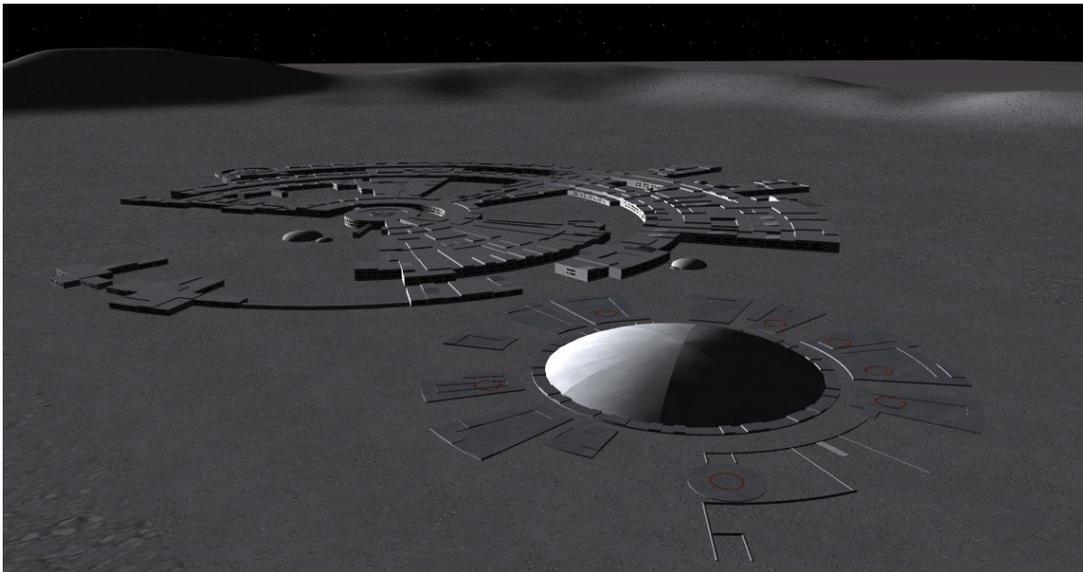




BASES OF WORLD OF 2001: A SPACE ODYSSEY VERSION 3.1

By Alain Hosking (80milesigh) et al. Part of World of 2001: A Space Odyssey 3.1 by Erik Anderson (Sputnik) et al.
For Orbiter 2006 by Dr Martin Schweiger.



With the release of *World of 2001 3.1* for Orbiter 2006 we have expanded upon our previous attempt to bring all the bases of *2001* to life. As with the vessels of *World of 2001* we have also introduced bases which are not mentioned in the *2001* canon, but which are logically supposed.

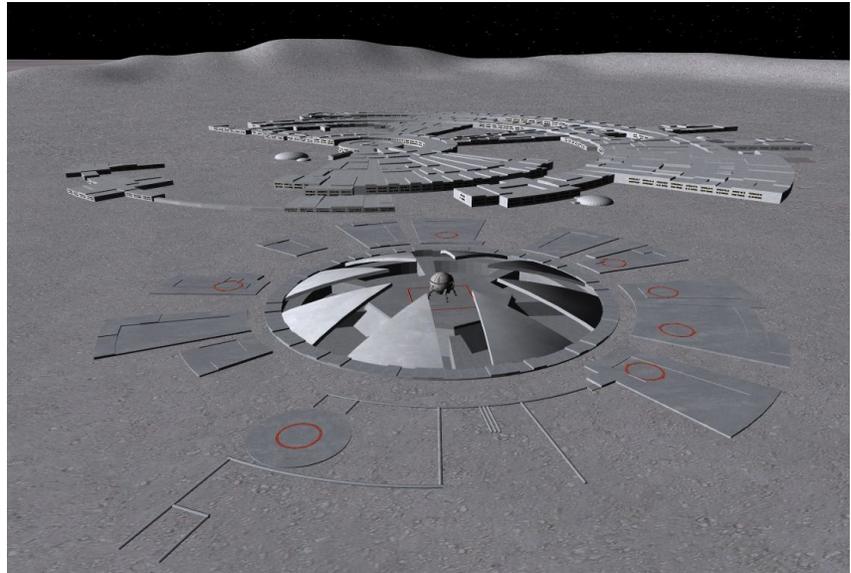
This document will offer a brief explanation of the bases and where they fit in to the *2001* universe.

