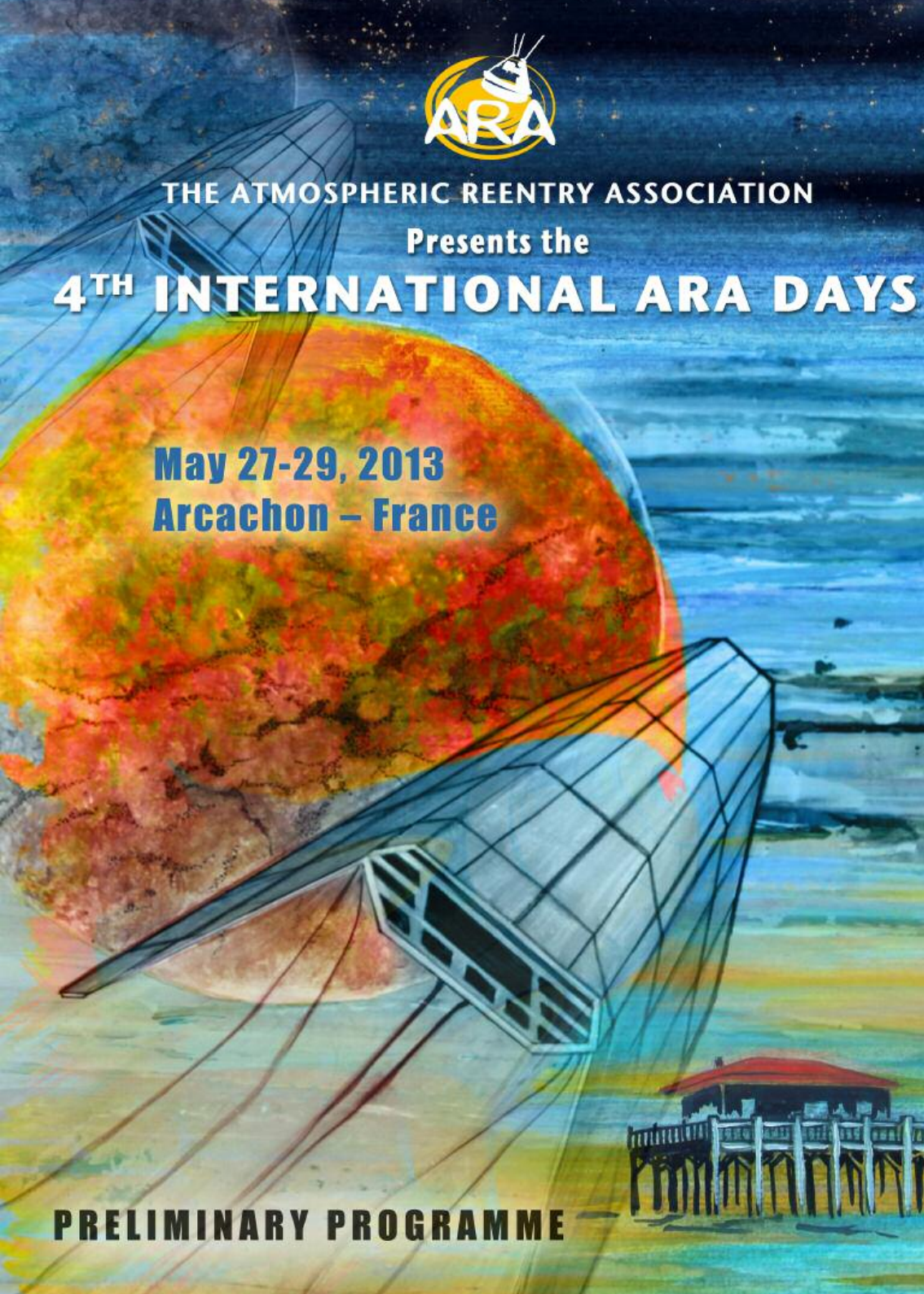
ARA
THE ATMOSPHERIC REENTRY ASSOCIATION
Presents the
4TH INTERNATIONAL ARA DAYS
May 27-29, 2013
Arcachon – France
PRELIMINARY PROGRAMME

