



Extrait du 7 Lames la Mer

<http://7lameslamer.net/a-spaceport-for-reunion-island-1444.html>

Space

A spaceport for Reunion Island

?

- Indian Ocean Viewpoint -

Date de mise en ligne : vendredi 10 juillet 2015

Description :

The rapidly developing context for second-generation spaceports, and Reunion Island, a French-European region located in the South of the Indian Ocean, is... plans to develop its secondary Pierrefonds Airport towards a regional spaceport. A stepping process is envisioned, starting with flights... later expanding to suborbital tourist flights and small satellites air launching. The steps from utopia to reality are not only technical... and dynamic outreach is a full part of the process.

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The rapidly developing context of « New Space » opens the way for second-generation spaceports, and Reunion Island, a French-European region located in the South of the Indian Ocean, is picking up the opportunity with plans to develop its secondary Pierrefonds Airport towards a regional spaceport. A stepping process is envisioned, starting with flights for Zero-G experience, and later expanding to suborbital tourist flights and small satellites air launching. The steps from utopia to reality are not only technical, but also a human challenge, and dynamic outreach is a full part of the process.



Future Pierrefonds Spaceport Concept (JIR 12/09/2013)

A new context for space activities " There was a time when space activities were the privilege of big nations, often competing against each other. Then came a time of multi-national endeavours, resulting in the global network of large communication and observation satellites that we know, and the International Space Station. Along came the amazing development of information and computer systems that has changed our world and raised the possibility of a new layer in space activities. The most prominent aspects of "New Space" are micro-satellites and Cubesats, air-launch systems, and space tourism, both suborbital and orbital.

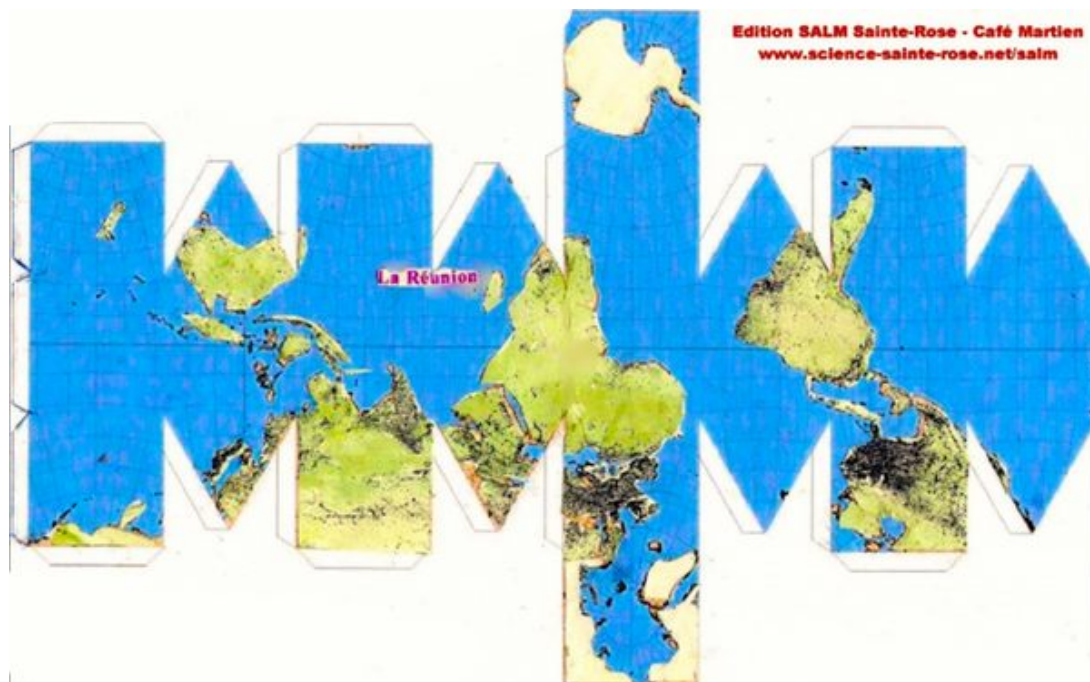
Because of worldwide easy access to information and equipment, it has become possible for small local groups to engage in technical space activities. Now, "regional" space business has become a possibility, a reality, and many smaller countries and even small regions are taking advantage of the opportunity. This is what Reunion Island Space Initiative is promoting in this unique place called by the beautiful name of « Reunion », a true singularity on Planet Earth.

