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[1.4.x] - KerBalloons v0.4.4 - Real Science?

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By Fengist, August 19, 2018 in Add-on Releases

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Fengist

Posted August 19, 2018 (edited)

[Report post](#)

Swabbie



Members

+ 1,296

1,735 posts

KERBALLOONS

**Delete any previous installs of**

KerBalloons before installing this version!

[Download from CurseForge](#)

Designed to gather scientific data without the expense of a sounding rocket, Kerballoons are small, light and can easily be sent with your probes to any planet with an atmosphere to gather that all important scientific data.

This project was originally created by [@JoePatrick1](#) and the original thread can be found [here](#). Thanks Joe for trusting me with your work.

Released under the [MIT license](#).

Source code can be found [here](#).

This mod includes version checking using [MiniAVC](#). If you opt-in, it will use the internet to check whether there is a new version available.

Data is only read from the internet and no personal information is sent.

Thanks to [@Beale](#) and his [modding tutorial](#) He's responsible for this.

[v 0.4.4 release notes are here](#)

Release notes for previous versions

 [Reveal hidden contents](#)

Current Status

For those of you who have used KerBalloons in the past, this is a continuation of JoePatrick1's work. Initially I'll be simply maintaining the status quo. Once I have another project I'm working on more solidified I'll be turning my attention to KerBalloons. For now, let's just say that KerBalloons will make a perfect companion to the other project in my IDE and have no plans to let it sit idle.

Joe's concept was to create scientific research balloons that were cheaper than rockets but gathered the same science. I plan to continue that concept and hopefully, expand on it. I feel that not only should KerBalloons be a fun and immersive mod, it should also offer educational opportunities by reflecting the use of real-world balloons.

Future Plans

- Rework the lifting mechanism to reflect real-world physics with actual lifting gasses. Joe's physics works great but adding in lifting gasses will add more immersion. It'll require you to think about how you're going to bring them back down, refuel them and move them to new locations. (Move them? Why?...)
- REAL science, not mystery goo. Adding in a data recorder that will track and record flight data and save it. Create your own scientific charts and graphs from various locations/planets and compare them.
- Pressure release valves - Your balloons will be able to maintain an ideal altitude for long duration science monitoring.
- "Croce" pumps - Create your own project Loon using balloonets that will let your KerBalloon descend without deflating. (This may require adding in airparking which I'm not a huge fan of due to being unrealistic. Unfortunately, I know of no other way to safely leave a vessel in flight and have it not vanish, explode or get eaten by a Kraken.)

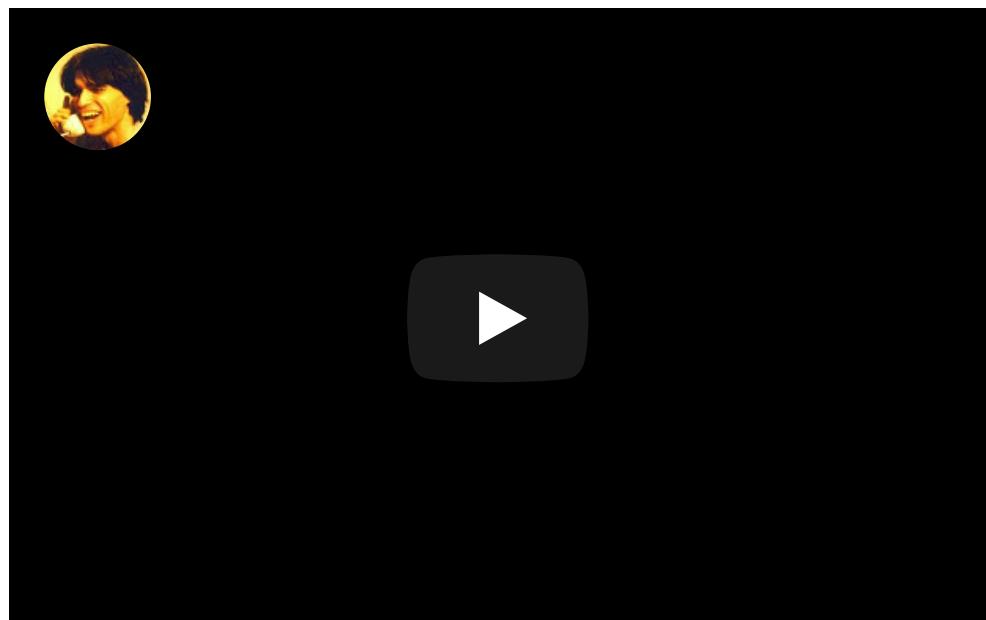
Maybe's

- A gondola? Hot air? Movement simulating air currents?

