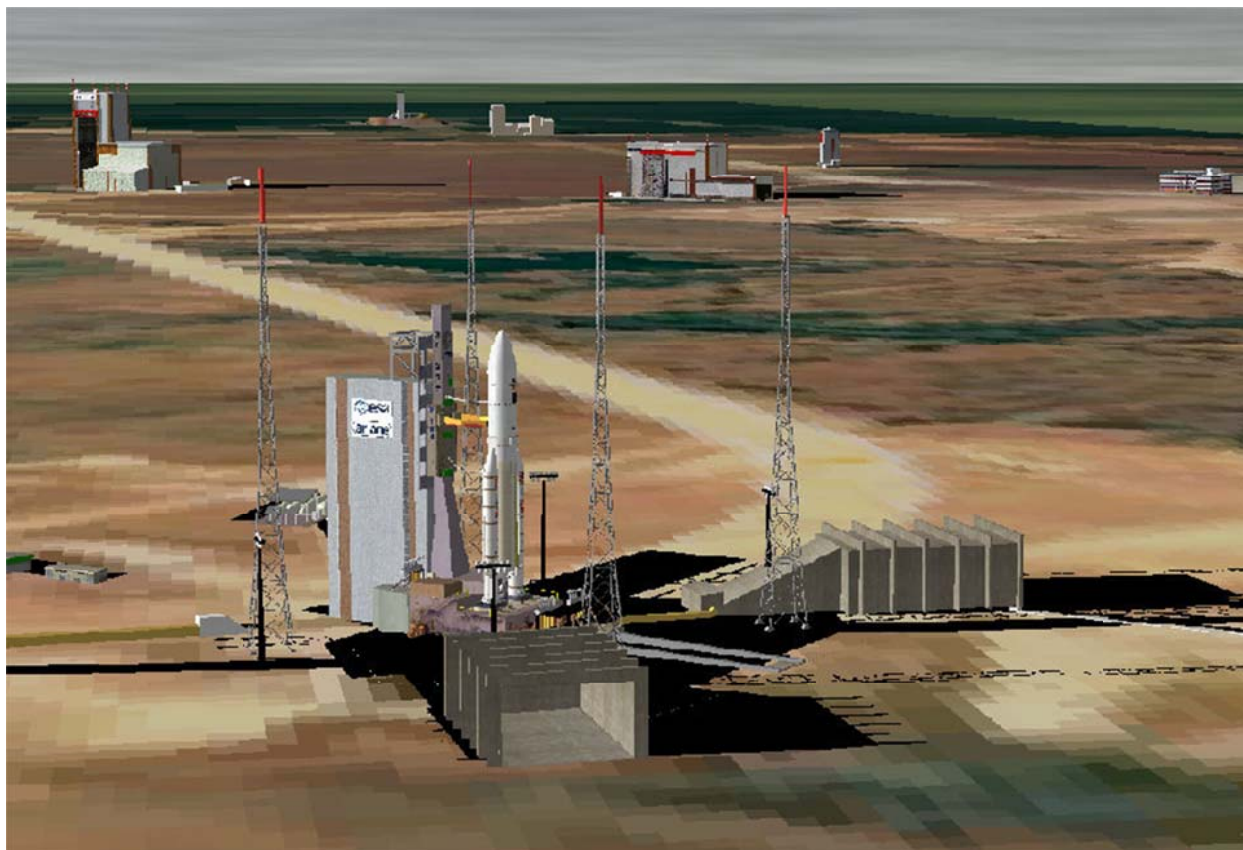




PACK
KOUROU-ELA
with ELA 1-2-3
for Orbiter 2010

Built by Papyref et Mustard
Ground textures by Jacquesmomo



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INTRODUCTION

The pack Kourou-ELA was created to have in Orbiter a realistic model of the CSG "Guyana space Centre" localized in French Guyana. It's the European space port.

The space port have 3 main launch pad named ELA (Ensemble de Lancement d'Ariane – Ariane launch complex). Each complex is composed by an assembling area and launch area (ZL - Zone de Lancement).