NOTE Make sure you update your 'Base' config file, according to the instructions in the main document before visiting the bases. Many base texture will not display unless you do this. Note also, that the night textures look best under low ambient light settings. Surface textures are designed to blend with default planetary textures; contrast with high-resolution planetary textures may vary.

LUNAR BASES

CLAVIUS BASE

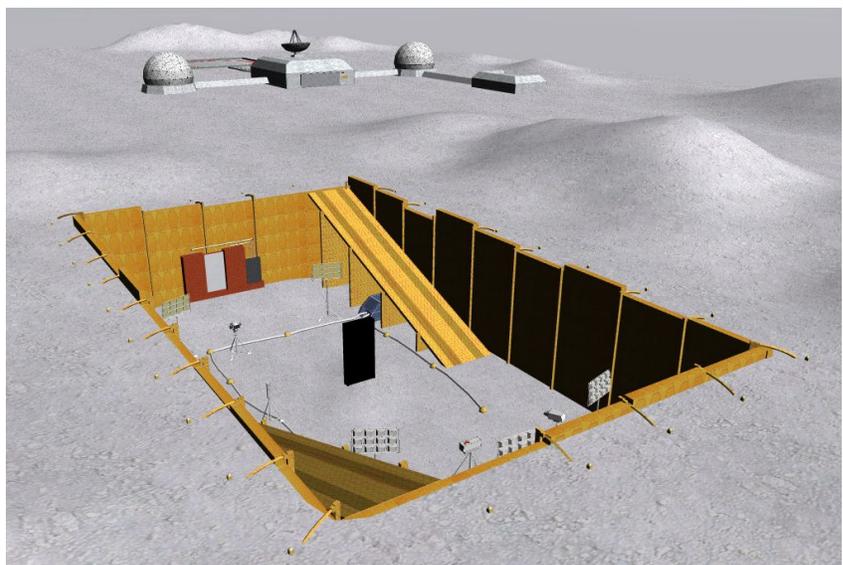
Clavius Base is the largest outpost on the moon, built by the United States Astronautics Agency (or the U S Astronautical Engineering Corps in the novel). The base became fully operational in 1994. The primary landing pad at Clavius is shielded by a dome-structure, as depicted in the film. In *World of 2001*, the dome has been animated by Wolfgang Schwarz (Nautilus). To open or close the dome simply select it [F3] and press [K]. An additional three pads have been placed around the



base's periphery for Moonbus operations. Clavius' surrounding scenery has been expanded since the release of *World of 2001 3.0*, though this scenery remains fictionalised and is not an attempt at modelling Clavius crater (the crater rim itself is beyond the horizon on all sides). The position of the base remains unchanged so approaching from a typical retrograde lunar orbit will take you over the base as depicted in the film.

TYCHO

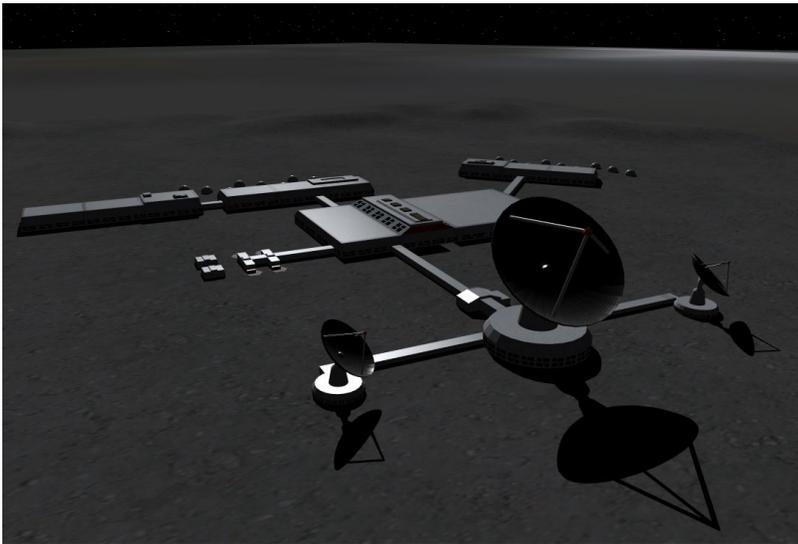
The effects of the Tycho Magnetic Anomaly 1 were discovered by a low-level lunar reconnaissance orbiter. On April 12 2001, after a two-week excavation, a USAA survey team uncovered the Monolith. It looked so new that an attempt was made to link the find to the third Chinese lunar expedition three years earlier. However, further investigation revealed the monolith had been buried for three million years (four million in the film), thus proving the



