VEATAL

Validation of an Experimental Airship Transportation for Aerospace Logistics

Background

The 20th century started with the conquest of the atmosphere by aeroplanes and ended with orbiting the earth and moon. The 21st century can foresee the conquest of air cargo transportation by airships in the new economic paradigm of globalisation.

The intensification of transporting goods worldwide requires:
- payloads, which are heavier, larger, indivisible and pre-mounted, still needing to be transported;
- delivery to be achieved at any time, in any place, in all weather, infrastructure-free;
- the carrier to be 'mission versatile' and if active in airspace, to be able to move/hover, lift/descend, be ecological and autonomous.

Objectives

During the early part of the last century, airships were able to tour the world endlessly with 100 tons of payload. This project challenges the new century to 'retro-innovate' in order to provide transport solutions for cumbersome payloads and break the present limit of two tons.

To reach this challenge, the preliminary objectives are:
- to organise conferences/workshops relating to the transportation of cumbersome and indivisible payloads (specially in the aerospace domain) as well as participating and presenting papers during other conferences;
- to demonstrate via the media the feasibility of this transport technology, performing an experimental airship flight with a 4-ton aerospace payload if possible;
- to simulate all the operations required for a transcontinental airship flight, covering all the requirements of the European aerospace industry.

These objectives can be realised by:
- a group of logisticians making an inventory of their needs and handling methods in special transportation;
- a roadmap of airship technology innovations;
- an industrial and R&D consortium for larger prototypes and industrialisation;
- an international training centre, based in Europe, for teaching pilots to fly airships;
- co-operative work on the airship theme, carried out by universities specialising in aerospace and technology.

Description of work

The first part of the work will consist of reviewing the state of the art in aerostatic matters, and illustrating aerostation past history and achievements to provide the background necessary to sustain the architecture of the conference.

Semiosphere, assisted by the Troisel and Supaero teams, will provide the conditions and constraints attached to any satellite payload transportation along with a comparative review of the transportation systems.

Troisel will provide material and illustrations of the lift and transport limits they face in their day-to-day operations with the assistance of logisticians from different walks of industry.

Thermoplane and Compagnie des Aérostats des Pyrénées will then demonstrate the type of contribution which will solve the exposed needs, how the tonnage limit can be broken with illustrations of the existing Russian prototype and how navigating to launching sites will be realised (supported by an animated simulation), while Troisel will investigate how the technology investment (as a roadmap) will be beneficial to the economic systems at large.

These demonstrations will constitute the core of the presentations during the conferences to which experts in the logistic fields will be invited to present their requirements.

Conferences should take place in France, Russia, Beijing and Brussels in order to cover a large spectrum of the stakeholders' issues.

Results

It is expected that VEATAL will achieve a thorough assessment of the requirements linked to the retro-innovation of airships for transportation in terms of complementary interoperable transportation.

A modern airship technology development roadmap will have been drawn up, and hopefully an industrial consortium will be implemented, along with a training centre.

A thermoplane airship

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Website:	http://www.veatal.eu	
Coordinator:	Dr Gronoff Christian	
	Semiosphere	
	30 bis rue de l'ancien chateau	
	FR 31670 Labege (Toulouse)	
E-mail:	semiosphere@wanadoo.fr	
Tel:	+33 (0)5 62 24 41 69	
Fax:	+33 (0)5 62 24 00 71	
EC Officer:	R. Denos	
Partners:	Thermoplane, KB	RU
	Compagnie des Aérostats des Pyrénées	FR
	Troisel S.A.	FR