The future area ELV for the launcher Vega is canceled because the pad is on the same place and similar to ELA1. For ELS, the pad for Soyouz launcher, it will be realized later when the real pad will be finished.

THE SITE



On this aerial picture, you can see the mark of each area and facilities modeled in this pack. Below, you can see a small description of the aim of each facilities and pictures (real on the left, modeled on the right).

The centre contains 3 main areas : ELA1, ELA2, ELA3.

-ELA1 was used by the launchers Europa and Ariane 1-2-3. It was dismantled since 1981 and will be rebuilt soon for the future launcher Vega.

-ELA2 was used for the launch of the latest Ariane 3 and principally for Ariane4. Since 2003 the launch pad was abandoned and dismantled.

-ELA3 is only used for Ariane5. It's always in activity. In opposite of ELA1-2 it stretches a large part of the centre.



I) ELA 3

1 – ZL3 (Zone de lancement No 3 – Launch area #3)

Usually named ELA4 It's the launch pad of the rocket Ariane 5



2 - Le centre de contrôle de lancement – CDL

It's an armored facility, This centre included 2 operation rooms for the flight control. It's not the main flight room "Jupiter".



3 –BIL (Bâtiment d'Intégration Lanceur – Building Integration Launcher)

Here, the launcher is assembling before the final step (BAF)



4 – BAF (Bâtiment d'Assemblage final – Final Assembly Building)

It's the last step of the assembling. Here the Payload are mounted into the launcher before moving to the launch pad ZL3



5 –BIP (Bâtiment d'Integration Propulseur – Booster Integration Building)

In this facility the boosters are assembled. After the booster go into the BIL or BEAP.



6 – EAP (Bâtiment de Stockage des Propulseurs – Boosters Storage Building)

Localized between the BIL and the BIP, it used for store until 4 boosters for manage the assembling.



7 – BEAP (Banc d'Essai des Accélérateurs à Poudre – Booster Test building)

It used for test of the boosters and can resist a thrust of 320 tons



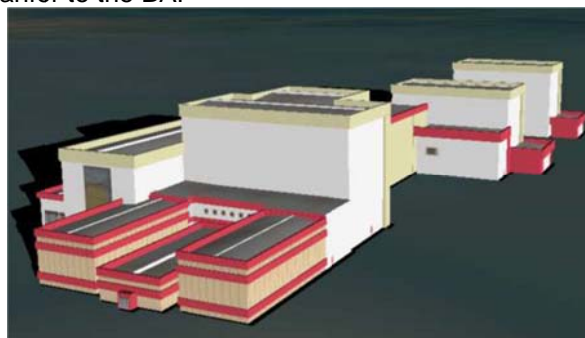
8 – UPG (Usine de Production des Propergols Guyanais – Guyana Propellant Factory)

Localized at 1km of the BIP and BEAP, this large complexes of 40 facilities build the material for the booster. There are also a factory for the storage of liquid hydrogen and oxygen.



9 – EPCU S5 (Ensemble de Preparation des Charges Utiles – Payload preparation building)

Here there the preparation of the payload, before a tranfer to the BAF



II) ELA 1

10 – ZL1 (Zone de Lancement No 1 – Launch area #1)

Usually named ELA1. It's the laund pad for Ariane 1, 2, 3.

We can see the bunker included the Flight Control (on the right), the cooling central (round building), the water tower, and annexes.



11 – EPCU S3 (zone de préparation des charges utiles – Payload building area)

This area include some building where the payload are prepare for assembling on the rocket. The payload are install in fairing in the building on the pad. This building move until the rocket for preparing the installation and the rocket.

