

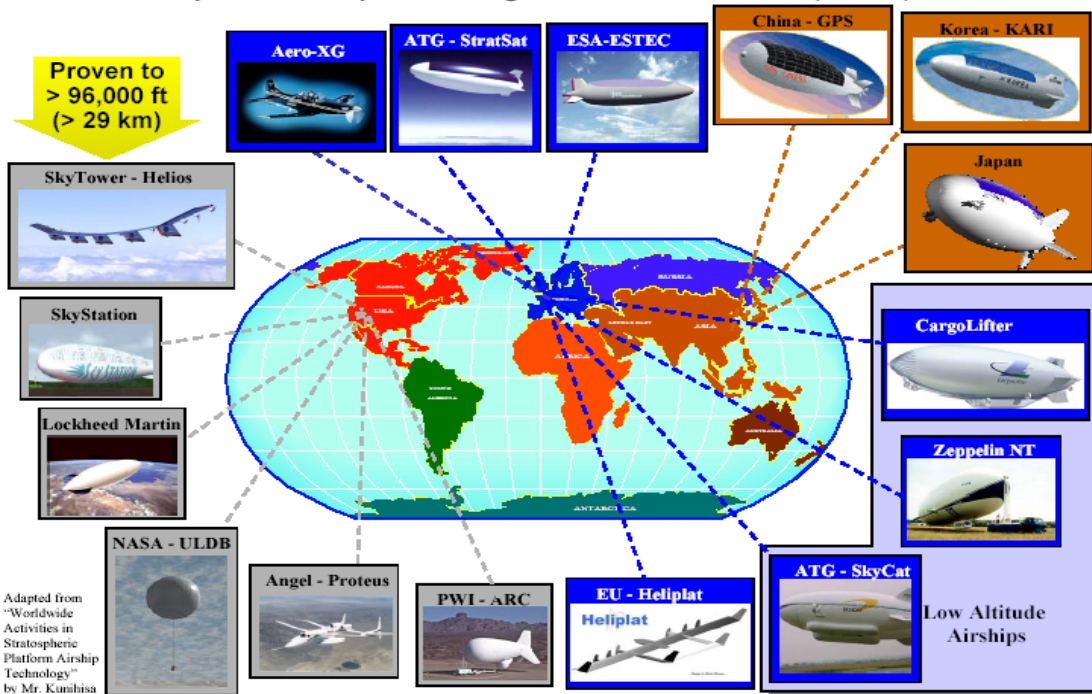


Developing a EU Research Strategy in the High Altitude Aircraft and Airships (HAAS) Sector

USE HAAS Project Contract No. ASA4-CT-2005-516081

World Map of Stratospheric HAAS

World Map of Stratospheric / High Altitude Platforms (HAPS) Activities



EXECUTIVE SUMMARY



USE HAAS / 516081

Acronym: USE HAAS

Name of the proposal: Study on High Altitude Aircraft and Airships (HAAS) deployed for specific Aeronautical and Space Applications

Contract number: 516081

Instrument: Specific Support action

Total cost: 435,882.00 Euro

EU Contribution: 435, 882.00 Euro

Call: FP6-2002-Aero-2

Starting date: 01.03.2005

Ending date: 31.08.2006

Duration: 18 months

Research domain: Strengthening Competitiveness

Website: <http://www.usehaas.org>

Coordinator title: Professor

Surname: Lavie

Name: Arie

Organisation 1: CTI – Creative Technologies Israel Ltd.

Address : 49 Dagan St., Jerusalem, Israel

Postal Code: 93856

City: Jerusalem

Country: Israel

E-mail: arlavie@zahav.net.il

Tel: 972-2-6452086

Fax: 972-2-6452489

EC Officer: Remy Denos

1. Background

The European Commission Research Directorate Aeronautics approved the USE HAAS proposal to develop a EU Research Strategy in the exciting and an emerging science and technology sector of High Altitude Aircraft and Airships (HAAS). HAAS are designed to fly above controlled airspace up to the stratosphere. From such a high altitude they are expected to provide important aeronautical missions and applications. When hovering in geo-stationary flight they will also provide satellite equivalent services such as regional Earth system observations and communications services with a terrestrial footprint of 600 km in diameter. In order to provide such services HAAS must provide a long-endurance flight of weeks-months, which introduces new concepts for multi-mission applications, given existing legal unmanned aircraft air traffic management regulations. We succeeded in convincing more than a hundred potential USE HAAS stakeholders and end users to take part in our activities: during the two Workshops and Working Groups meetings, and to share the challenge in creating the HAAS sector by preparing the Strategic Research



Agenda (SRA) for the sector. The executive summary of the project includes also analysis of current existing and in development HAAS unmanned aircraft to be used for potential deployment to provide important missions and applications. Most of them are published in our website <http://www.usehaas.org>.

