CFD Analysis of UAV Flying Wing

Abstract

Numerical methods for solving equations describing the evolution of 3D fluid experienced a significant development closely related to the progress of information systems. Today, especially in the field of fluid mechanics, numerical simulations allow the study of gas-thermodynamic confirmed by experimental techniques in wind tunnel conditions and actual flight tests for modeling complex aircraft. The article shows a case of numerical analysis of the lifting surface on the UAV type flying wing.

Problem statement

NOTATIONS:

Fx - drag force

Fy - lateral force

Fz - lift force

Vx – speed

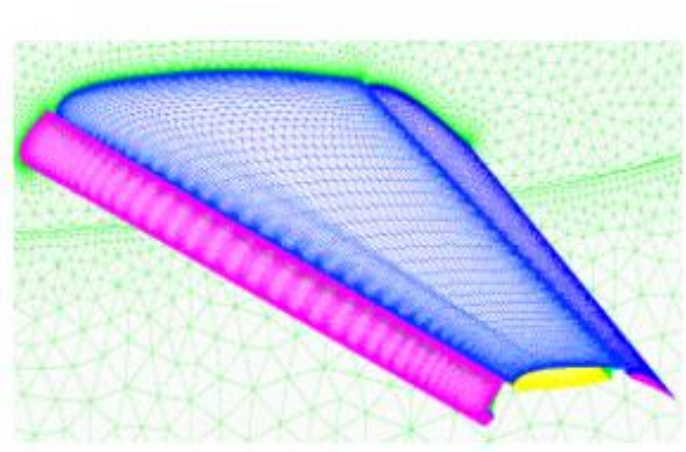
AoA - angle of incidence

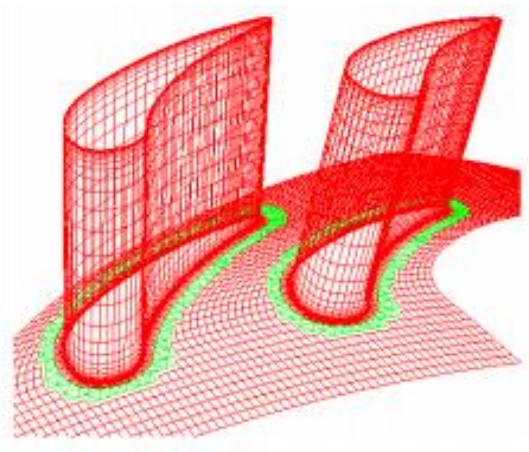
c – chord

To analyze the UAV(**U**nmanned **A**erial **V**ehicle) Flying Wings by using CFD(**C**omputational **F**luid **D**ynamics) and proper initial parameters as shown in (Table:1)

Fluid elements	7,18 mil	Speed	5...30 m/s
Iterations	456	Turbulence intensity	1 %
Density	1,25 kg/m3	AoA	0^0

Table:1





References

1. F. Haas, M. Pauritsch, M. Knabl, Computational fluid dynamics (CFD) for the optimization of products and processes, The international conference of the Carpathian euro-region specialists in industrial systems 7th edition, 2008
2. http://www.cfd-online.com/Wiki/Codes