existence of extraterrestrial intelligence. On April 26 2001 Heywood Floyd stepped into the excavation pit, moments before T.M.A.-1 'greeted the lunar dawn'. The location of T.M.A.-1 in

World of 2001 was determined by Nautilus through cross checking the survey maps glimpsed in the film (while Floyd is en route from Clavius) with NASA data. If you want to have a close look at the excavation pit details, hit [F4], select 'Camera' and target 'Tycho' from the 'Spaceports' list, then zoom in!

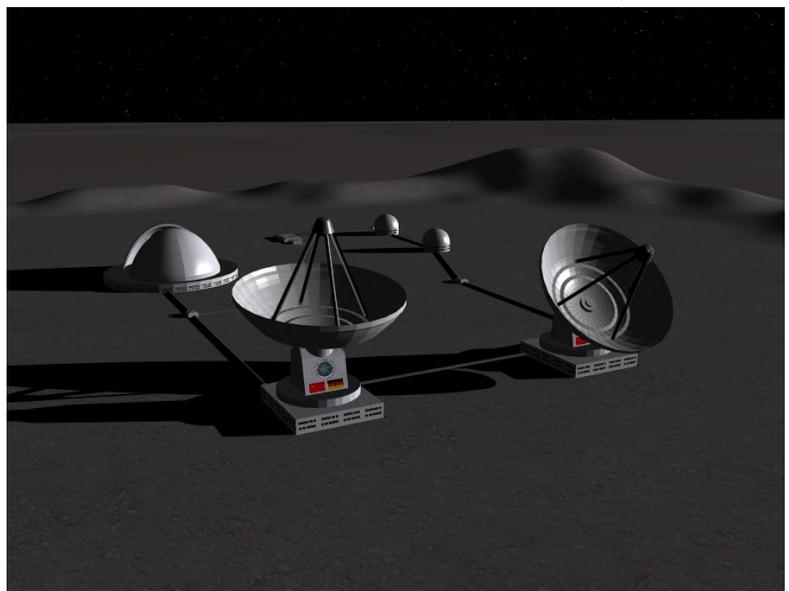
TCHALINKO



Tchalinko is the Soviet counterpart to Clavius base, located in Tsiolkovsky crater on the far side of the moon. Though Tchalinko does not feature in Arthur C Clarke's writing it is mentioned in the film by the Russian scientists Heywood Floyd meets on Station V; as one states, 'we're on our way back from the moon. We've just spent three months calibrating the new antenna at Tchalinko'. A surrounding surface mesh and specular reflections have been added to Tchalinko for *World of 2001 3.1*.

