Informations

LOCATION

Palais des Congrès d'Arcachon
Boulevard Veyrier Montagnères
33120 Arcachon – France
(3/4 hour drive from Bordeaux International Airport)

FEES

Regular Rate	1200 €
Speakers and Chairmen	900 €
Students	900 €

(VAT 19,6% included).

All participants including Chairmen and Authors have to register and pay the registration fees. To register, please forward the duly completed registration form with payment in Euros, or an order from your firm, to Avantage Aquitaine.

Payment can be made by cheque, credit card or wire transfer.

Registration fees include: Attendance at the congress sessions, morning and afternoon coffee breaks, lunches each day and Congress dinner.

LANGUAGE

Papers will be presented in English.

CANCELLATION

Cancellations will only be accepted until 7 days prior to the Conference. After 7 days a 750 Euros cancellation fee will be applied. Registrants who do not cancel before the conference date will be liable for full registration fees.

SECRETARIAT

All correspondance and inquiries should be sent to the conference secretariat.

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Tel/voice box: + 33 (0)6 81 42 23 95
Fax: + 33 (0)5 57 70 21 22
E-mail: avantage-aquitaine@wanadoo.fr

ARA

The Atmospheric Reentry Association

presents

the 1st International ARA Days

Atmospheric Reentry Systems, Missions and Vehicles

3-5 july 2006, Arcachon-France

With the support of

PROGRAMME

ARA Presentation and Conference Topics

The Atmospheric Reentry Association was created in 2000, by Aquitaine Region, Bordeaux University and EADS Space Transportation, in order to ensure regional visibility and development of activities of specialists in the field of atmospheric systems, vehicles and associated technologies. SNECMA, the French Atomic Agency, and Dassault Aviation rapidly joined this new club.
Significant results have been obtained so far. The association is generating and supporting students' activities including thesis and masters. It is promoting role of small and medium enterprises in the field.

In 2005, ARA was the cornerstone of development of a strategic domain "Access to Space and Reentry" during creation of the competitivity pole Aerospace Valley between Aquitaine Region and Midi Pyrénées Region. This pole received agreement and support of French Government, being recognized by the French Prime Minister as a world class pole on July 12, 2005.

In this context, the 1st international ARA days will offer opportunity to hear both industrial and institutional points of view on following topics:

- Space transportation and exploration vehicles,
- Robotic exploration missions and associated vehicles
- Lessons learned on recent flight projects
- Development status on the worldwide space agencies, and their current or on-going projects
- Atmospheric Entry Programs/Systems/Missions
- Lessons learned from previous development and/or flight experience
- New Re-entry Vehicles design and developments
- Entry vehicles system design
- Development and qualification logic
- Re-entry and landing concepts for experimental/operational Systems
- Advanced techniques and technologies to be mastered for re-entry Vehicles
- ....

The 1st International ARA days will allow fruitful and privilegiate exchanges between the overall International Atmospheric Entry Community members.

We are looking to meeting you soon in Arcachon. Sincerely.

