

Aerospace Fluid Engineering Lab. Institute of Fluid Science / Tohoku Univ.



-0.15

-0.20

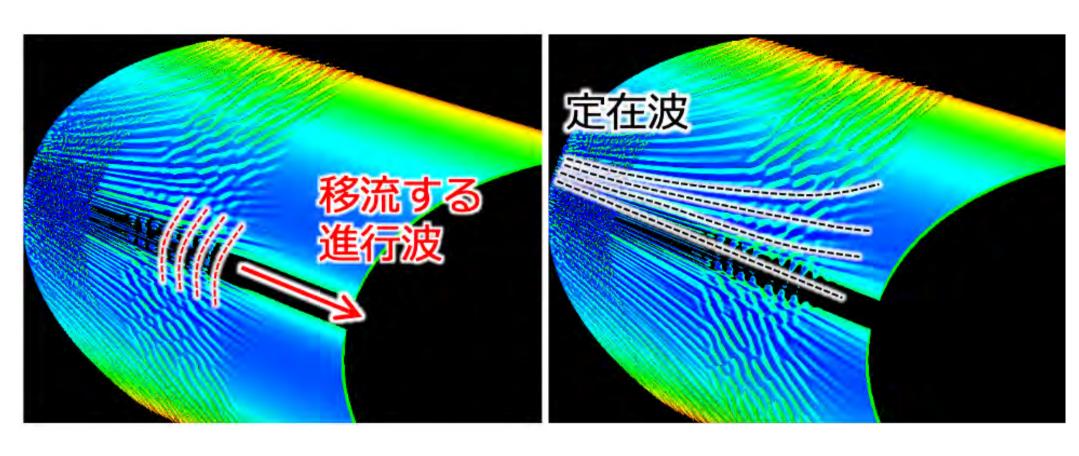
Prof. Shigeru Obayashi - Asst. Prof. Aiko Yakeno

Computational Fluid Dynamics / Data assimilation

Please contact the following email address edge-contact@grp.tohoku.ac.jp

MHI-JAXA-IFS/Tohoku are jointly developing laminar wing technology around a swept wing of the Airplane. We are also developing numerical simulation technique using data assimilation too.

Direct numerical simulation



 Optimal observation point by sensitivity and prediction of clear air turbulence 0.15 radien radien