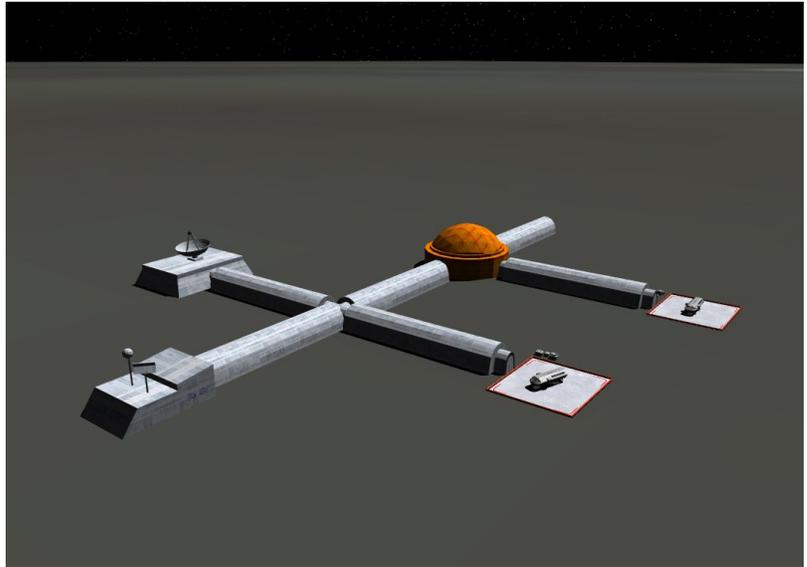
LUNAR OBSERVATORY

The Lunar Observatory, located in Planck Crater on the moon's far side, is essentially Clarke's Tchalinko. In the novel Heywood Floyd runs into a Russian astronomer on 'Space Station 1' who had been 'building up the giant radio observatory on the far side of the Moon'. It's probable Clarke imagined a single-dish radio telescope built like the famous Arecibo Observatory in Puerto Rico, however this 'giant' design makes for suitably fun lunar operations! The Lunar Observatory is an international scientific facility. A surrounding surface mesh and specular reflections have been added to the Lunar Observatory for *World of 2001 3.1*.

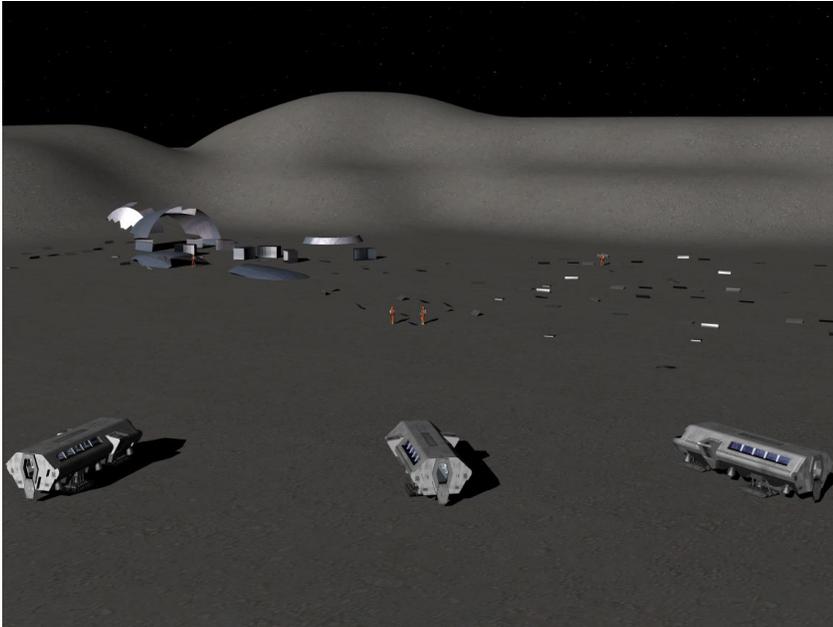


SERENITATIS BASE

Serenitatis Base is Britain's foothold on the Moon. Appearing in neither film nor novel, Serenitatis Base is derived from 'The Sentinel', A short story written by Arthur C Clarke at Christmas 1948 for a BBC competition (he didn't win). When Kubrick first immersed himself in Clarke's writing he found a concept from 'The Sentinel' which provided the basis for 2001's T.M.A.-1. Without 'The Sentinel' there would be no *2001: A Space Odyssey* as we know it. For this reason we include Serenitatis Base. The design for Serenitatis Base is loosely derived from a JSC Advanced Programs Office concept from 1989.