- Bloostar? - Adding in specific parts that will allow extreme high altitude launches of satellites. (This will take some SERIOUS ballooning.)

Enjoy and please feel free to ask any questions or discuss any of the ideas I have.

And to get you in the mood for ballooning, some "Champagne Soul"...



Edited September 8, 2018 by Fengist

+ Quote

You, Nightside, sc0rch and 9 others like this

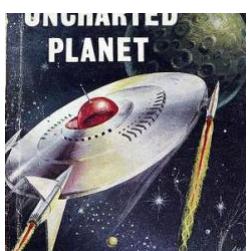


x ▾

sig1.jpg

Nightside

Rocketeur



Members

+ 1,049

1,584 posts

Posted August 19, 2018

Report post

Nice! Thanks [@JoePatrick1](#) and [@Fengist](#)!



Quote

JoePatrick1 likes this

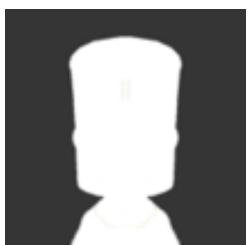


// [Terrainium - Actual Launch Sites - Actual](#)

Latitudes// [Transmogrifier](#) Real-sized* rockets - stock-alike
gameplay. // [Tanks, But No Tanks](#) Hide extra tanks in the
[VAB](#)

JoePatrick1

Spacecraft Engineer



Members

+ 589

400 posts

Posted August 19, 2018

Report post

License is now MIT

[Here's all my original files](#)

Thanks for picking up where I left off, I look forward to
seeing what you do with it



Quote

Drew Kerman and sc0rch like this



My Mods:

[KerBalloons](#)

[Kerbal Chroma \(greenscreen mod\)](#)

[Automatic Abort System \(AAS\)](#)

[Radar Altimeter](#)

[How to make your own balloons with KerBalloons](#)

linuxgurugamer

The light at the end of the
tunnel may be an oncoming
dragon



Posted August 19, 2018

Report post

I've been pinging Joe for more than a month about this,
and just heard that you are taking it over. Joe let me know,
but if you are going to do it, I have no real desire to take



over yet another mod, I'm busy with my own. Good luck, and let me know if you need any help



Quote

zer0Kerbal likes this



Members

+ 12,534

15,947 posts

Location: At SpaceTux
Industries HQ

I stream on Twitch on Sunday evenings:

<https://www.twitch.tv/linuxgurugamer>

Read this BEFORE asking for

support: <http://forum.kerbalspaceprogram.com/index.php?/topic/83212-how-to-get-support-read-first/>



Fengist

Posted August 19, 2018

Report post



Swabbie



Members

+ 1,296

1,735 posts

On 8/19/2018 at 11:01 AM, linuxgurugamer said:

I've been pinging Joe for more than a month about this, and just heard that you are taking it over. Joe let me know, but if you are going to do it, I have no real desire to take over yet another mod, I'm busy with my own. Good luck, and let me know if you need any help

Already working on a patch to fix/upgrade the icon not showing up and should have something up on Curse a bit later today. And go relax LGG, I got this (well, I may still have dumb questions for you in the C# forum :D).



Quote

zer0Kerbal likes this



linuxgurugamer

The light at the end of the tunnel may be an oncoming dragon



Members

+ 12,534

15,947 posts

Location: At SpaceTux
Industries HQ

Posted August 19, 2018

Report post



On 8/19/2018 at 11:45 AM, Fengist said:



Already working on a patch to fix/upgrade the icon not showing up and should have something up on Curse a bit later today. And go relax LGG, I got this (well, I may still have dumb questions for you in the C# forum :D).

Are you going to add support for the Toolbarcontroller?



Quote



I stream on Twitch on Sunday evenings:



<https://www.twitch.tv/linuxgurugamer>

Read this BEFORE asking for

support: <http://forum.kerbalspaceprogram.com/index.php?/topic/83212-how-to-get-support-read-first/>

**Fengist**

Swabbie



Posted August 19, 2018

Report post



On 8/19/2018 at 12:15 PM, linuxgurugamer said:



Are you going to add support for the Toolbarcontroller?

I hadn't planned on it. Right now the issue is an easy fix. Joe had a category icon that got busted in a Unity code change and because most of his parts were listed as category=none they weren't being displayed. The method he used worked in the past but now produces one of those

Members

+ 1,296

1,735 posts

'fuzzy' icons. So, I'm just copying code over from one of my other mods that I know works.