Potential New Space activities in Reunion Island range from developing WPT Wireless Power Transportation for future Space Solar Power to making experiments with the SALM Analogue Moon Mars Site. The most economically

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exciting current project is turning the problem ridden Pierrefonds « airport » in the southern part of the island into a successful « spaceport ».

Pierrefonds : from Airport to Spaceport " Reunion Island features a population of almost one million, with mixed origins, mainly from Europe, Africa and Asia. The social, academic, industrial and economic environment fully meets European standards. Tourism is the main activity, followed by sugar cane, and information technology industries.



Planet Earth and location of Reunion Island. a remote region of the European Union in the South of the Indian Ocean (Map concept by Buckminster Fuller). No rule says that South has to be down, it can be any direction, it will still be South. That uncommon but interesting understanding is one of the outcomes of the "Overview" effect.

There are two airports on the island, the major one being located in the North, close to the city of Saint-Denis.

The smaller airport at Pierrefonds, in the Southern part of the island, features aeroclubs and one helicopter company for scenic tourist flights over the island, with its volcano and its unique wild breathtaking display of mountains and deep valleys. The airport supports only a handful of commercial flights mostly to the nearby island of Mauritius, but not enough to be economically profitable, which is a big problem.

However, the small air traffic that is the cause of the current crisis may on the other hand be an asset if the airfield is to be used for other activities, that will require a maximum of free airspace, such as experimental test flying, sensational flights such as aerobatics, parabolic flights for the Zero-G experience, or suborbital flights and even orbital air launching.

Such is the progressive roadmap envisioned for the development of Pierrefonds as a spaceport over coming years.

It will start with the offer of Zero-G flights as an experience for high-level tourism, where first class customers would spend a magic week, enjoying morning helicopter tours around the most beautiful spots of the island, while the

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afternoons would be dedicated to training and preparation for the Zero-G experience at the end of the stay.

To make Zero-G flights a sustainable activity, they would be implemented with a business jet such as a Gulfstream-II, much in the same way that DAS, a subsidiary of Mitsubishi operates in Japan. Besides European and world tourists, the flights would also address many of the wealthy Reunionnese residents - there are some 300 Porsche cars registered in the island. In addition, educational and scientific microgravity flights could be financed by the regional authorities.



A typical fashion T-Shirt made by Pardon International.

At a later time, after a few years, space activities may develop further with suborbital flights, possibly in cooperation with Japanese projects in this field, as envisioned by HASTIC of Hokkaido. The free skies in the South of Reunion offer a great environment for such activities.

Eventually Pierrefonds could support air-launched orbiting of small Cubesat type satellites, with small-size aircraft, possibly equipped with ramjet propulsion. The flexible system could allow up to several launches per day, contributing to the development of an associated industrial environment.

Steps from Utopia to standard business " While technically it appears easy to conceive steps for the development of Pierrefonds into a spaceport, in fact it is not so easy to see it happen, because of the mental inertia with respects to new concepts.

