

# LunarCell

Flaming Pear Software

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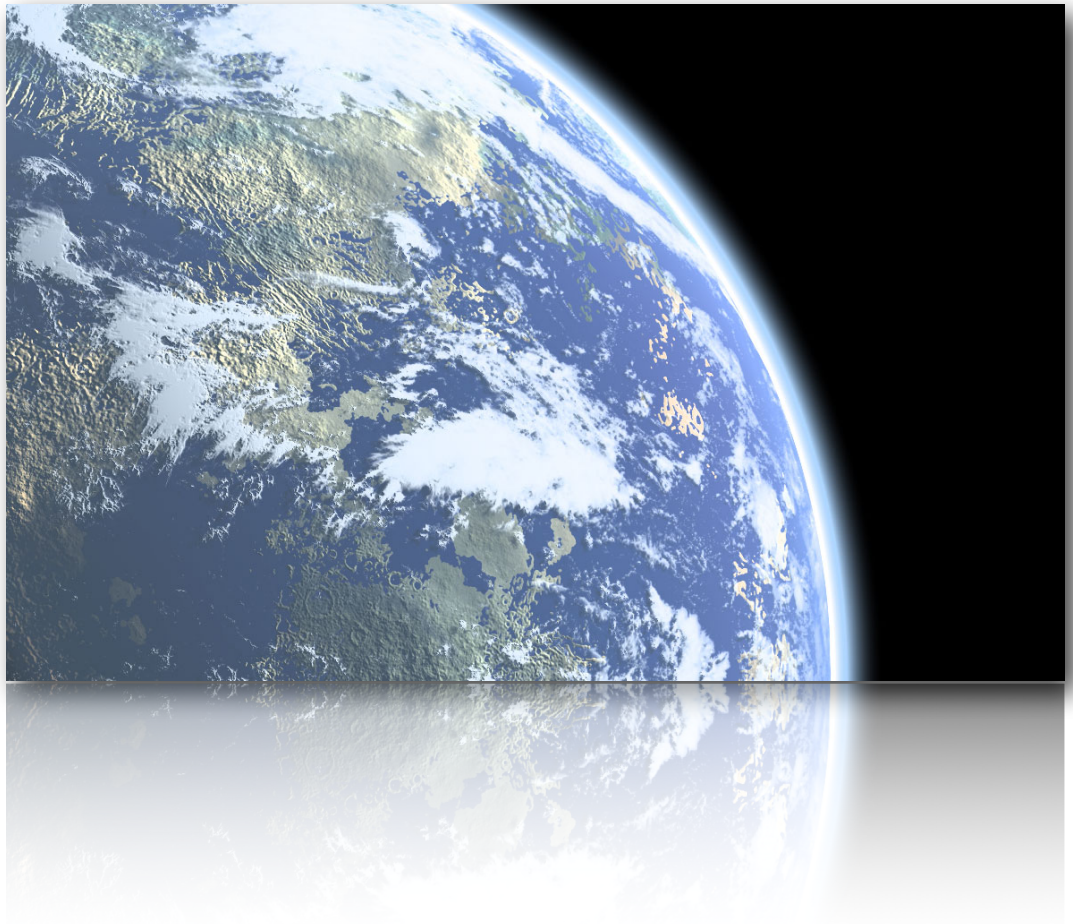
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## What it does

LunarCell is a plug-in for paint programs. It draws moons and planets.



## How to install

Illustrated installation instructions are online at [www.flamingpear.com/faq.html](http://www.flamingpear.com/faq.html) .

To use this software, you need to install it into Photoshop.

Just drag the plug-in filter into the folder where Photoshop expects to find it. On OS X, it will be similar to Applications/Adobe Photoshop/Plug-ins.