THIERRY LEVEUGLE, CHAIRMAN OF ARA

Monday, July 3, 2006

07.30-08.30	REGISTRATION	
08.30-09.00	INTRODUCTION	
	Session N°1 **International Missions & Programs**	
09.00-09.30	The European Space Exploration Programme «Aurora», Its ExoMars Mission and the Associated EDLS **D. VENNEMANN**, ESA/ESTEC	
09.30-10.00	An Overview of India's First Orbital Recovery Experiment **A. SUBRAMONIAM**, ISRO	
10.00-10.30	The USV_X Concept: Mastering Key-Elements for Future Reentry Systems **P. DE MATTEIS**, CIRA	
10.30-11.00	COFFEE BREAK	
11.00-11.30	The SpaceLiner Concept and Its Aeothermodynamic Challenges **M. SIPPEL**, DLR	
11.30-12.00	Pre-X Experimental Re-Entry Lifting Vehicle: Status and Perspectives **P. BAIOCCO**, CNES	
12.00-12.30	Conceptual Study of Venus Balloon Mission Using a Compact Aerocapture System **F. KAZUHISA**, JAXA	
12.30-13.00	The European Re-Entry Technology Demonstrator : IXV **G. TUMINO**, ESA	
13.00-14.30	LUNCH	
	Session N°2 **Aerothermodynamics**	**Session N°3** **Descent and Landing**
14.30-15.00	Venus Balloon Mission Archimedes-V with Emphasis on Surface and Gas Radiation Phenomena **C. MUNDT**, University of Armed Forces Munich	Soft Landing on Mars: the Best Way to Master the Entry, Descent and Landing Phases and Land Safely **F. BONNEFOND**, EADS Space Transportation
15.00-15.30	Surface Catalysis Determination for Earth and Mars Atmospheres Re-Entry Vehicles: Microscopic vs Macroscopic Methods **J.L. VERANT**, ONERA	Navigation & Hazard Avoidance Trade-Off for Mars Landing **S. REYNAUD**, EADS Space Transportation
15.30-16.00	Transient Heat Transfer in Rotating Cylinders-Non Contact Methods to Analyse Intense Heat Flux Distributions **C.BATSALE**, ENSAM	Flight Simulation of Reusable Launch Vehicle Recovery Phase and Assessment of Water Impact Load **V.K. KUMAR**, VSSC
16.00-16.30	Effects of MHD Interaction in Rentry Flight **V.A. BITYURIN**, Russian Academy of Sciences	Proposal of Earth Landing Demonstration for a Planetary Lander **F. BONNEFOND**, EADS Space Transportation

16.30-17.00	COFFEE BREAK	
	Session N°4 **Aerothermodynamics**	**Session N°5** **Vehicle Design**
17.00-17.30	Contribution to the Microscopic Description of Heterogeneous Chemistry at the Surface of Thermal Protection Systems of Re-entry Vehicles **L. MARTIN**, Bordeaux I University	Design and Realization of a High Temperature Ceramic Winglet for Atmospheric Reentry Test on Suborbital Capsule **R. GARDI,** CIRA
17.30-18.00	Numerical Modeling of Gas Fluxes in Rocket Engine Chamber **V. L. BUCHARSKY**, Dniepropetrovsk National Univ.	Assessment of Vehicle Concepts for Space Transportation and Re-Entry Experimental Missions **R. HAYAS RAMOS,** DEIMOS Space
18.00-18.30	Aerodynamics of the Clipper Reentry Vehicle in Wide Knudsen Number Range **P. V. VASHCHENKO**, ITAM	A Feasibility Study of Experimental Lifting Body Reentry Vehicle **I. SHINJI,** JAXA

Tuesday, July 4, 2006

	Session N°6 **Aerothermodynamics**	**Session N°7** **Ground Testing Approach**
08.00-08.30	Aerodynamic and Aerothermodynamic Shape Characterisation of a Re-Entry Demonstrator – **B. REIMANN**, DLR	Qualification and Flight Extrapolation for the Fotino Re-Entry Capsule **C.O. ASMA,** Von Karman Institute
08.30-09.00	Predict Aerodynamic Heating over Blunt Body with Equilibrium Gas Effects Using AUSMD and AUSM+ **H. Vafadar MORADI,** Iran University of Science and Technology	Experimental PWT Ground Test for Detailed Representation of the Thermal and Mechanical Loads Acting on a Control Surface of an Atmosphere Winged Re-Entering Vehicle **C. PURPURA,** CIRA
09.00-09.30	EPC Reentry **C. LEVEAU**, CNES	Fiber Optic Sensors for Reusable Launch Vehicle Cryogenic Tanks **E. DEL OLMO,** EADS CASA
09.30-10.00	Laminar, Transitional and Turbulent Shock Wave/Boundary Layer Interactions Around Cylinder-Flare Models **B. CHANETZ**, ONERA	Static Aeroelastic Analysis of a Thin Film Clamped Ballute for Titan Aerocapture **R. R. ROHRSCHNEIDER**, Georgia Insitute of Technology
10.00-10.30	The Design Technology of Rocket Engine's Chamber – **A.A. SHINKARENKO**, Dniepropetrovsk National Univ.	Development of the Measurement Techniques in Hypersonic Experiment **S. PARIS**, Von Karman Institute
10.30-11.00	COFFEE BREAK	