Quote



sig1.jpg

Fengist

Swabbie



Members

⊕ 1,296

1,735 posts

Posted August 19, 2018

Report post



KerBalloons v0.4.3 available for download. Let me know if there are any issues. For a faster response... @ me

Enjoy.



Quote

Benjamin Kerman likes this



sig1.jpg

JH4C

Sr. Spacecraft Engineer



Members

⊕ 214

416 posts

Posted August 19, 2018

Report post



On 8/19/2018 at 6:23 PM, Fengist said:



Let me know if there are any issues.

You've put MiniAVC into a separate folder; standard convention is to include it in the folder of the mod it relates to.



Quote



JH4C: it's short for JustHere4Coffee



Fengist

Swabbie



Members

+ 1,296

1,735 posts

Posted August 19, 2018

Report post



On 8/19/2018 at 10:49 PM, JH4C said:



You've put MiniAVC into a separate folder; standard convention is to include it in the folder of the mod it relates to.

That I did, and here's why. I have 4 mods now that use it. If I put it in the folder for each mod then there's 4 copies of it lying around with 3 serving no purpose other than consuming space and cpu cycles. The .version files are in the folders with the plugin. Now unless that prevents MAVC from running properly, it sure makes sense to me.



Quote

Stone Blue likes this



sig1.jpg



Fengist

Swabbie



Members

+ 1,296

1,735 posts

Posted August 27, 2018 (edited)

Report post



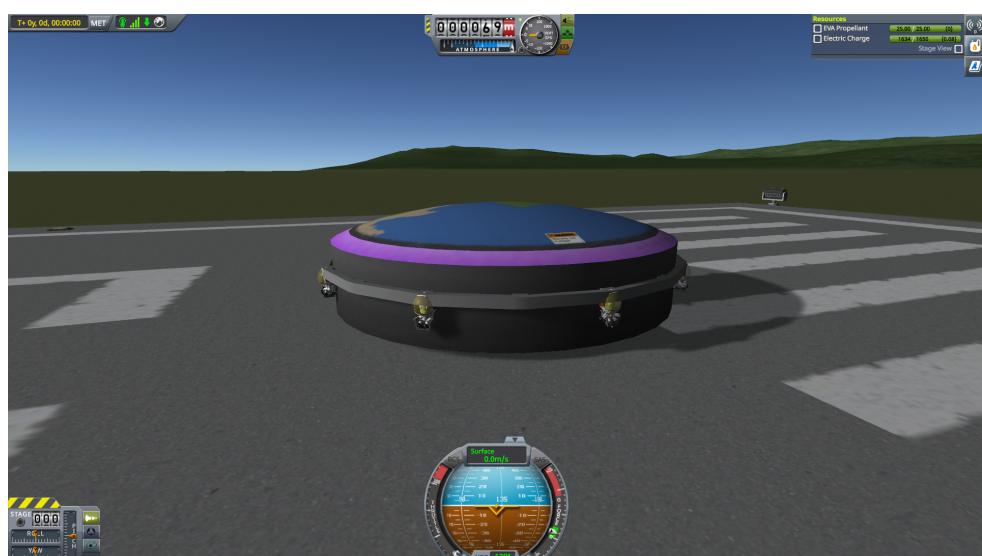
Just a quick note to give an update.

Still working heavily on the other project. But I did get time to look over the old parts and the files left by JoePatrick1. What I discovered was well... he said in the original thread that it was a bit disorganized and he wasn't kidding. But, I was able to accomplish one goal. I was able to extract one of the balloons from the Unity project files and move it into its own folder (Joe had ALL 16 balloons in one Unity

scene). With that one balloon I was able to do some testing. Another modder, Allista (I won't @ him either, he's quite busy) has given me permission to fork some of his code and use it in my projects. His plugin is officially known as the anisotropic part resizer. While that's a bit of a mouthful, it's just a souped up tweak-scale. But, It does allow you to resize parts in 2 dimensions. While not as adept as say Procedural Parts and probably not as well rounded as Tweak-Scale, it has one huge advantage. With him allowing me to re-purpose that code and include in my projects. it means that I can choose parts from my mods and allow users to resize them **without having any dependencies**. Those of you who are familiar with my other mods know that I loathe dependencies.