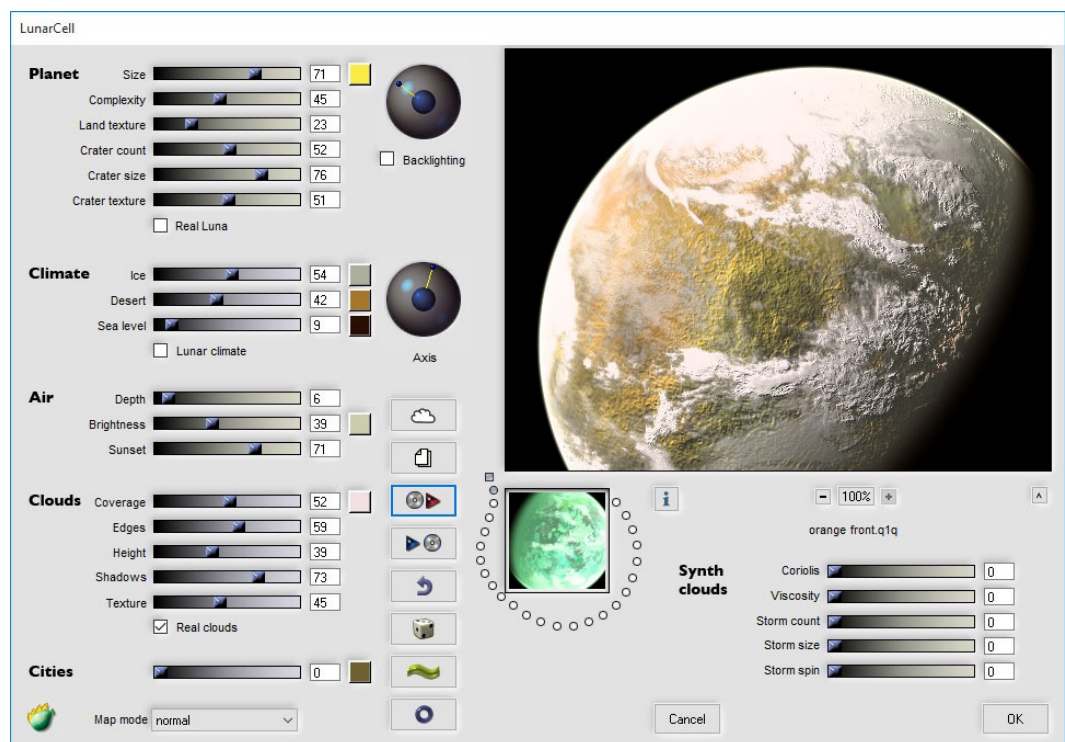
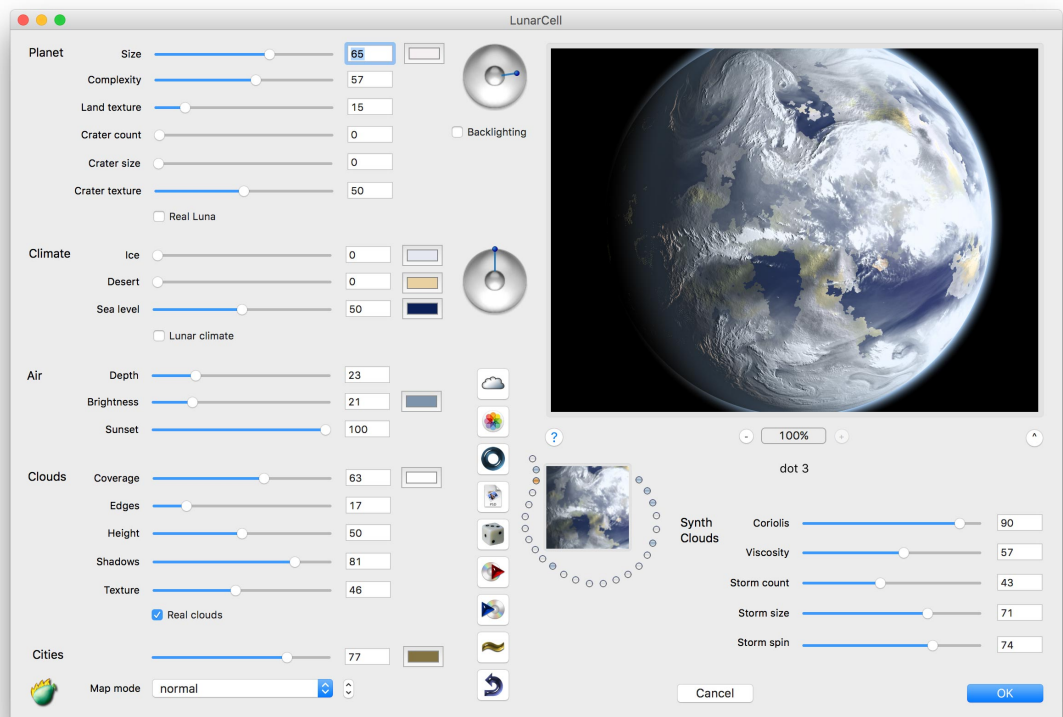
On Windows, it will be similar to C:/Program Files/Adobe/Adobe Photoshop/Plug-ins.