Three building are realized:

- the S3A building which use for final assembling of the payload and their own thrust intended for the launchers Ariane 1,2 et 3



- the S3B building is use for final assembling of payload an down thrust intended for Ariane 4



- the S3C is the technical building (note the car you can use for center visit)



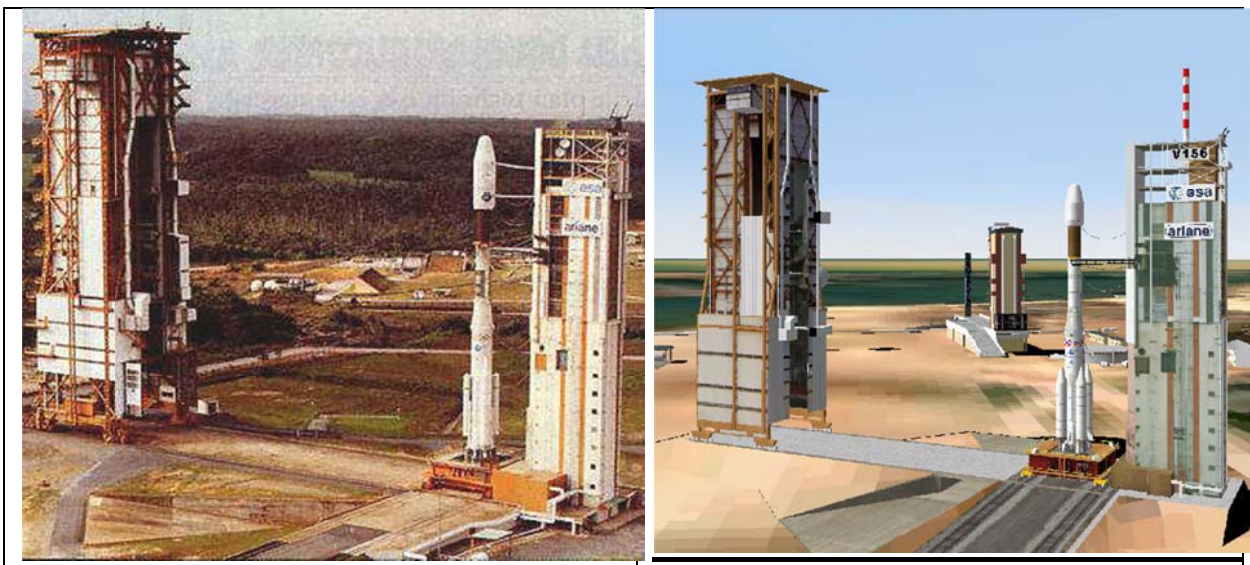
III) ELA 2

This complex was used for the last Ariane 3 and for the Ariane 4's family. It included a launch pad (ZL2) and an assembling area.

-The assembling area is a big complex for assembling and rise the rocket on his launch table, without his fairing and payload which are mount in the tower of service.



- the launch pad is composed by the tower of service and the ombilical tower.



The tower of service is the big building localized on the left on this pictures. It's a moving tower and it come to cover the rocket to install the payload and the fairing on the top. The ombilical tower is on the right on this pictures and is used for communication and supplying with the rocket until the take off.

Between the launch area and the assembling area, a long railroad allow the transfer of the launcher. Around this complex we can find some annexes.

THE PACK

Installation

- Unzip the pack on your directory of Orbiter 2006
- This addon requier Spacecraft3 by Vinka (included in this pack)

IMPORTANT

This pack work only with ORBITER 2010 and require this launchers used in the scenario files:

Ariane_1/2/3_v3 by Xosema, Ariane 4 and 5 by Well & No Matter , Ariane 6 by Jekka & Momo

All this necessities are included in this pack

Please, read their manuals for a best using (launch, guidance, payload, etc)

To have a good lighting with ELA 1 you need to activate Local Light sources in Visual Effects of the Launchpad

Keys for animation:

1. For ZL3

With the F3 key, if you select the arm of the launch tower named "Zl3arms" you can activate manually 3 actions (automatic with launch and night)

- Open the arms and fall of the cables with the key G
- Switch on the light on the pad with the num key + ("CTRL +" for keep switch on, and * for switch off)
- Key 0/suppr of the num pad (Hover) for open/close the Stream on the cable

2. For ZL2

With the F3 key, if you select the arm of the launch tower named "Zl2arms" you can activate manually 3 actions (automatic with launch and night)

- Open the arms and fall of the cables with the key G
- Switch on the light on the pad with the num key + ("CTRL +" for keep switch on, and * for switch off)
- Key 0/suppr of the num pad (Hover) for open/close the Stream on the cable

With the F3 key, if you select the launch tower named "Zl2tower" you can activate manually 2 actions before the launch:

- Open/close the door of the building with the key G.
- Move to front the tower to the pad with the key K.