So, what does that mean for KerBalloons? I was able to take the model for the 3.75 balloon, scale it up and scale it down and have it work perfectly. One of the things I hope to use this for is a sweeping part reduction overhaul. As it stands now there are 16 models and 48 .cfg files. With the part resizing and by taking the .cfg file data, stuffing it into the plugin and have it as selectable items in the part UI, I think I can reduce that to 1 part, 1 .cfg and still provide all of the functionality and flexibility KerBalloons currently has (maybe even add some new sizes in).

So, if you have a potato with limited ram, I may be making some room for yet another mod... Soon™





The little white specks are Kerbals

Edited August 27, 2018 by Fengist

+ Quote

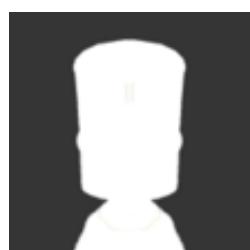
JadeOfMaar, Drew Kerman, Nightside and 3 others like this



sig1.jpg

waerth

Rocketry Enthusiast



Members

+ 20

86 posts

Posted August 28, 2018

Report post

What is the other pack you are working on? Please tell me it's early rockets basically filling von Braun's and Goddards early rockets before the V2 :p

And maybe probes that send animals into space instead of Kerbals lol.

regards,

Waerth

+ Quote



Follow my [New Kerbol Space Exploration Initiative](#) @



The_Arcitect

Active Futurist of KSP



Members

161

107 posts

Location: Looking for "Jool
rings"

Posted August 28, 2018

Report post



The KerBalloons only added parachutes...

I need help.



Quote



[KSP: 1.7.2](#)



[Near Recover ability Challenge ADMIN](#) [Docking ports as Decouplers ADMIN](#) . "Now if I had a docking port..." Me: Whenever I do a mission and forget the docking ports [Nos mos pervenio stellas ...](#)

[The Number Wars 2](#)

Fengist

Swabbie



Posted August 29, 2018

Report post



On 8/28/2018 at 7:37 PM, The_Arcitect said:



The KerBalloons only added parachutes...

I need help.

Members

1,296

1,735 posts

Ok, that sounds like an issue with either the plugin or the icons are missing. All of the balloons are set to category =none so if the plugin isn't working they won't be visible. The parachutes though will. Did you have an old install of KerBalloons? If so, you need to delete it before installing this one.

On 8/28/2018 at 6:45 PM, waerth said:

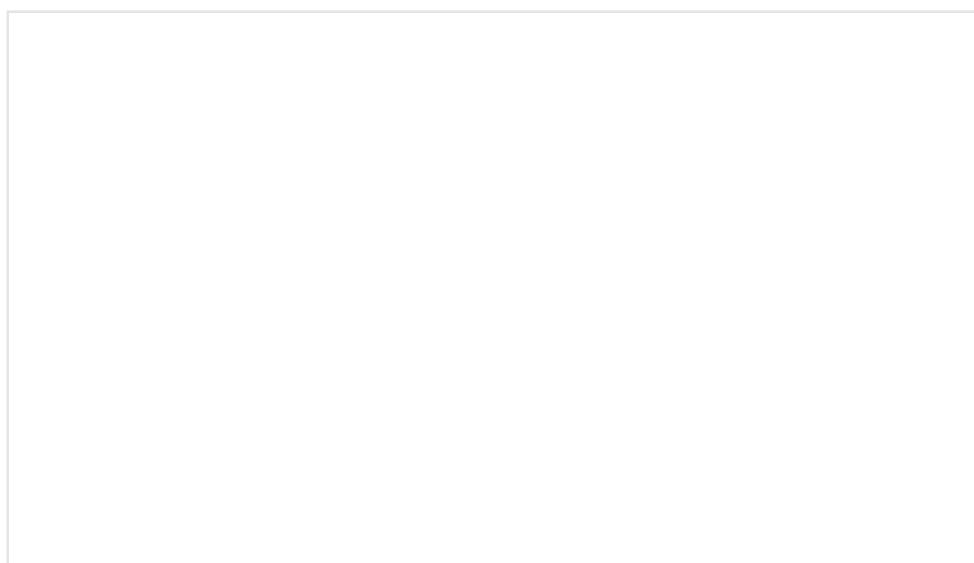


What is the other pack you are working on? Please tell me it's early rockets basically filling von Braun's and Goddards early rockets before the V2 :p

And maybe probes that send animals into space instead of Kerbals lol.

regards,

Waerth



Quote

waerth and Benjamin Kerman like this



sig1.jpg



The_Arcitect

Active Futurist of KSP



Members

+ 161

107 posts

Location: Looking for "Jool
rings"

Posted August 29, 2018

Report post



Nope, brand new, just got it a day ago.

