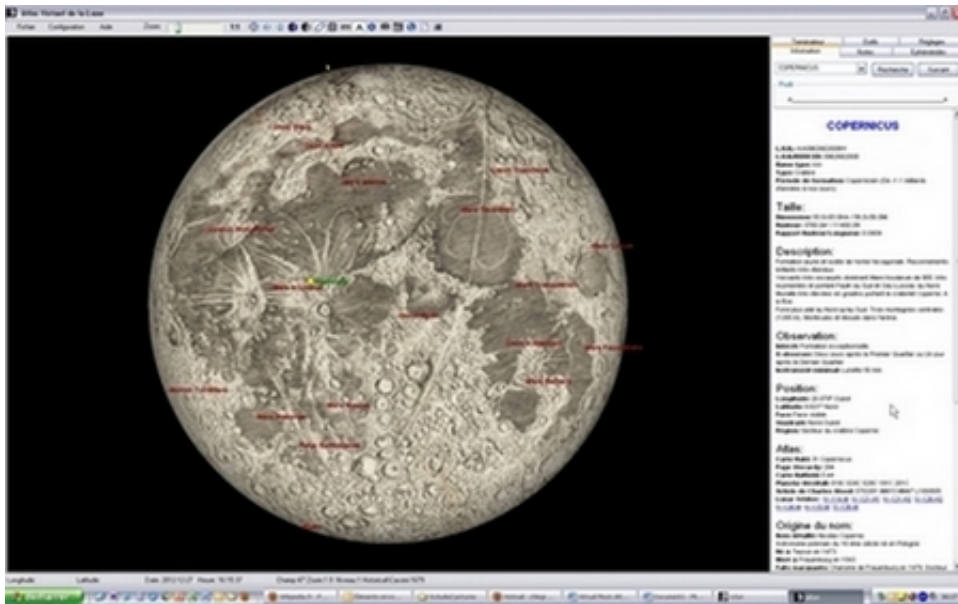
Mapping textures :

- JPL airbrush relief with (1500 m per pixel) and without albedo (1000 m per pixel)
- Clementine and Clementine negative (200 m per pixel)
- LRO WAC (60 m per pixel)
- USGS Lunar Orbiter (60 m per pixel)
- CNSA Chang'è 2 (60 m per pixel)
- LOLA-Kaguya-Shaded (60 m per pixel)
- USGS Unified geologic 2020 (500 m per pixel)

Historical textures :

Permitting easy comparisons of pioneers works with present datas :

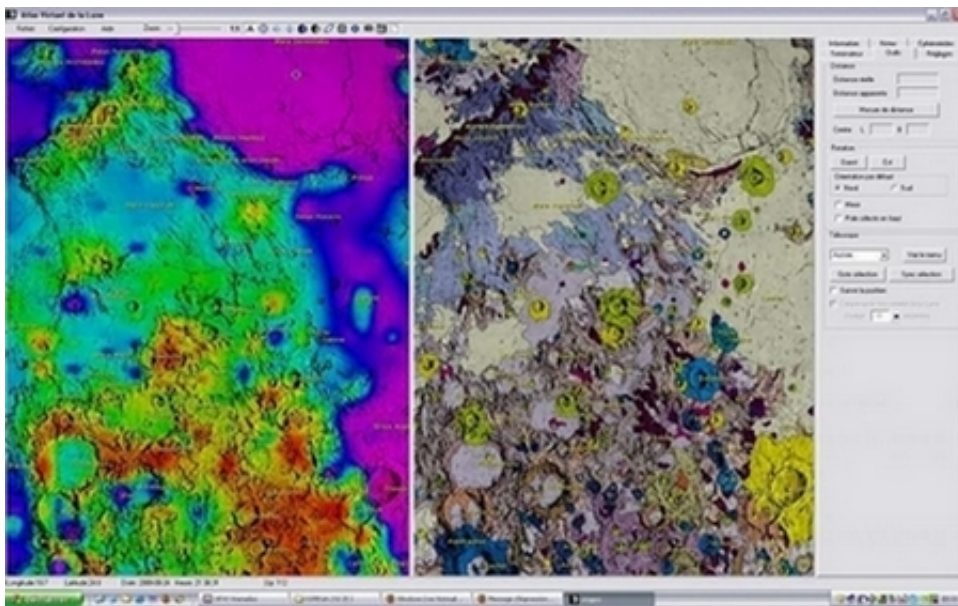
- Langrenus 1645
- Rheita 1645
- Hevelius 1647
- Divini 1647
- Riccioli 1651
- Cassini 1679
- Tobias Mayer 1791
- Beer & Maädler 1841
- Fauth 1936



Cassini 1679 historical texture

44 scientific overlays :

Gravity, temperature, altimetric, geologic, various elements as thorium, iron, several neutrons varieties... overlays can be applied on each texture. Double window feature permits comparisons between 2 overlays



Double window with altitude & geology overlay for correlation search

Pictures libraries :

- VMA includes lunar pictures libraries (Near 8 500 pictures) from :
- Lunar Orbiter Photographic Atlas of Moon
 - Various lunar probes (Ranger / Luna / LO...)
 - Apollo missions mapping and 70 mm Hasselblad
 - Consolidated Lunar Atlas
 - Lunar Astronautical Charts (LAC) and Lunar Maps (LM) from LPI

Thanks :

We thank a lot all the amateur and professional persons that support the development of VMA with the permission of using datas, maps or pictures they produce. VMA wouldn't exist without them.