Advanced Computational Physics /Computational Mathematics methods and tools for improving a Climate Neutral Digitalized Transport

J. Periaux & G. Bugeda
International Centre for Numerical Methods in Engineering (CIMNE)
Edifici C1 Campus Nord UPC, C/ Gran Capità S/N, E-08034 Barcelona, Spain
bugeda@cimne.upc.edu, https://www.cimne.com

Key words: aviation CO2 emissions, aviation non-CO2 emissions, cirrus formation

ABSTRACT

R&I Computational Physics/Computational Mathematics results to be presented in this STS by invited scientists, technologists and meteorologists will consider the minimisation of aviation CO2 and non-CO2 emissions with following targets:

i)   increase the scientific understanding related to the contribution of aviation Greenhouse gas emissions to climate change,

ii)   increase performances of multi engines distributed propulsion particle emissions characterisation,

iii)   achieve better performances with hydrogen and aviation synthetic fuel reducing further non-CO2 missions, or

iv)   characterize better the contrail formation and effects and provide more insight in the aviation NOx emissions and ozone formation.

v)   develop further real-time decision-support software for airlines and ATM, to predict the location and global warming impact of contrail and contrail cirrus formation

This STS will provide the audience with innovative methods and tools in different i) -v) sectors recent studies showing the decrease of CO2 – non CO2 emissions and the cost-effective mitigation measures and computations resolving uncertainty short term or long terms climate impact.