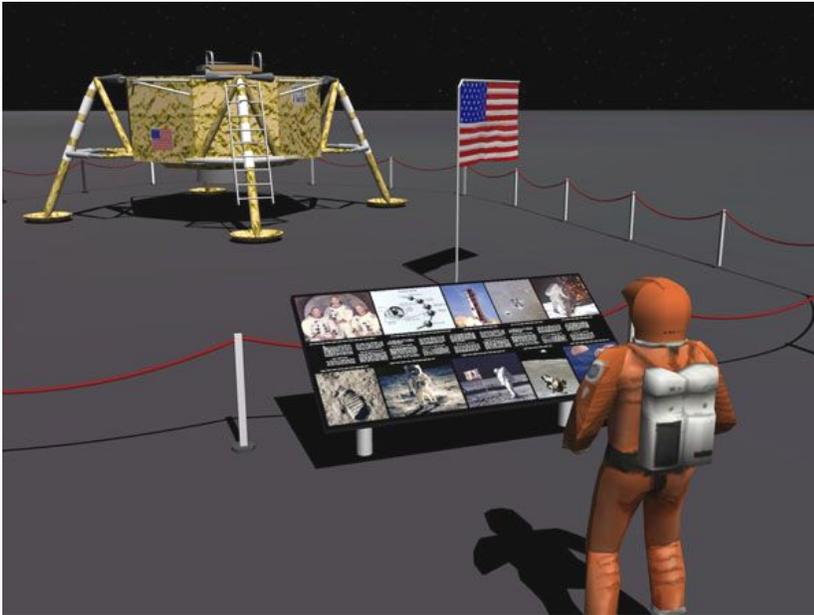
1998 CHINESE EXPEDITION CRASH SITE



In the novel of *2001: A Space Odyssey*, Dr Roy Michaels presents the briefing on T.M.A -1 at Clavius Base. Dr Michaels describes an initial suspicion that the find at Tycho might have been linked in some way to the Chinese Expedition of 1998. Taking this information as our starting point, we have supposed that the Chinese mission met with misfortune and that their final location was unknown, until the same reconnaissance orbiter that revealed the magnetic anomaly, in turn revealed the Chinese crash site. The journey from Clavius Base to the crash site

must be made in two legs, with a refuelling stop at Emergency Depot #2 .

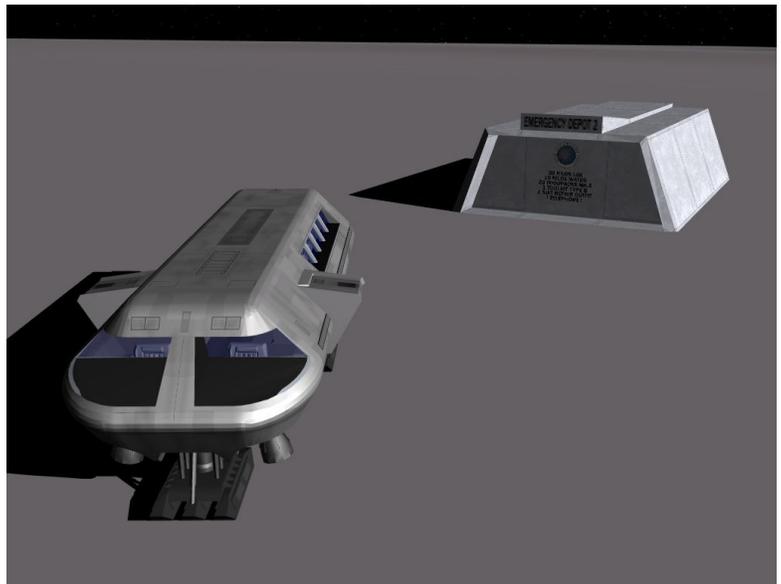
TRANQUILITY MUSEUM



The expansion of the space powers in the *World of 2001* has not come at the expense of preserving important sites of space-heritage. Foremost amongst such sites is the location of the Earth's first lunar landing , Tranquilty base. Though the Apollo 11 decent stage is fenced off, visitors to the site can approach to close proximity and gaze upon a mounted pictorial history of the Apollo program.

