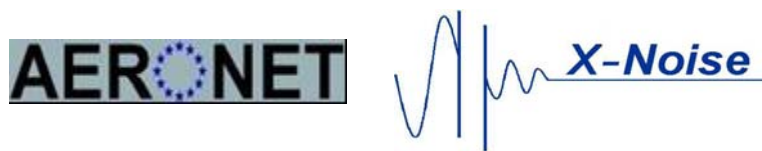


## Executive Summary

SYMPOSIUM on AVIATION  
ENVIRONMENTAL TRADEOFFS and INTERDEPENDENCIES  
in the Frame of  
**The Third Congress “Aviation in XXI Century”**

Joint AERONET III and X3-Noise Workshop

held at the National Aviation University, Kiev, Ukraine, on 7 - 8 October 2008



Over 50 participants attended the joint X3-Noise / AERONET Symposium, co-organised with CEAS, and in the framework of "Aviation in the XX1 Century" organised by the National Aviation University, Kiev.

Dominique Collin (Snecma) chaired the **Technology Session**. Alain Joselzon (Airbus) gave a very thorough review - open rotors, contrarotating propellers and geared turbofans were under consideration in quest of ACARE goals in NACRE, VITAL, DREAM and Clean Sky (Integrated Technology Demonstrator); a robust and homogeneous basis was needed to help decide.

Jim Skalecky (FAA) outlined the US proposal, CLEEN, not yet funded, but intended to address the entire national airspace system to advance the US NextGen environmental goals.

Stephan Servaty (MTU) – presented the New Aero Engine Core Concepts (NEWAC), especially focussing on engine core technology improvement and, emphasising NOx reduction.

Jean-Jacques Korsia (SNECMA) – presented the enVIronmentALly Friendly Aero Engine (VITAL) explaining at the level of the engine technology the links relevant to the ACARE goals.

These four papers had a common message: technologies need to be developed and properly demonstrated, requiring extensive efforts, resources and funding; the aircraft technology must not be considered in isolation, but complemented by operational aspects and supported by policy. Novel approaches beyond evolutionary progress must be explored. Environmental optimisation cannot be separated from the broader product optimisation.

Then followed sessions on **Policy**, on **Operations** and on **Capacity**, with several strong contributions, including from:

- Professor John-Paul Clarke, discussing the features - concept, design and implementation; - required for aircraft to be scheduled to start Constant Descent Arrivals from top of descent.

- Continuous Descent Approaches in Asia-Pacific, showing that CDA is only efficient, if early configuration extensions and thrust restorations are avoided.
- Specific environmental capacity constraints were highlighted in studies by Dick Bergmans (NLR) and David Raper (MMU).

The last session, on **Tools**, was moderated by **Chris Eyers (QinetiQ)**. - covered the present European knowledge and strategy towards an integrated tool. Michael Hepting (DLR) shared his experience as coordinator of the EU FP7 E-TEAM project proposal and some steps towards an integrated modelling technique. Ian Fuller (EUROCONTROL) presented a toolset for environmental sustainability assessment, emphasising the importance of (accurate) aircraft performance and noise and emissions data accessibility. Modelling activities in North America - Gregg Fleming (Volpe) presented a Comprehensive Tool Suite, including market scenarios, technology and operational advances.

The **Wrap up session** moderated by Martin Hagström (FOI) concluded the event, emphasising that a comprehensive approach is paramount, further work is required, gaps are to be identified and clearly formulated and communicated to policymakers. However, some indicators and economic measures are already under development.