

# Vall

From Kerbal Space Program Wiki

**Vall** is the second of the five natural satellites of Jool. Like the other large Joolian moons, Laythe and Tylo (of which Vall is the smallest), Vall is tidally locked to its parent. Synchronous orbits around Vall are not possible, as they would lie outside of its SOI, at a radius of 3,893,254 meters.

Vall is KSP's analog to Jupiter's moon Europa.

Though the bodies have topical similarities, landing on Vall and returning is significantly more challenging than a landing on the Mün, due to the former's higher gravity, more uneven terrain and distance from Kerbin.

According to former developer NovaSilisko, Vall was planned to be made more like Eeloo, with cracks in the ice and a more chaotic surface than in 0.20.2.<sup>[1]</sup>

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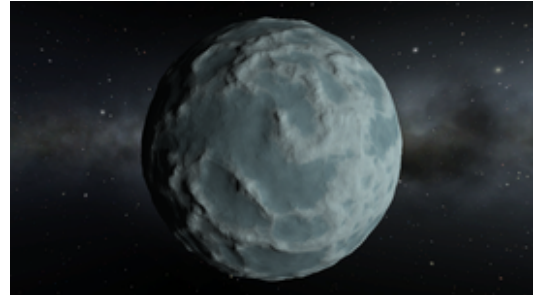
## In-game Description

*Vall was one of the last Moons of Jool to be discovered. Frustrated scientists kept trying to wipe it off the lenses of their telescopes.*

“*Eventually after a rash of returned telescopes, Advanced Optics Co. finally decided to just tell them it was an actual object in the sky.*”

— **Kerbal Astronomical Society**

### Vall



Vall as seen from orbit.

Moon of Jool

#### Orbital Characteristics

Semi-major axis	43 152 000 m <sup>[Note 1]</sup>
Apoapsis	43 152 000 m <sup>[Note 1]</sup>
Periapsis	43 152 000 m <sup>[Note 1]</sup>
Orbital eccentricity	0
Orbital inclination	0 °
Argument of periapsis	0 °
Longitude of the ascending node	0 °
Mean anomaly	0.9 rad (at 0s UT)
Sidereal orbital period	105 962 s
	4 d 5 h 26 m 2.1 s
Synodic orbital period	106069.5 s
Orbital Velocity	2558.8 m/s
Longest Time Eclipsed	4706 s

#### Physical Characteristics

Equatorial radius	300 000 m
Equatorial Circumference	1 884 956 m
Surface area	1.1309734×10 <sup>12</sup> m <sup>2</sup>
Mass	3.1087655×10 <sup>21</sup> kg
Standard gravitational parameter	2.0748150×10 <sup>11</sup> m <sup>3</sup> /s <sup>2</sup>
Density	27 487.522 kg/m <sup>3</sup>
Surface gravity	2.31 m/s <sup>2</sup> (0.235 g)
Escape velocity	1 176.10 m/s
Sidereal rotation period	105 962.09 s
	4 d 5 h 26 m 2.1 s
Sidereal rotational velocity	17.789 m/s

## Topography

Vall has an icy surface dominated by hilly lowland areas separated by mountain ridges and which ranges in elevation from 0 to 7976 m. There are almost no completely level areas, making it hard to find good landing spots.

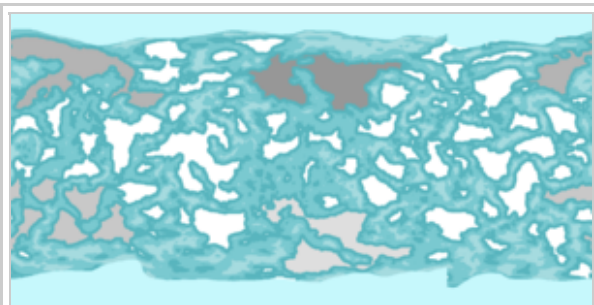
Vall has some circular mountain ridges which could be remnants of impact craters, but they are heavily eroded, hinting that Vall has some geological activity, presumably in the form of cryovolcanism.

The surface color ranges between white and light blue. When terrain scatters are activated, large boulders with contrast-rich black and white surface patterns can be found on the surface.

## Biomes

Vall has 9 biomes. It has mostly large Lowlands broken up by Midlands and Highlands with some high Mountains in between. There are four distinct Basins and Poles available as well.