EMERGENCY DEPOT #2 AND #3

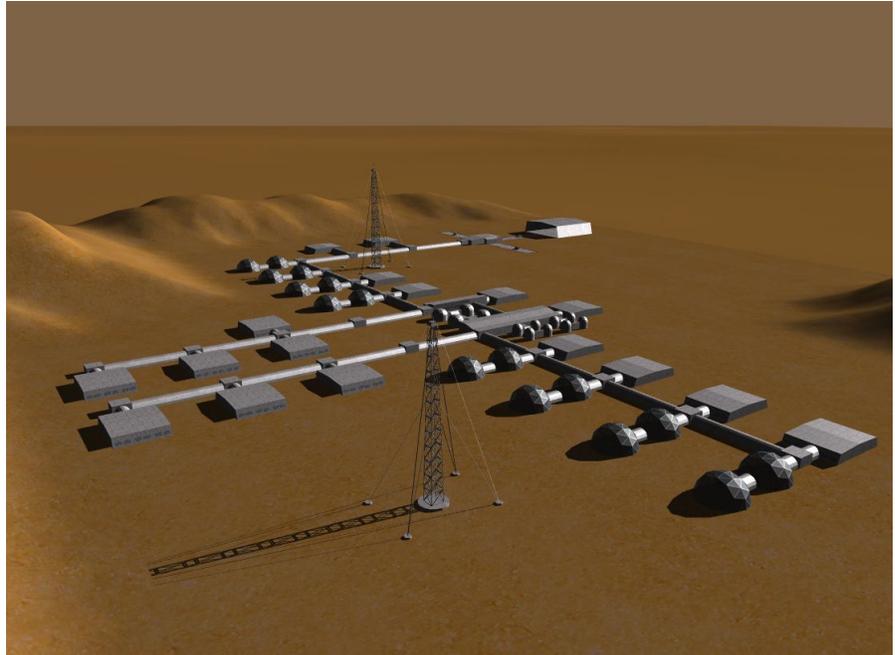
Emergency Depot #3, described in Clarke's novel, is located half way between Clavius Base and Tycho Crater. A 0-scale pad is placed directly in front of its entrance enabling refuelling by parking there. Emergency Depot #2 has been placed as a refuelling stop for Moonbus operations between Clavius Base and the crash site of the 1998 Chinese Expedition.



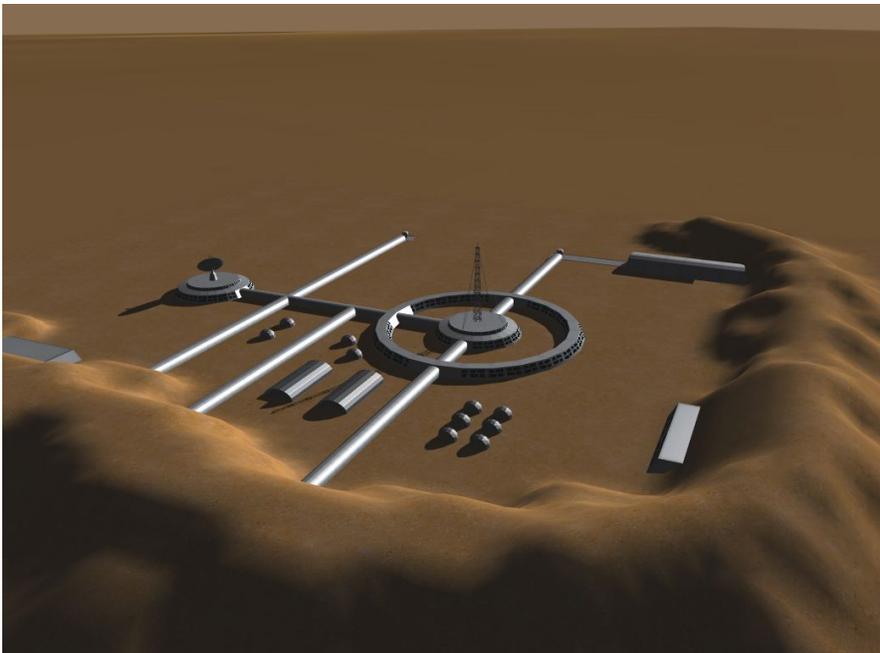
MARS BASES

PORT LOWELL

Described in Arthur C Clarke's *The Lost Worlds of 2001* Port Lowell is the largest human settlement on the red planet. The base takes its name from Percival Lowell who did so much to popularise early twentieth century interest in Mars. Dave Bowman is headed for Port Lowell in *The Lost Worlds of 2001* before being recalled to command the Discovery. The design for Port Lowell is loosely derived from a concept shown in Dr. Robert Zubrin's book, *The Case For Mars*. Port Lowell has been substantially reworked for this release of *World of 2001*, and now features wider surrounding scenery and specular reflections.