Also all Categories are =none



Quote



KSP: 1.7.2



Near Recover ability Challenge ADMIN Docking ports as
Decouplers ADMIN . "Now if I had a docking port..." Me: Whenever I
do a mission and forget the docking ports Nos mos pervenio stellas ...

Fengist

Swabbie



Members

+ 1,296

1,735 posts

Posted August 29, 2018 (edited)

Report post



On 8/29/2018 at 5:36 PM, The_Arcitect said:



Nope, brand new, just got it a day ago.

Also all Categories are =none

Ok, here's the silly question.

Did you download from the link I have in the OP or did you just find it in Curse and download it there?

It sounds to me like you have v 0.4.2 or earlier. 0.4.3, the one in the OP, fixes that exact problem.

Edited August 29, 2018 by Fengist



Quote

The_Arcitect likes this



[sig1.jpg](#)

**The_Arcitect**

Active Futurist of KSP



Members

+ 161

107 posts

Location: Looking for "Jool rings"

Posted August 29, 2018

Report post



Oh, ok, thanks.

Also: I did get this from CurseForge.



Quote



[KSP: 1.7.2](#)



[Near Recover ability Challenge ADMIN](#) [Docking ports as Decouplers ADMIN](#) . "Now if I had a docking port..." Me: Whenever I do a mission and forget the docking ports [Nos mos pervenio stellas ...](#)

DTraveler

Curious George



Members

0

3 posts

Posted August 29, 2018

Report post



Is there a reason why CKAN reports this as only being compatible up to 1.3.9 in spite of the fact that the topic says it is compatible with 1.4.x? I know that I can just install it manually from CurseForge but CKAN makes it so convenient to update (or uninstall, in the event that I need to go back to a vanilla install).

+ Quote

**Fengist**

Swabbie



Members

1,296

1,735 posts

Posted August 29, 2018 (edited)

Report post



On 8/29/2018 at 9:05 PM, DTraveler said:

Is there a reason why CKAN reports this as only being compatible up to 1.3.9 in spite of the fact that the topic says it is compatible with 1.4.x? I know that I can just install it manually from CurseForge but CKAN makes it so convenient to update (or uninstall, in the event that I need to go back to a vanilla install).

Good question. I haven't been asked that in a while so it's time for the full response.

I will not be distributing this mod on CKAN. I only distribute on CurseForge and here's my reasons.

1. CKAN has hijacked mods in the past, including one of mine. They assumed that because SOMEONE gave them permission to distribute a mod then it MUST have been the author. I like to know where my mod is being distributed.
2. Curse gives me one vector to distribute my mods, of which I have several, which is very convenient for me. I don't have to keep track of where my mod needs to get uploaded to or what hoops I need to jump through get it installed in this or that. I upload, they approve... done. Furthermore, as was the case with a Maritime Pack user

recently, Curse maintains my archive of older versions so that should someone ask me for a KSP 1.3 version of my mod, I know exactly where they can download it.

3. Curse allows me to keep track of how many downloads each of my mods are getting in one very convenient place. And, I can even gauge how popular my mods are based on their placement. (Which is real nice since everyone has seemed to taken the lazy way out and click those like buttons in the forums rather than spend 30 seconds to actually type out, "Hey! Cool Idea!"

4. While it's paltry to the point of being a joke, at least Curse does give a minuscule cash reward for downloads. (In over 100,000 downloads I think I've accumulated enough points for \$30.00 worth of Amazon gift cards... whoopeeee.)

5. Unlike other distribution vectors, Curse actually has an approval process whereby someone actually inspects the mods before they're being downloaded. This you should consider as a huge benefit because they take some responsibility to make sure the code is what it says it is and that it at least meets some approval standard.

6. And this one you should also appreciate... its the only download vector that is both, Squad approved AND has its own button in the game menu.

Now, I realize that was a rather lengthy reply but, I REALLY appreciate when someone takes the time to post a question, or comments or pictures on one of my mod's forum threads instead of clicking that like button. To show that appreciation, I'll also dedicate some of my time to respond.

Hope that answers your question D:

And feel free to like this response. ---->>>

Oh, and this note from CKAN which was linking to Curse:

"NOTE: The Curse API used by CKAN is disabled as of March 17, 2018. This prevents CKAN from automatically indexing mods hosted on Curse."

If they ever get that worked out then I won't have a problem with my mods being on CKAN.

On 8/29/2018 at 7:20 PM, The_Arcitect said:

Oh, ok, thanks.

Also: I did get this from CurseForge.