You must restart Photoshop before it will notice new plug-ins.

The plug-in is now installed. To use it, open any image and select an area. From the menus, choose Filter > Flaming Pear > LunarCell.

## Quick start

When you invoke LunarCell, a dialog box will appear.



If you just want to make a planet quickly, click the dice button until you see a planet you like; then click OK.



dice

To design your own planets, you'll need to familiarize yourself with the controls for each of the elements in a planet:

Planet

Climate

Air

Clouds

Synth clouds

Cities

...and a few other controls that affect the whole image.

## Planet

These controls set the shape of the planet.

**Size** lets you choose planets from point-sized up to the breadth of the starting image.

**Complexity** specifies whether the landmasses have simple or complicated shapes.

**Land texture** sets the height of the mountains and the depth of the oceans, if you have oceans. A setting of zero will give a smooth planet.



simple land

**Crater count** Besides the fractal landscape, LunarCell can produce craters. This isn't the number of individual craters -- it's groups of craters.

**Crater size** is the average size of a crater group.

When the count is high and the size is large too, LunarCell may overlap crater groups.

**Crater texture** is the roughness of the craters. It works just like Land texture.

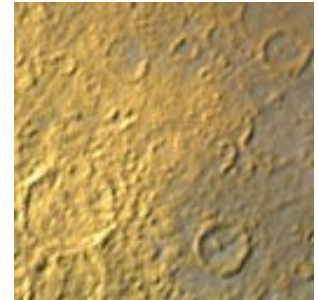
If Land texture and Crater texture are both zero, you'll get a smooth planet.

The **Color button** sets the main color of the planet.

**Real Luna**, when checked, gives you the shape of the Earth's moon instead of the fractal terrain. When you use this, you may want to reduce the Land texture setting. It's possible to add extra craters to the moon.



complex land



craters

## Climate

These controls let you add color to the landscape.

**Ice** sets the size of the planet's polar ice caps. You can choose the color of the ice by clicking the **color button**.

**Desert** produces deserts near the equator. Use the color button to pick a color.

**Sea level** makes oceans. Set it to zero for no oceans, or to 100 for a drowned world. Dark blue water works best.



green planet color, pale orange desert, blue water, blue-white ice



color button

**Lunar Climate**, when checked, gives you the coloration of Earth's moon. The Ice, Desert, and Sea colors are disregarded, and the hue comes entirely from the planet color button.



Real Luna and Lunar climate used together

## Air

Your planet can have an atmosphere.

**Color button** sets the color of the air. Pale, muted blue is the most realistic.

**Depth** sets how far the atmosphere extends into space.

**Brightness** changes the brightness of the air.

**Sunset** influences the reddening of the light near the terminator (the line that separates night from day). Its effect is clearest when you put the light directly behind the planet.



a planet with air

## Clouds

LunarCell gives you the choice of synthetic clouds or, with an Internet connection, real clouds from weather satellites. The controls in this section apply to both kinds of clouds.