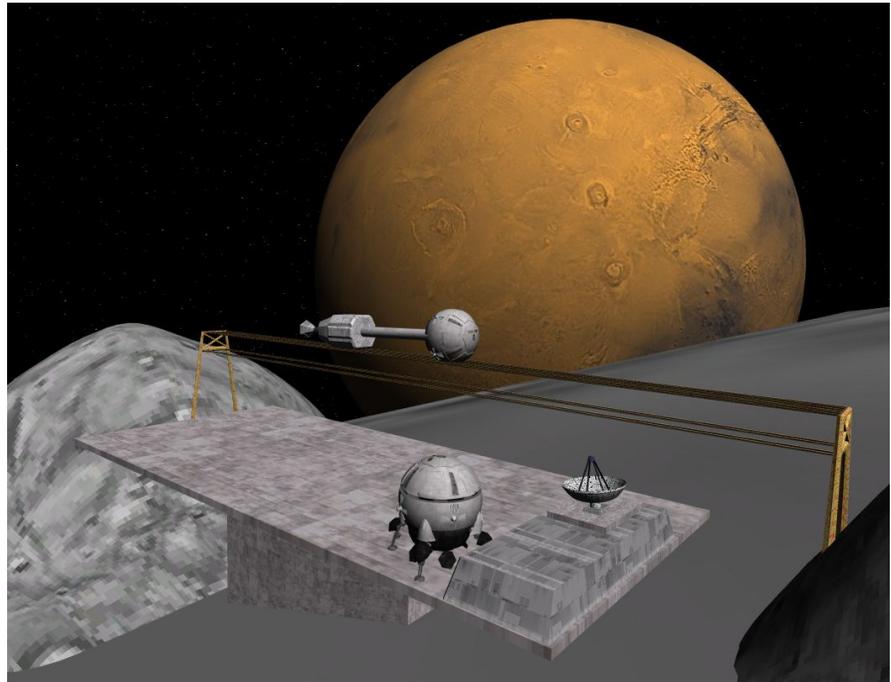
KOROLEVGRAD



Korolevgrad, named after the great Russian rocket engineer and designer, S.P. Korolev, is the Soviet Union's foothold on Mars. Though slightly smaller than Port Lowell, the Soviet base features a unique architecture and structures built into the hills which surround it. Like the newly reworked Port Lowell, Korolevgrad features a large hangar to shelter spacecraft during Martian planetary dust storms.

PHOBOS BASE

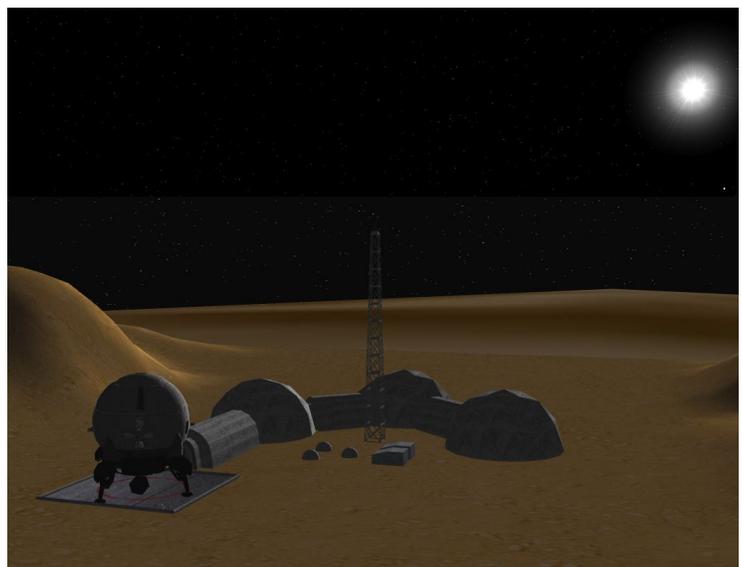
A small satellite base manned only when a spacecraft has arrived, Phobos Base is as close as Dave Bowman gets to Mars in *The Lost Worlds of 2001*. Before being recalled to command the Discovery, Bowman has the experimental Polaris 1-XE spacecraft 'suspended by a network of flimsy cables' that run between two peaks'. The placement of touchdown points on the Polaris 1-XE allows you to simulate this. Note that the texture displayed on the 'peaks' is the same as for Phobos itself, the base will load the stock Orbiter/Phobos texture or a hi-res one, so long as its called Phobos.dds.



MERCURY

PRIME BASE

Prime base also appears in *The Lost Worlds of 2001*. When the soon-to-be crew of the Discovery are recalled from their assignments Dave Bowman is at Phobos, Victor Kaminski is orbiting Venus on Cytherean Station One and Peter Whitehead is at Prime Base on Mercury. Clarke describes the silver-plated domes of Prime base, and originally conceived of locating the base at a permanent night terminator, which we now know does not exist! Indeed, in Orbiter you can watch the sun rise and set over prime base, and it can be quite spectacular!