Yea, it was a guess. I just recently took over this mod and asked the previous owner to either shut down his Curse project or at least redirect people. I guess he forgot. But, now you know where to find it.

Edited August 30, 2018 by Fengist

+ Quote



sig1.jpg



Fengist

Swabbie



Members

1,296

1,735 posts

Posted September 2, 2018 (edited)

Report post



In testing:

A quick update on the progress of ideas. I've got some preliminary code working to log various bits of data. Here's a sample of the output:

<https://pastebin.com/ZAjjUmgi>

The plan is such. I'll be creating a new datalogger part. With it, you'll be able to set intervals between 1 and 60 seconds. Once turned on, it will log data to a .csv file in a new folder called KerBalloons/LogData. It currently looks for the scientific instruments available from the stock parts. If the instrument isn't turned on, it won't give any data. That means, once you turn on, say the thermometer, it'll start using electricity.

This has also, in my head, created a need for some other parts. One being a clock. Without it, the datalogger won't

know what time to record. And, a new instrument, an atmospheric density recorder. And another instrument. Let's call it a sextant to log latitude and longitude.

If there are any other instruments you'd like to see created so that data can be logged, let me know here and I'll see what I can come up with.

Edited September 2, 2018 by Fengist



Quote

Drew Kerman likes this



sig1.jpg



Citizen247

Rocketry Enthusiast



Members

+ 340

361 posts

Posted September 2, 2018

Report post



I'm really happy to see this being revived! Thanks for your work.



Quote



[MAD - Aerospace parts \(razorback cockpits and parts\)](#) | [AJE - Extended Configs](#)



Isentrope

Newbie



Members

+ 3

Posted September 7, 2018

Report post



Hi, I have some direct experience with long duration stratospheric superpressure balloon design and operation. I'd like to highlight some important concepts long duration balloon issued that are often non-obvious. I realize these things are also probably non-trivial to implement, but I'll throw them out here since you do seem to be making significant effort to be accurate to real world physics. My apologies if some of this is review for

1 post

Location: USA

some of you.

Zero pressure balloons (non-elastic film) inflate as they climb until they reach a fixed maximum inflation volume, and then gas overflows out a hole at the bottom or a simple overpressure valve.

Superpressure balloons (non-elastic film) inflate as they climb until they reach a fixed maximum inflation volume. The gas cannot escape, so as they continue to climb up into lower pressure air, the absolute pressure in the envelope remains constant, while the outside air pressure falls. This pressurization, without volume increase, causes the balloon envelope to maintain a constant density. It will stop climbing when the air density outside equals the balloon's density, or the tension in the balloon pressure vessel skin exceeds the strength of the envelope material. Superpressure balloons are a pretty ideal place to apply the ideal gas law.

In the real world, temperature will go up and down every day, and moles of lift gas will always go down every day, in both ZP and SP balloon envelopes. ZP envelopes are expected to collapse when they cool at sunset and become negatively buoyant. Mass must be jettisoned at that time on a ZP, or in a few hours the balloon will gently arrive at the ground/ocean surface. This raises the neutral buoyancy float altitude slightly. At sunrise, the ZP heats up causing gas to overflow. This also raises the neutral buoyancy float altitude slightly. Repeat until you are out of ballast. Usually the last sunset after running out of ballast marks the beginning of a gentle, but terminal, descent. However, if you are descending so slowly that you are still in the air at sunrise, the sun will heat the gas for one last climb up to float altitude. After an uncontrolled night landing, if the balloon and payload remain undamaged and not caught on anything on the ground, the balloon will take off again for another day of flying. These bonus days often do not make it back to full float height, and often sink to the ground after noon, but before sunset.

Superpressure balloons ALL WILL LEAK at a varying rate that is governed by the fixed leak hole size, and the fluctuating pressure differential. There is no such thing as a leak-tight balloon when you're considering flights of up to

one year in duration. The leak's effect on a balloon can be simply described by the ideal gas law - you lose gas moles permanently through a leak. That means if temperature were to remain constant, your internal absolute (and differential) gas pressure is going to decrease over time based on how many moles remain in the envelope. What makes this maddening to measure, in reality, is that temperature changes significantly every day, which changes the internal absolute (and differential) pressure, masking the pressure drop from losing gas molecules.

To further compound the headache- the lower your differential pressure (inside envelope lift gas to outside air), the slower you lose moles of lift gas out the leak.

To usefully quantify the "leakage rate" for a particular balloon, you need to use a special set of units relating (pressure * volume / time). Commonly used units are ($\text{Pa m}^3 / \text{s}$) or (atm cc / s) for example.