**Color button** sets the clouds' color. Off-white is the most realistic.



real clouds



**Coverage** changes the amount of clouds. (When you use real clouds, you can't go up to 100% coverage — because the satellite pictures are not 100% cloudy.)



load clouds

**Edges** gives the clouds a soft-edged or hard-edged look.

**Height** sets the altitude of the clouds.

**Shadows** sets the darkness of the clouds' shadows.

**Texture** sets the amount of the clouds' surface texture. It's similar to Land texture and Crater texture.

**Real Clouds** checkbox will make LunarCell use weather satellite photos for the clouds. First you need to download these photos using the Load Clouds button.

**Load Clouds** button lets you download weather satellite images from the internet to use as clouds. This is explained below.

## Synthetic clouds

There are extra controls to describe synthetic clouds.

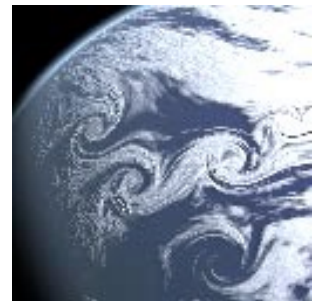
**Coriolis** produces the appearance of shearing winds between the equator and the poles.

**Viscosity** sets the “soupiness” of the air. Air with higher viscosity has fewer small cloud details.

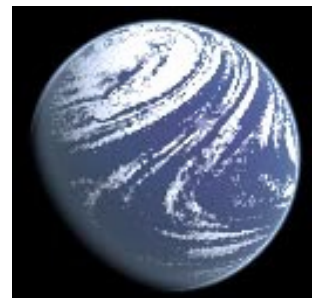
**Storm count** sets the number of hurricane-like storms.

**Storm size** is the size of the storms. LunarCell will not overlap storms. If you ask for more and larger storms than will fit on the planet's face, you'll get fewer storms than you asked for.

**Storm spin** sets the twirliness of the storms.



synthetic clouds



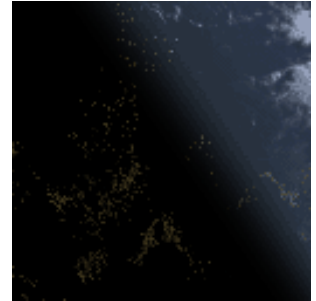
Coriolis winds

## Cities

You can add cities on the night side of the planet.

The **Cities** slider sets the density of the cities. Cities are placed mainly in coastal areas, so you may not see any cities at all if your planet has no oceans.

**Color button** sets the color of the cities. Dim, muted yellow works well.



cities near the terminator

## How to download clouds

Click the **Load Clouds** button. This shows a window with a list of available cloud images.

Choose the image you want to use, and click OK. Clouds will be downloaded and then applied to the image.

If no clouds are visible, try increasing the cloud Coverage and Edges sliders.

The cloud chooser screen has some other buttons:

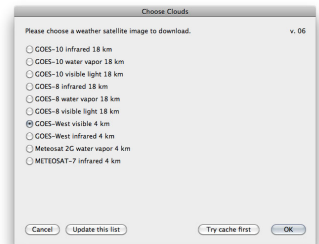
**Try cache first** will look to see whether the the clouds you've asked for are already on your hard disk. If so, LunarCell will just use those. If not, LunarCell will download the clouds.

**Update this list** will check Flaming Pear's website to see if there is a newer list of clouds available. The current version number appears in the top-right corner. Occasionally we update the list when the images it points to move or change.