EARTH BASES

Aberporth, UK – Baikonur, USSR – Brest, France – Canberra, Australia – Cape Canaveral, USA – Cuxhaven, Germany – Hainan, China – Kadena AB, Japan / USA – Moscow, USSR – Washington, USA.



In addition to the launch sites from *World of 2001 3.0* (Baikonur for the Soviet Union and Eastern Sphere; Cape Canaveral for the United States and Western Sphere) version 3.1 features sites in Europe and China. Now all the nations depicted as nuclear powers in the film and novel can launch their orbital arsenals from their own territory. Additionally, the 'World Space Centers' at Washington, Moscow and Canberra are included. These centers are described in Clarke's novel as recording the signal from T.M.A.-1 and adding it 'to the thousands of miles of

magnetic tape now stored in the vaults...' Washington is also the starting point for 'Floyd's Journey'. 0-scale pads are placed in front of each terminal gate at Washington to enable refuelling.

ALL BASES

All bases (excluding the Chinese crash site) are equipped with VOR and NAV aids (see Appendix 1). If you're having trouble finding a pad or want assistance in a manual landing just dial up the frequency you need [SHIFT] + [C] and hit [SHIFT] + [L]. Its worth noting as well, that at the beginning of each scenario folder we have a base (or vehicle) relevant excerpt from the *2001* universe to set the scene. Just click on the respective folders in the Orbiter launch pad scenario tab to read these excerpts.

NOTE *World of 2001: A Space Odyssey 3.1* implements the Orbiter 2006 MJD-specific base feature. Korolevgrad appears only after MJD 52215. On the moon, until 52015, the only bases are the "big four" – Clavius, Tchalinko, Serenitatis and the Lunar Observatory.

Texture Credit

The United States Astronautics Agency logo and Russian and German flags are derived from www.2001exhibit.org, which is a great resource for any *2001* fan.

Appendix 1. VOR, NAV and ILS frequencies

EARTH

BASE	VOR	NAV (in pad # order)	ILS (heading – frequency)
Aberporth, UK	ABP 111.00		07/25 – 111.10
Baikonur, USSR	BCD 127.00	127.10, 127.20	27/09 – 127.30
Brest, France	BFR 111.30		27/09 – 111.40
Canberra, Australia	CSC 114.00	114.10, 114.20	18/00 – 114.20 13/31 – 114.30
Cape Canaveral, USA	KSCX 112.70	112.70, 128.10 128.20, 128.30	33/15 – 134.20 31/13 – 132.60
Cuxhaven, W. Germany	CUX 111.50		08/26 – 111.60
Hainan, China	HAN 112.00		09/27 – 112.10
Kadena AB, Japan / USA	KDN 112.50		05/23 – 112.60 05/23 – 112.70
Moscow, USSR	MSC 114.50	114.60, 114.70	03/21 – 114.80
Washington, USA	WSC 115.00	115.20, 115.30 115.40, 115.50	18/00 – 115.10

MARS

BASE	VOR	NAV	ILS
Korolevgrad	MKB 126.00	126.10, 126.20	N/A
Phobos Base	PPB 124.00	124.10, 124.20 124.30	N/A
Port Lowell	MLB 125.00	125.10, 125.20 125.30	N/A

MERCURY

BASE	VOR	NAV	ILS
Prime Base	MPB 129.00	129.10	N/A

MOON

BASE	VOR	NAV	ILS
Chinese Expedition Crash Site	N/A	N/A	N/A
Clavius Base	LCB 116.00	116.10, 116.20 116.30, 116.40	N/A
Emergency Depot # 2			N/A
Emergency Depot # 3	ED 118.00	118.10	N/A
Lunar Observatory	LOB 117.00	117.10, 117.20	N/A
Serenitatis Base	LSR 116.50	116.60, 116.70	N/A
Tchalinko	LTB 119.00	119.10, 119.20	N/A
Tranquility Museum	TLQ 119.25	119.30	N/A
Tycho	TMA 120.00	120.10	N/A

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