The move to back is by CTRL+Shift+K You can stop the moving by the key K

3. For ZL1

With the F3 key, if you select the arm of the launch tower named “Zl1arms” you can activate manually 3 actions (automatic with launch and night)

- Open the arms and fall of the cables with the key G
- Switch on/off the light on the pad with key L
- Open/close the Stream on the cable with key V

With the F3 key, if you select the launch tower named “Zl1tower” you can activate manually 2 actions before the launch:

- Open/close the door of the building with the key G
- Move to front the building to the pad with the key K. The move to back is by CTRL+Shift+K
You can stop the moving by the key K

4. For the car

With the F3 key, The car named « Zl1auto » (if defined in scenario) can do 2 actions :

- Forward and backward with keys + or – (with CTRL if you want) like a thrust control
- Turn in mode RCS rotation with the keys 1 and 3 of the num pad

The car is park on the CDL3, you can use it for visit the centre

TECHNICAL DATAS FOR SCENARIOS

Some scenarios are available in the pack to test and realise your own scenarios.

ATTENTION !

If you build your own scenarios you **must absolutely** include like ships the parts Zl1arms, Zl2arms, ZL3arms, Zl2tower and Zl1tower with the good positions. In more Zl1arms, Zl2arms and Zl3arms must have fuel if you want use lights and stream effects. If you don't do that the launches pad will be incomplete or non functional.

In option, you can include the car named ZL1auto for visite the centre CSG.

With a text editor, check the join scenarios, pick up the coordonates of this « ships » and place it in your scenario

If you want a good position on the launch pad you must define that in the scenario file. See this example using Ariane 5 by Well and No Matter

Ariane5:W-ariane5\ar
STATUS Landed Earth

POS -52.559628 5.060049 ;position OK
 HEADING 130.00 ;heading OK
 PRPLEVEL 0:1.000 1:1.000 2:1.

NOTA :

It's possible to define the altitude over the pad by two way depending of the model used :

If the model use the CVEL library you must include in the scenario file the line HEIGHT=xx (in meters and we can use – or +)

If the model use the module Spacecraft.dll by Vinka, you must edit the file .ini of the launcher in the repertory Config/Spacecraft/xx.ini and add the parameter:

[MISC]

COG= xx

(COG is the altitude over the ground)

For information, the coordinates of the CSG are -52.53 +5.03

THANKS

We thanks everybodies which help us :

- Olivier Sanguy from Espace magazine (Press) for all the pictures of reference.
- CAPCOM for his great website, with lot of details and information about the CSG:
http://www.capcomespace.net/dossiers/espace_europeen/
- Momo for the aerial picture of the CSG.
- Jacquesmomo for the satellite textures and tiles
- Vinka for his great module Spacecraft3 (included in this pack) which provide the moving part on the launch pad (arms and cables).
- Brian Jones for lights method
- Xosema for the Ariane 1, 2 et 3 serie
- David Henderson for his Ariane 5 CVEL which was very usefull for the tests
- NoMatter and Well for Ariane 4 and 5 (Vinka module)
- and, of course Martin Schweiger for the awesome Orbiter.

Also, you can find all informations about the future extensions on the french community

- Forum of Dan Steph <http://orbiter.dansteph.com/>
- French community <http://orbiterfrancophone.com/>

We thanks too all others persons that we could have forget.

Links:

- Orbithangar: <http://www.orbithangar.com/>
- David Henderson website: <http://www.aibs.org.uk/orbiter/>
- Orbiter official website: <http://www.orbitersim.com>

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