**Cancel** quits without changing any clouds.



load clouds

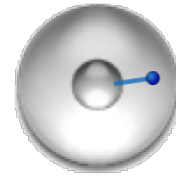


cloud chooser screen



## Other controls

**Light control** sets the light direction.

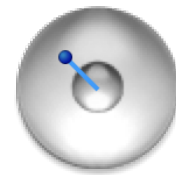


**Backlighting**, when checked, makes the light shine from behind.

☐ Backlighting

light control

**Pole control** moves the North Pole, influencing weather, climate, and city placement.



pole control

**Dice:** This randomizes the settings. Click it as much as you want to see different effects.



dice

**Reset:** Gives you the factory settings.



reset

**Random seed:** This changes the arrangement of all the random elements like land, craters, and synthetic clouds.



random seed

**Map mode** Chooses how to draw the planet. Normal draws it on a black background. Composite makes the planet opaque, and the underlying image shows through the air. Other modes make flat maps and are explained in the Mapmaking section.

**Glue:** Lets you combine the result image with the original, instead of replacing it. The **next-glue** button advances to the next glue mode.



next glue

**Send to photo manager:** Sends the result to Photos (on Macintosh).



send to photo manager

**Export to PSD:** Saves a ten-layered Photoshop file, with each layer containing a different map of the planet. This is useful if you want to use the maps as textures in a 3D application.



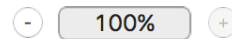
export to PSD

**Make Gallery:** Builds a web page showing all the presets in a folder that you choose.



make gallery

**Plus, % and minus buttons:** If the selected image area is bigger than the preview, these buttons let you zoom in and out. Drag the preview to move it.



plus % minus

**Load preset:** LunarCell comes with some presets, which are files containing settings. To load one, click this button and browse for a preset file.



load preset

**Save preset:** When you make an effect you like, click this button to save the settings in a file.



save preset

**Undo** backs up one step.



undo

**Info:** briefly explains the controls.



info

Three more buttons:

**OK:** Applies the effect to your image.

**Cancel:** Dismisses the plug-in, and leaves the image unchanged.

**Register:** Allows you to type in a registration code and remove the time limit from the demo.

## Memory dots

Although you can save your settings permanently to files, you can also stash settings in memory dots.

Click an empty dot to stash the current settings in it.

Click a full dot to retrieve its settings.

Hover the mouse over a dot to see what it contains.

Option-click to erase a dot on Macintosh.

Right-click to erase a dot on Windows.

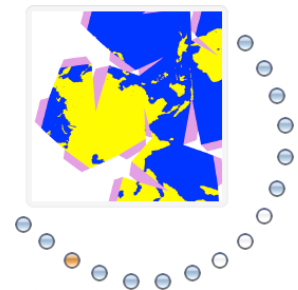
If a dot is orange, LunarCell's currently using that dot's settings.

Dots remember their contents until you erase them. If you'd rather make a temporary dot that forgets when you exit LunarCell, control-click it. Temporary dots are square.

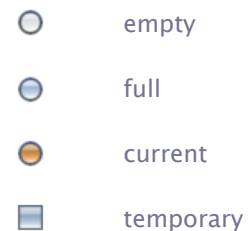
When you start LunarCell, it puts the starting settings in a temporary dot. That way it's easy to start over without exiting the plug-in.

On Mac, you can drag-and-drop settings files from the central memory well.

You can build a web page showing how the current image would look with every memdot setting. Just option-click (Mac) or right-click (Windows) on the big memdot image.



memory dots



## Mapmaking

LunarCell can create flat maps that you can use as texture maps in a 3D animation program.

The maps are drawn in a cylindrical equirectangular projection, also known as cylindrical equidistant or plate carrée: meridians are vertical, parallels are horizontal, and all are uniformly spaced. The map will fill the entire selection rectangle, permitting super-high resolution. For proper results you should start with a selection exactly twice as wide as it is tall.