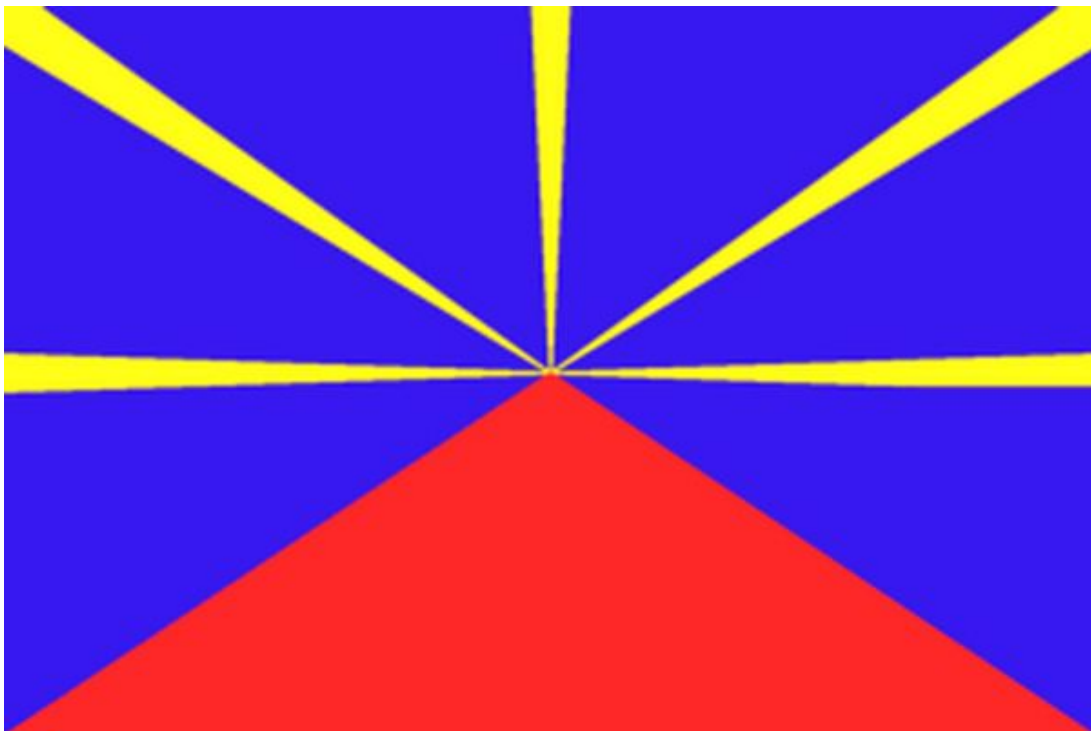
There are usually three steps for innovation to become mainstream thinking. First step is « *your idea is totally crazy, no one sensible will ever listen to you* ». Next step is « *your idea is certainly interesting, but sorry, there are so many reasons why it cannot be done* ». And the eventual final step is « *I always thought it would go this way, and it is mostly thanks to me that it did happen...* »

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For the development of Pierrefonds Airport into a Spaceport in Reunion Island, we have now reached step two in this common process as far as Zero-G flights are concerned. We are still step one for suborbital and orbital activities.

The delicate art of breakthrough " Telling about the potential of Pierrefonds to become soon a real spaceport with all the associated benefits is somewhat an easy thing. But before decision makers in the fields of economics and politics will go the steps to make it happen, they will first have to understand that it is actually feasible, and bring it within their own frame of thinking.

This is where outreach is important to help people and society change their vision about the world, locally and globally. Representations and symbols play an important role in this process, and so do art and fashion, which can be used to develop the necessary « overview » perception.



Reunion regional flag - The beaming Volcano.

It is easier to think about orbits and planetary issues when you hold and move and turn around a globe in your hand, a 3D paper representation of Planet Earth (Fig. 2.), than when you look at the usual flat planisphere world map, a misleading representation. Some five thousand paper globe kits have been distributed and built at a science fair, in schools and in many personal encounters since the end of 2014. It is strange to see how many people, when given the flat 2D piece of cardboard, need a few minutes of thinking before they understand that it can be made into a 3D quasi-globe. But when they do, their understanding of the world and of their place in the world changes dramatically, and they can start thinking of spacefaring as a reality, no longer a dream or a fairy tale.

The design and fashion Reunionnese company Pardon International has over some twenty past years greatly contributed to challenge and change minds about many social issues through collections of very innovative, and sometimes somewhat provocative T-Shirts. This is probably one of the privileged paths to bring about a political and economic awareness of the importance of regional space activities, of developing « *New Space* » business and building tools for 3D futures, turning Pierrefonds Airport into Reunion Spaceport.

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The regional flag of Reunion Island features a flaming volcano and blue skies, and a series of beams, symbols of a population that has come from the whole world and that is turned to the whole world.

We would like to imagine that the central beam is a symbol for access to space with the Reunion Pierrefonds Spaceport.

Guy Pignolet