This "leakage rate" number will stay the same no matter what the pressure is in the balloon or how many moles are lost.

When you lose enough moles of gas that on some fateful day your differential pressure drops to 0, the superpressure balloon becomes a zero-pressure balloon, and will die in the same manner at sunset as a ZP balloon does.

Thus the SPB envelope must be designed to handle the differential pressure swings caused by daily/seasonal thermal radiation changes, as well as the average continual pressure drop due to the continual loss of lift gas. This is a difficult challenge given the properties of materials available today, with very little margins.

I'll wrap this up here for now. I am also willing to contribute to coding of this mod if I can be of help, as I'd like to see these effects, and others not mentioned yet, eventually modelled in the KSP balloons. (I suspect that having an envelope visually collapse like a real ZP may not be possible in this game engine though)



Quote

ZarDan, JH4C and Drew Kerman like this



Fengist

Swabbie



Members

+ 1,296

1,735 posts

Posted September 7, 2018 (edited)

Report post



On 9/7/2018 at 3:35 AM, Isentrope said:

Hi, I have some direct experience with long duration stratospheric superpressure balloon design and operation. I'd like to highlight some important concepts long duration balloon issued that are often non-obvious. I realize these things are also probably non-trivial to implement, but I'll throw them out here since you do seem to be making an significant effort to be accurate to real world physics. My apologies if some of this is review for some of you.

First of all, welcome to the forums. Always nice to have an expert looking over the shoulders of us science enthusiasts making sure we get it right. Second, where were you a month ago when I was trying to wrap my head around the ideal gas law :D.

I'm not sure if you've seen this but:

One of the reasons I went out of my way to find Joe and ask him about KerBalloons when it became apparent that he didn't have time to work on it was because of that pet project. It occurred to me that both airships and balloons shared a common mechanism when it came to getting them off the ground and I have this grand idea of putting them all under one roof. In response I'm going to regurgitate some of the things I put in that thread but, I'm

hoping to eventually get KerBalloons working under the same concept so it applies.

In my reply, I'm including some of the internals on how this is all going to work and how it currently is working. My goal is to emulate real physics. If you want to keep imaging that it's real physics, then you probably shouldn't read what I'm about to explain as it will include some of the shenanigans I'm having to employ to make it appear real.

» Reveal hidden contents

On 9/7/2018 at 3:35 AM, Isentrope said:

I'll wrap this up here for now. I am also willing to contribute to coding of this mod if i can be if help, as I'd like to see these effects, and others not mentioned yet, eventually modelled in the KSP balloons. (I suspect that having an envelope visually collapse like a real ZP may not be possible in this game engine though)

So, from the contents of the spoiler you may have gathered that I have much of the code to accomplish what you describe and I believe it to be reasonably accurate. Eventually moving this to KerBalloons will take a bit of effort. The goal will be to mostly keep the same part design and functionality while replacing the lifting mechanism with the code I have now. That will be fun.

The Unity engine itself has gobs of capabilities, from simulating weather and waves to cloth blowing in the breeze. The question is, whether KSP employs those capabilities and how taxing it would be on the engine to try to overlay those features on top of the KSP code. The way KSP works is unlike most games. Most consider an entire vessel to be one part and apply physics to the entire vessel. KSP considers each part independently and generally applies physics to each part. That's one reason that having dozens of ships with hundreds of parts lying around turns KSP into a turtle. Trying to add cloth physics

on top of all of that would tax the system pretty heavily. I have seen examples from a friend where the actual part mesh's are deformed real-time. The question is, will the visual enhancement add enough immersion that it will outweigh the processing requirements. Because Squad has, for the most part, chosen physics over visuals and that's what the community expects, I don't usually spend a huge amount of time on visuals and instead, try to focus on realism and fun. (As my other mod users know, I'm not a big part/texture guy.).

Two of the HUGE problems you're going to see when you get into coding balloons for KSP is flight and weather. The balloons you're accustomed to can stay aloft for days or years. Google's project Loon has stated their balloons stay aloft for upwards of 100 days before they're brought down. In KSP, once a vessel leaves the ground its status is changed to flight. Exiting out of that vessel while in flight, in stock KSP, simply isn't possible. If you force it, it will instead take you backward in time to the last save game. This creates a huge problem when it comes to leaving balloons aloft for long periods of time. You can't. There is a half-*** work around known as air parking. In this process the vessel is fooled into thinking it's actually landed and is taken 'off-rails'. The problem there is, when off-rails, physics no longer applies to that vessel and it's frozen in position. So, the choices are, stick with the balloon throughout its entire flight (and on Kerbin one entire day is 6 real-life hours), air park it, or time warp forward. ~~Time warping creates another problem in that it will skip over any data you're trying to collect. In real time you may collect data every second. In time warp, every second could be an hour.~~ (My recent tests indicate that data can still be grabbed during time warp in at least 1 second intervals and appear correct. More testing needed.). Weather is a problem because there is none. There are no winds, rain, snow, nothing. Every day on Kerbin is a perfect day. This means, once your balloon gets launched, unless random physics gets involved, it'll likely come back down almost exactly where you launched it. There have been attempts at creating a weather mod but to my knowledge, all of them have either failed or simply closed their doors.