| mode       | view  | remarks   |
|------------|-------|---|
| normal     | globe | black background  |
| composite  | globe | transparent background  |
| lit map    | map   | complete planet, lit  |
| map color  | map   | land and sea, unlit   |
| land color | map   | land color  |
| land bump  | map   | bump map; if clipping occurs, reduce “land texture” slider, or use 16-bit output. |
| ocean mask | map   | antialiased ocean boundaries  |
| air color  | map   | color of lit air; does not include the thickened haze near the planet’s edge.     |
| cloud mask | map   | opacity of cloud layer  |
| cloud bump | map   | bump map for clouds   |

| mode        | view | remarks                                       |
|-------------|------|---|
| cities      | map  | just the cities, on both day and night sides  |
| mural       | map  | complete planet with uniform-looking lighting |
| hypsometric | map  | color-coded altitude with contour lines       |

If you need a complete assortment of texture maps for a single world, you can generate them all at once by using the Send to PSD button.

The “real luna” and “real clouds” options can be used with maps, but since the images they use only show one hemisphere, they will appear duplicated on the far side of the planet.

If you want to build an actual physical globe of your LunarCell world, you can do that with [Flexify](#). You can make patterns for polyhedra, gores for a traditional globe, and an origami balloon.

## A hint

Use the “Composite” item in the map mode popup menu to draw the planet without the black background.

## Frequently Asked Questions

### Can it draw gas planets like Jupiter?

No.

### How do I composite the planet on top of another image?

Click the “map mode” popup menu and choose the “composite” item. Now when you use LunarCell the planet will be...

- merged into in the background layer, or
- drawn into a transparent region in any other layer.

### Sometimes when I try to increase the number of storms, no new storms appear.

LunarCell tries to keep storms from overlapping; sometimes there’s not enough room for the number of storms you’ve asked for. Try using smaller storms.

### What does the wavy-line button do?

Think of it as the “same-but-different” button. It reshuffles the deck of random numbers used to build the planet. When you click it, your planet design remains materially the same, but the specific placement of landmasses, craters, cities, and storms changes.

### What does the axis control do?

It says where the planet’s north pole is. It influences the placement of the ice cap, the deserts, the cities, the storms, and Coriolis winds.

**It's awfully slow.**

Yes.

**The sunset control doesn't do anything.**

Its effect is subtle: it reddens the edge of the sunlit part of the planet. To get a good look at what it does, put the light directly behind the planet and then try different sunset settings.

**I turned the cities slider up to 100, but still no cities appear.**

Cities only appear near coastlines, so try changing the sea level.

**I can't download satellite clouds.**

You need a working Internet connection. If your connection is fine but you still can't get the clouds to download, it may be that the server that sends the files is not working. Try again later.

**I downloaded some satellite clouds and the image is corrupted.**

Sometimes the supplied pictures contain errors like bright horizontal lines or blank areas. LunarCell isn't smart enough to fix this.

**I loaded a preset that calls for real clouds, but I get the synthetic ones instead.**

If LunarCell can't find any clouds images on your computer, it will fall back to synthetic clouds. To get real ones again, use the cloud-downloader button.



**How often are the clouds updated?**

Typically once per day.

**When I'm using real clouds I can't make the coverage go above 50%.**

LunarCell can remove clouds from a satellite cloud image, but it can't add new ones, so the control maxes out at 50%. If you use synthetic clouds, you can use the whole range of the coverage slider.

**I can't see any clouds.**

Try increasing the "coverage" and "edges" sliders.

**In the cloud-chooser dialog box, I clicked the "update this list" button, but the list didn't change. Why?**

The cloud list rarely changes. We only renew the list when one of its items stops working.

**Where do the satellite clouds come from?**

At the time of this writing, LunarCell is configured to get its cloud images from [The Space Science and Engineering Center](#) at the University of Wisconsin-Madison.

**I just want to make a plain picture of Earth's moon. How?**

Set the air depth, sunset, sea level, and crater count to zero. Check the "Real Luna" and "Lunar climate" checkboxes. Set the Land color to bright gray and set planet texture to about 15.

### **How do I make a terraformed moon?**

Start with the above recipe for a plain moon. Then adjust the sea-level, air depth, and clouds. If you want, turn off the “Lunar climate” control to get a green and verdant moon.