4TH INTERNATIONAL ARA DAYS

May 27-29, 2013 Arcachon – France

Dear Madam, Dear Sir, Dear Professionals of the Atmospheric Reentry,

For its 4th edition after the success of the 2006, 2008 and 2011 conferences, your "Arcachon rendez-vous" is becoming something like a tradition.
It is again a pleasure to bring together in the usual friendly way, scientists from the academic community and industry, PhD students, research and development engineers, management delegates from prime contractors and suppliers companies, agencies representatives, end-users representatives, from Australia, Belgium, France, Germany, Italy, Japan, The Netherlands, Spain Switzerland, Ukraine, Russia.
Some months after an European Space Agency Council at Ministerial level, the symposium will give the opportunity to exchange on the latest developments and projects dealing with Atmospheric Reentry.
I would like to thank the members of the Program Committee who helped building this program, all of them looking forward to meeting you again in a sunny Arcachon !

Yours faithfully,
Thierry Leveugle
President, The Atmospheric Reentry Association

Programme Committee

Marie-Hélène	ARNAL	FRENCH SPACE AGENCY CNES
Jean-François	BELON	AVANTAGE AQUITAINE
Jean-Marc	BOUILLY	ASTRIUM SPACE TRANSPORTATION
Franco	FOSSATI	AVIOSPACE
Ludger	FROEBEL	ASTRIUM SPACE TRANSPORTATION
Marc	LACOSTE	SAFRAN HERAKLES - THE ATMOSPHERIC REENTRY ASSOCIATION
Thierry	LEVEUGLE	THE ATMOSPHERIC REENTRY ASSOCIATION
José	LONGO	EUROPEAN SPACE AGENCY
Jean	MUYLAERT	VON KARMAN INSTITUTE
Marcello	ONOFRI	LA SAPIENZA ROME UNIVERSITY
Dominique	PIROTAIS	CEA CESTA - THE ATMOSPHERIC REENTRY ASSOCIATION
Marcello	SPAGNULO	ITALIAN SPACE AGENCY ASI
Hendrik	WEIHS	GERMAN AEROSPACE CENTER DLR

Programme

May 27th, 2013

08h30-09h30	**REGISTRATION**
	4TH ARA DAYS WELCOME INTRODUCTION
09h30-09h45	**WELCOME ADDRESS**
	Thierry LEVEUGLE, ARA (France)
	INVITED KEYNOTE
09h45-10h15	• The IXV Development Status and Perspectives (including PRIDE). Giorgio TUMINO, European Space Agency (The Netherlands)
10h15-10h45	COFFEE BREAK
	PLENARY SESSION
10h45-11h15	• The SHEFEX Flight Test and Development Program Hendrik WEIHS, German Aerospace Center DLR (Germany)
11h15-11h45	• Aerothermodynamic Technologies Required by ESA in the Next Future José LONGO, European Space Agency (The Netherlands)
11h45-12h15	• IXV: System Overview and Program Status Roberto ANGELINI, Thales Alenia Space (Italy)
12h15-12h45	• The HOMER Test Vehicle: Industrial Approach to Early Technology Validation – Nicolas SAUVAGE, Astrium Space Transportation (France)
12h45-14h30	LUNCH

	AERODYNAMICS - AEROTHERMICS - CFD - 1	TPS - 1
14h30- 14h50	• A Few Aspects of Gas Flow Simulation for Atmospheric Re-entry Nicolas HEROUARD, CEA-CESTA (France)	• Innovative Thermal Protection and Locking Systems for Re-entry Application – Roberto VIOTTO, Thales Alenia Space (Italy)
14h50-15h10	• Aerodynamic Analysis of Unmanned Re-Entry Vehicle Concepts from M=0.3 to 25 – F. PETROSINO, CIRA (Italy)	• Windward and Nose Assemblies CMC Thermal Protection Systems for the IXV Re-entry Demonstrator – Development to Qualification : Tests & Analysis – Florent GIRARD, Herakles, Safran Group (France)