	Session N°8 **Sructures and TPS**	**Session N°9** **Ground Testing Approach**
11.00-11.30	Effective Surface Approach for the Design of Ablative Composite **Y. ASPA**, Bordeaux I University	Design of a New Calorimetric Heat Flux Probe **C.O. ASMA,** Von Karman Institute
11.30-12.00	Technology Status and Development of Metallic Hot Structures and Thermal Protection Systems **J. OFFERMAN**, Dutch Space B.V.	EADS ST Improvements on Catalycity Determination by Numerical and Experimental Crossing **D. CONTE**, EADS Space Transportation
12.00-12.30	C/SiC INTRADOS Thermal Protection System for the European PRE-X Re-Entry Demonstrator **T. PICHON**, SNECMA Propulsion Solide	Free Stream Characterization of High Enthalpy Wind Tunnels Using Laser Absorption Spectroscopy: Achievements and Current Status **K. KOMURASAKI,** The Univ. of Tokyo
12.00-12.30	Study of Particles Impact Effect on Ablative Material Properties – Application to Mars Re-Entries **I. MONTOIS**, CEA	Extended Capabilities of the IPG-4 Plasmatron for Simulation of Reentry Heating for the Pre-X and EXPERT Vehicles **A.F. KOLESNIKOV,** Russian Acad. of Sc.
12.30-14.00	LUNCH	
14.00-14.30	PLENARY SESSION	
	Session N°10 **Sructures and TPS**	**Session N°11** **International Missions & Programs**
14.30-15.00	Design of the EXPERT Re-entry Vehicle Metallic Thermal Protection System **G. KESTER**, Dutch Space B.V.	From Huygens Titan Probe to Mars EDL System: Planetary Probes at EADS ST **P. TRAN,** EADS Space Transportation
15.00-15.30	Modelling of Heat and Mass Transfer in Thermal Protection Systems for Futur Reentry Missions **C. PREUX**, Bordeaux I University	Study on Human Space Transportation Systems and Re-Entry Demonstrators **R. ANGELINI,** Alcatel Alenia Spazio
15.30-16.00	COFFEE BREAK	
	Session N°12 **Flight Testing Approach**	**Session N°13** **International Missions & Programs**
16.00-16.30	IRDT Flight Lessons Learned **J.M. MUYLAERT**, ESA/ESTEC	Parametric Study on Entry Probes in Mars **A. BLASCO**, ESA/ESTEC
16.30-17.00	A Concept Study of Small Recoverable Spacecraft for Microgravity Mice Experiments – **A. SASAKI**, MHI	PHOENIX 1+ Trade Off and Project Concept **P. KYR,** EADS Space Transportation
17.00-17.30	Preliminary Post-Flight Data Analysis of the SHEFEX Experiment **T. EGGERS**, DLR	Preparation of Mars Sample Return (MSR): The European Approach **A. PRADIER,** ESA/ESTEC

	Session N°12 Flight Testing Approach	Session N°13 International Missions & Programs
17.30-18.00	The EXPERT Demonstrator for Re-Entry Aerothermodynamic Tools and Methodologies **F. MASSOBRIO**, ALCATEL Alenia Spazio	Experimentation Approach for Pre-X Re-Entry Vehicle **D. ORY**, EADS Space Transportation
18.00-18.30	Feasibility of a Multi-Spectometer Architecture for Plasma Measurements during Reentry Experiments **P. MILLIER**, CEA	Hybrid Spacecraft: Reentry Analysis **V.S. SYROMIATNIKOV**, Space Regatta Consortium
20.00	CONFERENCE DINNER	

