

Berlin, 11-12 September 2018.

Presentation of developments related to propulsion system analysis in aircraft preliminary design software **Pacelab APD**¹, given by Charline Crabé and Aleksandar Joksimović (DAEP) at this year's "PACEdays"² user meeting.

The presented content revolves around several projects carried out in 2018 by the AEGIS team and ISAE-SUPAERO students, of which some have found their way to a potential Pacelab APD implementation for further use in the AEGIS context:

- Database of aerodynamical interaction between turbofan engines and wings, engine impact on wing drag polar.
- Coupling with the engine simulation tool "PROOSIS".

The presented outlook for future work revolves around completing the turbofan integration analysis, as well as setting up elements for a potential BLI propulsion simulation at the aircraft level:

- Development of the aircraft (fuselage in the first place) boundary layer model, to feed the engine inlet distortion models.
- Development of simple nonpropulsive systems models to be integrated into Pacelab APD, to broaden the scope of airplane energy analysis.
- Implementing analysis of drag added by auxiliary air inlets and outlets, e.g. for electrical Environmental Control System.



¹ <https://www.txtgroup.com/markets/solutions/pacelab-apd/>

² <https://www.txtgroup.com/news-events/annual-conference-user-group-meeting-pacedays/>