### **What is terraforming?**

It’s the [speculative technology](#) of turning lifeless worlds into habitable Earth-like ones.

### **Does the moon have a name?**

The moon’s name is Luna. It’s useful to know when you need to distinguish it from the [several dozen other moons](#) in the solar system. The sun’s name is Sol, and sometimes the earth is called Terra.

### **Where can I get more spacy pictures?**

Earth & weather

[NASA’s Visible Earth imagery](#)

[Space Science and Engineering Center weather satellite imagery](#)

[Geostationary satellite server](#)

[National Oceanic and Atmospheric Administration](#)

[PSC Weather Center](#)

Luna

[Earth View](#)

[JSC Digital Image Collection – AS11-44-6667](#)

[USGS Astrogeology Science Center](#)

[Johnson Space Center Image Gallery](#)

[NASA’s CGI Moon Kit](#)

[Clementine map browser](#)

[Maps of the Solar System](#)  
[NSSDC Photo Gallery: Moon](#)

## **Version history**

### **Version 1.992**

Improved real Luna imagery, and a new list of downloadable clouds.

### **Version 1.991**

Improves the interface on high-DPI Windows monitors.

### **Version 1.99**

Restores compatibility with Mac OS X 10.8.

### **Version 1.98**

Restores 32-bit compatibility for Mac OS X. Minor updates for OS X El Capitan.

### **Version 1.97**

Fixes an issue with registration codes.

### **Version 1.96**

Restores compatibility with Mac OS X 10.7.

### **Version 1.95**

Macintosh version works in both 32- and 64-bit modes.

### **Version 1.94**

Macintosh version works in Retina resolution.

**Version 1.93**

Updates the list of downloadable clouds. Fixes a rendering error when air depth is zero.

**Version 1.92**

Fixes previews in 16-bit color.

**Version 1.91**

Fixes issues with stability and misaligned freeform selections in previews.

**Version 1.90**

64-bit version for Macintosh.

**Version 1.80**

64-bit version for Windows.

**Version 1.76**

Fixes a bug in the Mac version where some sliders would not respond.

**Version 1.75**

Adds convenience features to the interface. The Mac version is resizable. The Glue menu is now called Map Mode, but still works the same way.

**Version 1.7**

Universal binary for Macintosh. The planet's size is now relative to the breadth of the starting image. New downloadable clouds have higher resolution.

**Version 1.53**

Fixes a problem where exported layers won't open in Photoshop.

**Version 1.52**

Fixes a problem where craters may not appear properly.

**Version 1.5**

Works with 16-bit-per-component color.

**Version 1.45**

Recordable as a Photoshop action.

**Version 1.41**

Fixes a crash that could happen when using the menus under Windows XP.

**Version 1.41**

Fixes the appearance of text in the interface when running under Mac OS X 10.2.3 .

**Version 1.4**

Now exports multi-layered maps to Photoshop files, and has a hypsometric map mode. The ocean mask mode now subtracts ice cover from the oceans, so that it's more useful as a specularity mask.

**Version 1.3**

The satellite cloud reader can now handle JPEG images, so there are six new live cloud sources. These replace GIFs that are no longer updated.

**Version 1.2**

The glue menu has been replaced with the map menu, which lets you export unwrapped planet elements for use in 3D animation. The storms have moved, because now they react correctly to the position of the planet's pole.

**Version 1.02**

In newly created presets, LunarCell now pays more attention to the planet color setting, producing richer color variation. Presets from older versions of LunarCell will produce the same image as before, unless the user chooses a new planet color.

**Version 1.0**

The first public release.



## How to purchase

You can place an order online [here](#). A secure server for transactions is available.

## Questions

The software, documentation, and supporting materials are made by Flaming Pear Software. Answers to common technical questions appear on our [support page](#), and free updates appear periodically on the [download page](#).

For bug reports and technical questions, please write to [support@flamingpear.com](mailto:support@flamingpear.com).

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