Wednesday, July 5, 2006

	Session N°14 Sructures and TPS	Session N°15 System Design
09.00-09.30	Status and Outlook of CMC Hot Structure Tehcnology Develeopment at MT Aerospace **H. LANGE**, Dutch Space B.V.	System Engineering Challenges of Pre-X Vehicle **J. MOULIN**, EADS Space Transportation
09.30-10.00	Ablation of Carbon/Carbon Composites: 3D Multi-Scale Numerical Simulation of Surface Rouhgness Evolution **J. LACHAUD**, Bordeaux I University	Spaceplane - A New Way for Atmospheric Re-entry? **R. JANOVSKY**, OHB-System AG
10.00-10.30	Application of ODS Super Alloys in Metallic Hot structure and Thermal Protection Systems: Material Allowables and Manufacturing Aspects **B.M. LEFEBER**, DUTCH Space B.V.	Integrated Flight Simulation of Ascent and Descent Phases of Sub-Orbital Winged Body Reusable Launch Vehicle Mission Using Object Oriented Approach **N. REMESH**, VSSC
10.30-11.00	Deformation of Thermal Protection Coating from Class-Fiber Reinforced Plastic Under Reentry Conditions **L. GRACHEVA**, National Ac SCi of Ukraine	FOTINO: Design, Manufacturing, Testing of the Capsule of the Second Young Engineers' Satellite **F. DE PASCALE**, DELTA Utec SRC
11.00-11.30	COFFEE BREAK	

	Session N°16 Flight Testing Approach	Session N°17 System Design
11.30-12.00	Flight Measurement Technique Developments for EXPERT Flight in 2008 **J.M. MUYLAERT**, ESA/ESTEC	Design, Development and Testing of a Rigid Aerodynamic Decelerator for Recovery of a High Altitude Sounding Rocket Payload – **A.N. LAHOUTI**, Aerospace Research Institute of Iran

	Session N°16 Flight Testing Approach	Session N°17 System Design
12.00-12.30	Flight Experiment for Recovery Vehicle with Flexible Tension Aeroshell **T. ABE**, ISAS	Pre-X Experimental Glider: Key Factors of Success for Vehicle Architecture & Engineering – **B. SANTERRE**, EADS Space Transportation
12.30-13.00	Instrumentation and In-Flight Data of the SHEFEX Flight Experiment **A. GUELHAN**, DLR	An Entry Handbook for the Conceptual Design of Mars Missions **G. WELLS**, Georgia Instit. of Technology
13.00-14.30	LUNCH	
14.30-15.00	PLENARY SESSION	

	Session N°18 Sructures and TPS	Session N°19 GNC
15.00-15.30	Physico-Chemical Study and Modelling of the Degradadtion of a PICSIL Composite Used as Thermal Protection **E. ZANITTI**, Bordeaux I University	Reentry Skipping Trajectory Optimization for RLV Using Direct Parameter Optimization Method and Nonlinear Programming **L. TU**, Northwestern Polytechnical Univ.
15.30-16.00	CMC Based Thermal Protection Systems Adapted to CMC Control Surface Design **A. STEINACHER**, MT Aerospace AG	Flatness-Based Hypersonic Reentry Guidance of a Lifting-Body Vehicle **F. CAZAURANG**, Bordeaux I University
16.00-16.30	Oxidation and Catalycity Phenomena on Thermal Protection Materials during Earth and Mars Reentry **M. BALAT-PICHELIN**, PROMES-CNRS	Optimization of the Trajectory of the Future Space Launchers: Fully reusable, semi reusable, and expandable **J. LAURENT-VARIN**, CNES
16.30-17.00	COFFEE BREAK	

	Session N°20 Sructures and TPS	Session N°21 GNC
17.00-17.30	Metallic Thermal Protection System for the Expert Re-entry Vehicle: Modelling and Analysis **J. FATEMI**, Dutch Space B.V.	Trajectory Optimization for a Sub-Orbital Re-entry Technology Demonstrator Mission **J. JOSEPH**, ISRO
17.30-18.00	Status on Generic Shingle Technological Maturation and Tests **T. PICHON**, SNECMA Propulsion Solide	The X-Lander Mission: Descent Scenario and Guidance Trade-Off **G. GELLY**, EADS Space Transportation
18.00-18.30	Application of Advanced Grid-Stiffened Structures Technology to a Reusable Intertank Structure **V. DIAZ**, EADS CASA	Guidance of Multi-Block Spacecraft **A.P. LEBEDEV**, Dniepropetrovsk National Univ.

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REGISTRATION FORM

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