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	AERODYNAMICS - AEROTHERMICS - CFD - 1	TPS - 1
15h10-15h30	• Experimental and Numerical Contributions to the Aerodynamic Characterization of the IXV Vehicle in High Enthalpy Flow – Julien GARRAUD, Onera (France)	• Astriums' TPS Experiments on SHEFEX II – Wolfgang P.P. FISCHER, Astrium Space Transportation (Germany)
15h30-15h50	• Inverse Analysis and Identification of Transient Heat Load Distribution on a Reentry Capsule. Toshiya NAKAMURA , JAXA (Japan)	• ASTERM : a New Low Density Ablative Material. Jean-Marc BOUILLY, Astrium Space Transportation (France)
15h50-16h20	COFFEE BREAK	
	AERODYNAMICS - AEROTHERMICS - CFD - 2	**GNC AND FLIGHT CONTROL - 2**
16h20-16h40	• Study of Radiating and Ablating Shock Layers – Richard MORGAN, University of Queensland (Australia)	• Shefex III Flight Control System Jürgen TELAAR, Astrium Space Transportation (Germany)
16h40-17h00	• Radiation in Low Density Hypervelocity Flows. Application to Titan Entry – Carolyn JACOBS, Ecole Centrale de Paris (France)	• On-Line Trajectory Generation and Tracking for Atmospheric Reentry of Reusable Launch Vehicles Daniele ROMAGNOLI, CIRA (Italy)
17h00-17h20	• Simulation of Shock Tube Radiation Measurements Under Earth Reentry Conditions – Adrien LEMAL, Ecole Centrale de Paris (France)	• Robustness and Scheduling of the IXV Re-entry Controller Murray KERR, DEIMOS Space S.L.U. (Spain)
17h20-17h40	• A New Computational Technique for Re-entry Flow Calculations Based upon a Shock-fitting Technique for Unstructured Grids – Marcello ONOFRI, La Sapienza - University of Rome (Italy)	• IXV Avionics Architecture and Development Status Stephane DUSSY, ESA (France)
17h40-18h00	• Experimental Investigation of Low Pressure Plasma Flows Focused on Atmospheric Entry Problems Viviana LAGO, ICARE - CNRS (France)	• IXV Body Flap Chain Performance Analysis – Raffaele AULISIO, Thales Alenia Space (Italy)
20h00-23h00	CONFERENCE DINNER	

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PLENARY INTRODUCTION SESSION

9h00-9h30	• Thermal Deformation of Carbon-Carbon Composite Materials during Thermal Cycling under Conditions Simulating the Reentry Trajectory L.L. GRACHEVA, National Acad. Sci. of Ukraine (Ukraine)
9h30-10h00	• Construction of Bread Board Model of Non-Ablative Lightweight Thermal Protection System Toshiyuki SUZUKI, Japan Aerospace Exploration Agency (Japan)
10h00-10h30	• Catalytic Effects on Hypervelocity Vehicle – Valentin BITYURIN, Joint Institute for High Temperatures of Russian Academy of Sciences (Russia)
10h30-11h00	COFFEE BREAK

	MISSION ANALYSIS	TPS - 2
11h00-11h20	• FAST20XX Achievements and Outlook – Rafael MOLINA, European Space Agency (The Netherlands)	• CMC TPS Technology for IXV: Towards Full-Scale Manufacturing and Qualification – Renaud BARRETEAU, Herakles, Safran Group (France)
11h20- 11h40	• A Technology Re-entry Vehicle Concept Study – Samantha IANELLI, ASI (Italy)	• AEROFAST: Development of Innovative Thermal Protections – Jean-Marc BOUILLY, Astrium Space Transportation (France)
11h40-12h00	•Controlled Re-entry from GTO and LEO Feasibility – Anne-Hélène GICQUEL, Astrium Satellites (France)	• Carbon-phenolic Ablative Materials for Re-entry Space Vehicles: Manufacturing, Properties and Plasma Wind Tunnel (PWT) Test – Laura PAGLIA, La Sapienza - University of Rome (Italy)
12h00-12h20	• Debris Capture System Influence in the Identification of the De-orbiting Policy and Control – Laura COSTANZA, AVIOSPACE (Italy)	• RASTAS SPEAR : Radiation-Shapes-Thermal Protection Investigations for High Speed Earth Re-entry – Jean-Marc BOUILLY, Astrium Space Transportation (France)
12h20-14h00	LUNCH	