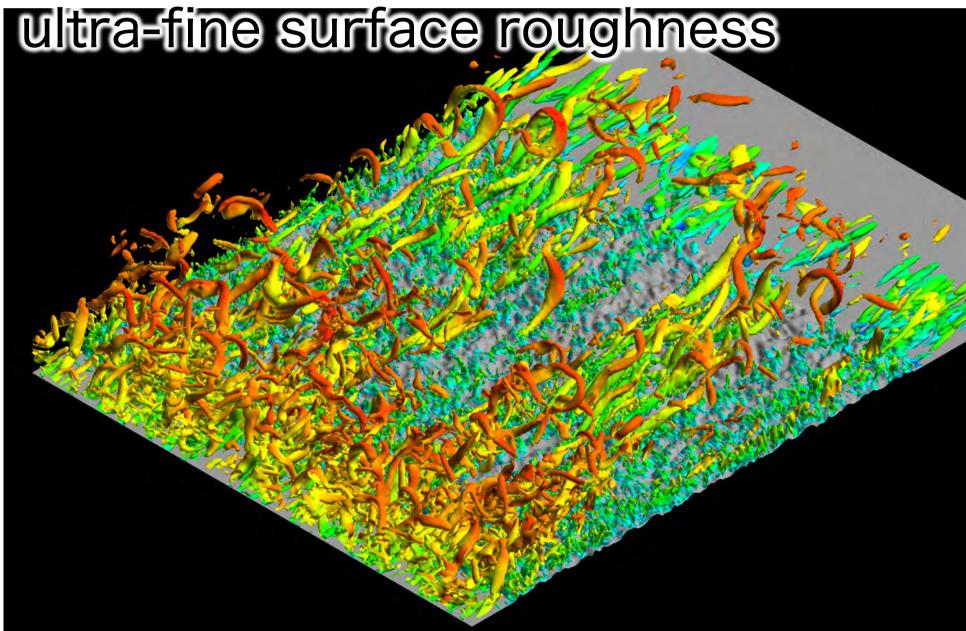
 Global stability Non-linear component

Leading-edge

 $\times 10^{-2}$

 $.5 \times 10^{-2}$

Effect of drag reduction by



● Turbulence modeling by data assimilation

Turbulence prediction at an airport

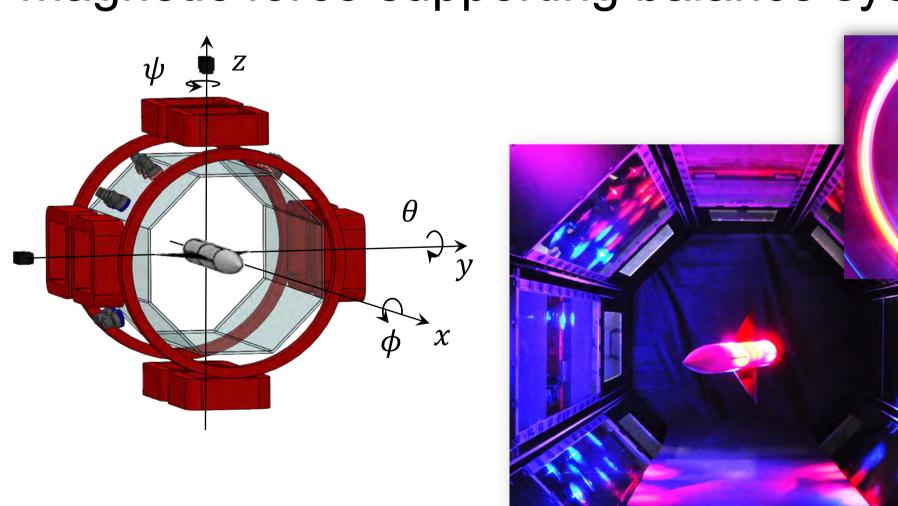
Horizontal Distance [km]

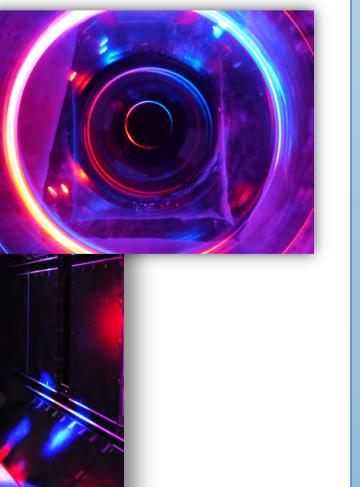
Magnetic suspension and balance system / Wind tunnel test

 9×10^{-3}

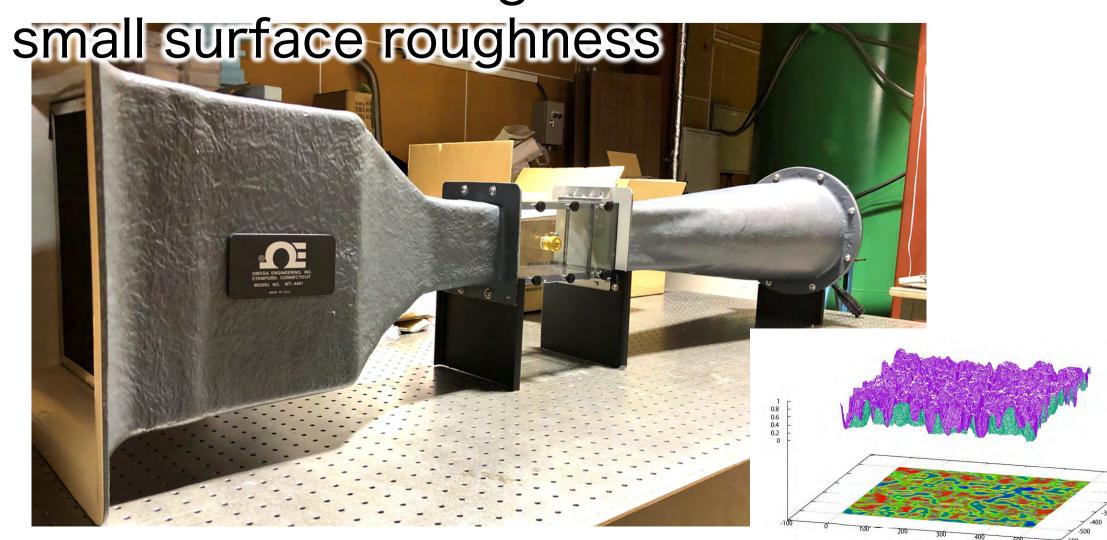
 -9×10^{-3}

 Unsteady flow measurement technique using magnetic force supporting balance system (MSBS)





Research on drag reduction effect of



Laboratory Life

We have regular meetings and students have their own research style





- We encourage students to do international activities; to go abroad for making a presentation, submitting a paper, internship and so on
- If a student participates in the Boeing Externship, there will be a chance to visit the factory in Seattle