As for helping with the code... what I'd like to do is to

publically invite you to the closed alpha testing I'll be conducting for the airships (something I normally do very quietly for contributors). That way, I have at least one expert on the subject to double check my work. As such, you'll have full access to the code to make any changes, suggestions or corrections you see fit to keep the physics real. Once the airship mod is up and out the door, then I'll be focusing on getting KerBalloons using the same code.

Thanks again for your post. Feel free to contact me via PM.

Edited September 7, 2018 by Fengist



Quote

JH4C likes this



sig1.jpg



Fengist

Swabbie



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Posted September 7, 2018 (edited)

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SCIENCE!

KerBalloons v 0.4.4 has been released. Check the download link in the [OP](#).

In this version you'll find the following:

Several new parts added, including a data recorder, cross staff and a sundial. The data recorder allows you to record data from any of the following devices into a .csv file which will be located in **GameData/KerBalloons/LogData** directory

Stock parts recognized:

Thermometer : Temp

Barometer: Air pressure

Thermometer + Barometer : Air density

Gravioli detector : Gravity

KerBalloons parts recognized

Sundial : Earth Time, KSP Universal Time, Mission time

Cross Staff : Longitude and Latitude

For now, you're getting altitude data for free. Next update should include a device to record vessel speed and altitude and I'll look into compass headings.

How to Use:

Take any or all of the above mentioned parts and add them to any vessel. Add the KerBalloons data recorder. The data recorder has two settings, recording frequency in seconds and a record button.

To create a new .csv, click the record button. The KerBalloons plugin will then detect which of the science parts you have on the vessel and begin recording data for ONLY those it finds. To record actual data, select the science part and "Toggle Display." The data recorder will give a "sensor inactive" if you do not have the display toggled on.

Operational notes:

- You can turn the data recorder on and off. Each time you turn it on, it will start a new .csv file.
- Time warping still appears to give accurate data at anticipated times. Please experiment further to verify this.
- Everything here uses electric charge. Be sure you're well supplied, especially if you have lots of sensors running.
- The timer is a bit inaccurate. It does not calculate exact seconds (due to when Unity runs its updates and the fact that you're using a sundial). However, the mission time data is recorded down to 12 decimal points which should be accurate enough for most of us.

Bugs:

- Just noticed that air density gets recorded twice if you have both a sundial and a cross staff mounted. I'll fix that next release.

If you find any issues with this release, please let me know!!

What to do with this new found data?

Unanswered questions (and if you find out don't post the answers unless it's in a spoiler).

- Does the recorded data on Kerbin vary with latitude, longitude, day, night?
- How can you get accurate data comparisons when Kerbals don't have clocks?
- What's the comparison between atmospheric pressure and altitude?
- How does Eve, Duna and Laythe compare to Kerbin's atmospheric data.

Beyond balloons

- Can you get data from Jool's atmosphere
- How does this data change if you're submerged?
- Does the pressure underwater change between Kerbin, Laythe and Eve

And there's lots more data collection and comparison I can think of. So, put on your lab coats, break out the spreadsheet and enjoy.

Edited September 7, 2018 by Fengist

 Quote

Joal ban Kluane, Horus, Drew Kerman and 1 other like this



x ▾

Fengist

Swabbie



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Posted September 19, 2018

Report post



Umm, just wanted to drop a quick note to say ummm.
Wow.

Kerballoons Reinflated has jumped on CurseForge from nothing to being in the top 200 for popularity (Page 4 out of 47). It's the ONLY mod in the top 200 that has less than 1,000 downloads (granted I had a bit of a head start on the popularity thing but it's still impressive that it's getting that many downloads). Glad everyone is still interested in it.

Let me know what you do and don't like and what you do and don't want. I'm still working on my other project so now is a good time to give some feedback before I dive into its code and make radical changes.



Quote

JH4C likes this



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