	AIT	FLIGHT TEST INSTRUMENTATION
14h00-14h20	• Flap Control System (FpCS) for IXV Re-entry Demonstrator – Didier VERHOEVEN,SABCA (Belgium)	• Destructive Reentry Observing Capsule "i-Ball" on HTV3 – Yoshihiro KISHINO, IHI Aerospace Co (Japan)

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	AIT	FLIGHT TEST INSTRUMENTATION
14h20- 14h40	• Development Status of the Body Flap Assembly for the IXV – Harald LANGE, MT Aerospace AG (Germany)	• Plasma Effect on Radio-Frequency Communications for Lifting Re-entry Vehicles – M.E. D'ELIA, University of Naples "Federico II" (Italy)
14h40-15h00	• Design, Justification and Arc Jet Testing of an Optical Window for an Atmospheric Reentry Vehicle Christophe BALEMBOY, Astrium Space Transportation (France)	• Measurement of Pressure in the IXV Re-entry Vehicle, Carlos PEREIRA, RUAG Space (Switzerland)
15h00-15h20	• Development of the Nose Cap Attachment for the IXV Re-entry Vehicle – Carlos PEREIRA, RUAG Space (Switzerland)	• The IXV Ground Segment: Design, Architecture, Operational Development and Testing Status – Giovanni MARTUCCI, ALTEC S.p.A (Italy)
15h20-15h50	COFFEE BREAK	
	SYSTEM DESIGN	
15h50-16h10	•On a Personal Hypersonic Transportation AirPlane (HyPlane) Valerio CARANDENTE,University of Naples "Federico II" (Italy)	
16h10-16h30	• «Low energy» Re-entry of Astrium Spaceplane : Unlocking Affordable Suborbital Flights Eugénio FERREIRA, Astrium Space Transportation (France)	
16h30-16h50	• Role of Flying Qualities in The IXV Design Process Rodrigo HAYA RAMOS, DEIMOS Space S.L.U. (Spain)	
16h50-17h10	• A Study of an Unmanned Re-Entry Vehicle with Conventional Landing Capability – Mario DE STEFANO FUMO, CIRA (Italy)	
17h10-17h30	• A Generic Model Driven Approach for Safer Mission and Vehicle Management Software Design Olivier BOUDILLET, Astrium Space Transportation (France)	
19h00-20h00	COCKTAIL	

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	DESCENT AND LANDING
09h00-09h20	• Building of a Chemical Propulsion System for a Versatile Lander Demonstrator Platform Daniel FIOT, Astrium Space Transportation (France)
09h20-09h40	• Preliminary Design Study of EDL System for Japan's Mars Rover Mission Kazuhisa FUJITA, Japan Aerospace Exploration Agency (Japan)
09h40-10h00	• Multi-disciplinary Design Optimization of an EDL System for High-precision Landing on Mars Bruno CORREIA DA COSTA, Astrium Space Transportation (France)
10h00-10h20	• HOMER PROJECT: ILIAD and ODYSSEY GNC Design and Performance Philippe VERNIS, Astrium Space Transportation (France)
10h20-11h00	**COFFEE BREAK**
	FLIGHT TESTS
11h00-11h20	• IXV System Synthesis Drop Test Mock-up Structural Verification Simon APPEL, ESA (France)
11h20-11h40	• Qubesat for Aerothermodynamic Research and Measurement on Ablation Gilles BAILET, Von Karman Institute (Belgium)
11h40-12h00	• Design and Verification Tests of Hayabusa-2 Sample Return Capsule Yamada TETSUYA, Japan Aerospace Exploration Agency (Japan)
12h00-12h20	• SHEFEX II, Mission Overview and First Results Hendrik WEIHS, German Aerospace Center DLR (Germany)
12h20-12h30	**4TH ARA DAYS CONCLUSION**
12h30-14h00	**FAREWELL LUNCH**

4TH INTERNATIONAL ARA DAYS

May 27-29, 2013 Arcachon – France

GENERAL LOCATION

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

LANGUAGE

Papers will be presented in English. Simultaneous translation facilities will not be available.

SECRETARIAT

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

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