### Biome list



Vall biome map as of 1.2

- Poles
- Highlands
- Midlands
- Lowlands
- Mountains
- Northeast Basin
- Northwest Basin
- Southern Basin
- Southern Valleys

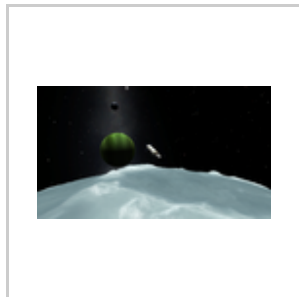
Synchronous orbit	3 593.20 km
Sphere of influence	2 406 401.4 m <sup>[Note 1]</sup>
<b>Atmospheric Characteristics</b>	
Atmosphere present	× No
<b>Scientific multiplier</b>	
Surface	12
Near space	9
Outer space	8

1. ↑ 1.0 1.1 1.2 1.3 The distances are given from the bodies center not surface (unlike ingame)

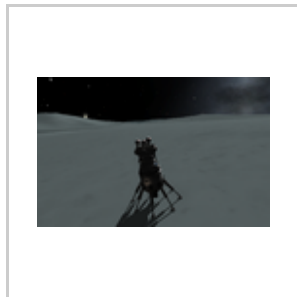
## Reference Frames

<b>Rotational/Inertial transition</b>	100 000 m
<b>Warp</b>	<b>Minimum Altitude</b>
1×	Any
5×	24 500 m
10×	24 500 m
50×	24 500 m
100×	40 000 m
1 000×	60 000 m
10 000×	80 000 m
100 000×	100 000 m

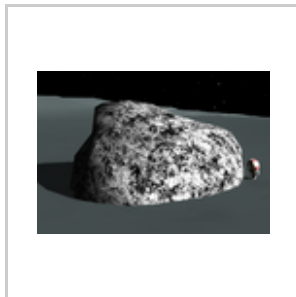
## Gallery



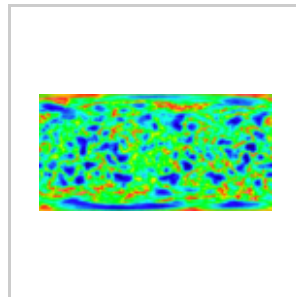
A small user-created probe in low orbit around Vall. Jool and Laythe have risen in the background.



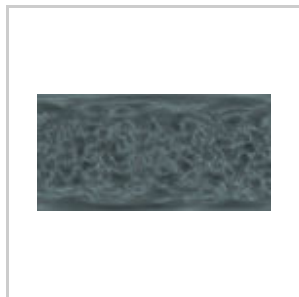
A crew of Kerbonauts enjoying the view over Vall's landscape.



One of the rocks which can be found on Vall.



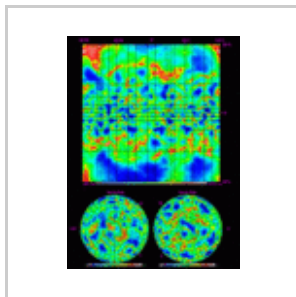
A topographic map of Vall made with the ISA MapSat plugin.



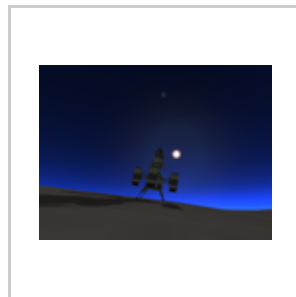
A bump map in approximate natural colors.



The surface of Vall with Jool, Laythe and Tylo in the background. Bop is also on this picture but far too small to recognise.



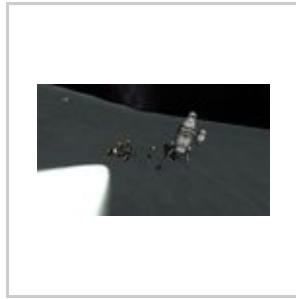
A topographic height map of Vall made with the ISA MapSat plugin



Picture of Vall visible from Laythe



A small probe in a high orbit over Vall



A crew of kerbonauts, a lander, and a rover on the surface of Vall.

## Trivia

- According to the Tracking Station information of Vall, it was one of the last moons of Jool to be discovered. This was because the Kerbal astronomers mistook the icy moon for a smudge. After multiple failed attempts to get rid of the "smudge", they figured out it was, in fact, a moon.
- If N-body simulation was used in the game, Vall would be slingshotted out of the Joolian system within a few days, due to the gravitational influences of nearby Laythe and Tylo.

## Changes

### 1.2

- Added biomes

### 0.90









- Added biomes

### 0.17

- Initial Release

## Notes

- ↑ Post in the forum (<http://forum.kerbalspaceprogram.com/threads/29807-Planet-Ideas-And-Names-For-The-Future-Of-Kerbal-Space-Program?p=447959&viewfull=1#post447959>) by NovaSilisko

<p>V · T · E (<a href="http://wiki.kerbalspaceprogram.com/index.php?title=Kerbal_System_Bodies&amp;action=edit">http://wiki.kerbalspaceprogram.com/index.php?title=Kerbal_System_Bodies&amp;action=edit</a>)</p>							
 <b>Kerbol</b>	 <b>Moho</b>	 <b>Eve</b>	 <b>Kerbin</b>	 <b>Duna</b>	 <b>Dres</b>	 <b>Jool</b>	 <b>Eeloo</b>
(The Sun)			Gilly	Mun Minmus	Ike		Laythe <b>Vall</b> Tylo Bop

Pol

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