2. Objectives

1) To analyse the world state-of-the-art including HAAS aeronautical uses; 2) To develop tentative research objectives for HAAS deployment; 3) To discuss in workshops and working groups objectives to prepare potential SRA—Strategic Research Agenda for the HAAS sector, including research and development needs programme in aeronautics; 4) To disseminate recommendations on the objectives, i.e. the aeronautical research agenda; 5) To issue the final report including the conclusions, and the impact on regulations; 6) To make recommendations for coordinating the activities in this sector and for defining and disseminating technological roadmap and a SRA for the HAAS sector based upon the inputs given by the end-users and any potential industrial partner during the workshops and the working groups meetings.

The executive summary of the project as following intendeds to provide a quick view on the materials presented during the two Workshops of the USE HAAS SSA project and critical analysis of the results obtained during the Workshops and the Working Groups meetings. It brought together, perhaps for the first time, participants interested in the HAAS sector: industry, academia and research institutes, end-users and stakeholders from the EU, from the public and from the national and regional authorities to discuss the future of the new HAAS sector being in formation thereafter.

3. Description of work

Analysis of USE HAAS activities

This analysis is intended to have a quick view on the materials presented during the USE HAAS Workshops and the Working Groups (WGs), and provide the first look of the results obtained in the project. First, it can be concluded that the project results are highly successful considering the large number of 136 active participants in the workshops and in the WGs. Second, in the USE HAAS activities many HAAS stakeholders and end-users were involved. Third, such involvement provided an important input when the HAAS SRA was prepared.

Analysis of Working Groups Meetings

Analysis of WGs meetings show an impressive contribution to the USE HAAS Consortium work and his objectives. It highlights specifically the preparation of the HAAS SRA and the creation of the HAAS sector.

Analysis of USE HAAS workshops

This analysis gives a short summary of presentations and Round Table discussions during the two USE HAAS Workshops. The 1st workshop was mainly intended to disseminate to the new HAAS sector the planned project activities and to involve EU stakeholders and HAAS platform developers from USA, Russia, Japan and from Korea. The 2nd Workshop intended to summarize the current HAAS state-of-the-art and to present the draft version of the SRA.

HAAS SRA (Strategic Research Agenda)



The European Aeronautical industry, including the air transport industry, is large, important and complex. It was, therefore, entirely appropriate that the work done in this project should include to develop for the HAAS sector Strategic Research Agenda-SRA. The HAAS SRA consists of 3 volumes: 1) Summary; 2) R&D Needs; 3) Missions and Applications. Preliminary analysis of the SRA indicates that an estimate of €1billion will be required for investment in relevant research in the next 15 years.

4. Results

The main achievement of the USE HAAS project is success to determine and to initiate the launching of the HAAS sector equipped with the HAAS SRA-Strategic Research Agenda that includes the Research and Development Needs for developing the HAAS platform, and prospective HAAS Missions and Applications. There is a need to establish a Forum to follow up activities of HAAS sector and implement recommendations of HAAS SRA, and promote legalization of needed regulations in order to deploy civilian HAAS unmanned aircraft. Such possible Forum could be a HAAS Observation Platform (HAASOP) to include major HAAS stakeholders, relevant industries, research institutes and end-users.

Next Steps

The surprisingly large number of active participants in the two workshops and working group meetings (136) represents an adequate spread from industry and potential end-users, research institutions, public authorities and stakeholders. Many of them encouraged to implement the HAAS SRA Research and Development Needs and develop a regulatory ATM (Air Traffic Management) to deploy civilian HAAS for different missions and applications. First meeting of the suggested HAASOP was on 16 October 2006 and a mandate was given to implement these recommendations. At this meeting it was recommended to prepare 3 projects and submit in FP7-AAT-2007-RTD-1: 1) Alternative Energy Hybrid Propulsion for Air Transport; 2) Improving ATM by using HAAS; 3) Coordination Action USE HAAS follow up projects



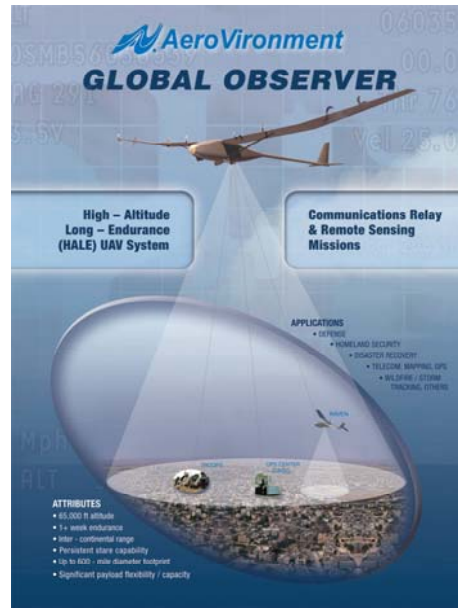
Hydrogen-Fuel Cell
Propelled Aircraft



Solar-Battery-Electric
Propelled Airplane



Turbofan Propelled
Aircraft



5. Partners:

Order	Partner	Country
1	CTI - Creative Technologies	Israel
2	RMA – Royal Military Academy	Belgium
3	DLR - German Space Centre	Germany
4	UoY – University of York	UK
5	IAI – Israel Aircraft Industries	Israel
6	ULg (CSL) – University of Liege (Centre Spatial de Liege)	Belgium

Keywords

Images