Comparison of turbulence models applied to the naca0018 at Reynolds number 160,000

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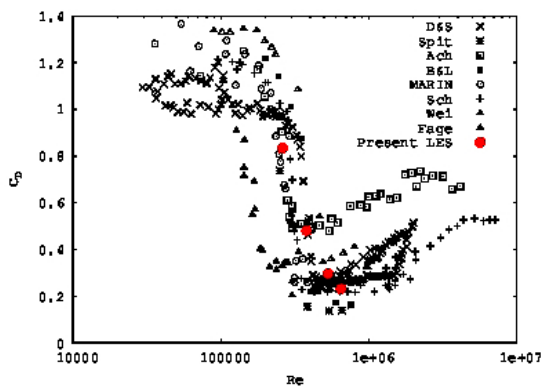
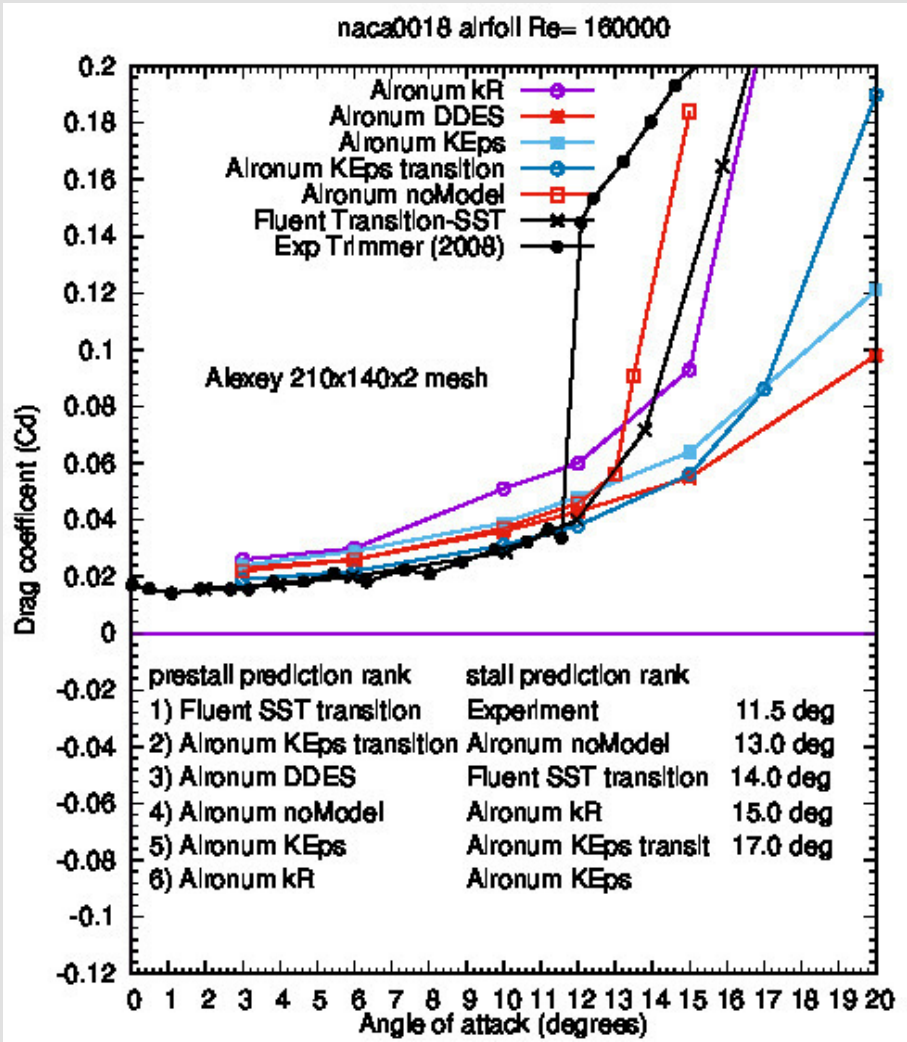
French team NORMA meeting of December 16, 2022



(Drag crisis : Lehmkuhl et al., 2014)

AIRONUM-**Comparison of different turbulence models:**

- **Nine turbulence models:**
  Aironum noModel
  Aironum k-ϵ
  Aironum k-ϵ transition
  Aironum k-ω SST
  Aironum k-ω SST transition
  Aironum k-R
  Aironum DVMS
  Aironum DDES (k-ϵ)
  Fluent k-ω SST transition



AIRONUM-**Comparison/validation of turbulence models:**

- **Turbulence models:**
  Aironum k-ω SST (in progress)
  Aironum k-ω SST transition (Stephen/Florian)
  Aironum DVMS
- **Notes:**
  Aironum Turbulent intensity $= 0.6\%$
  Experiment Turbulent intensity $= 3\%$
  Fluent k-ω SST transition mesh details unknown
  Aironum k-ϵ transition model pre-stall results are impressive