

# DYNAMO 3

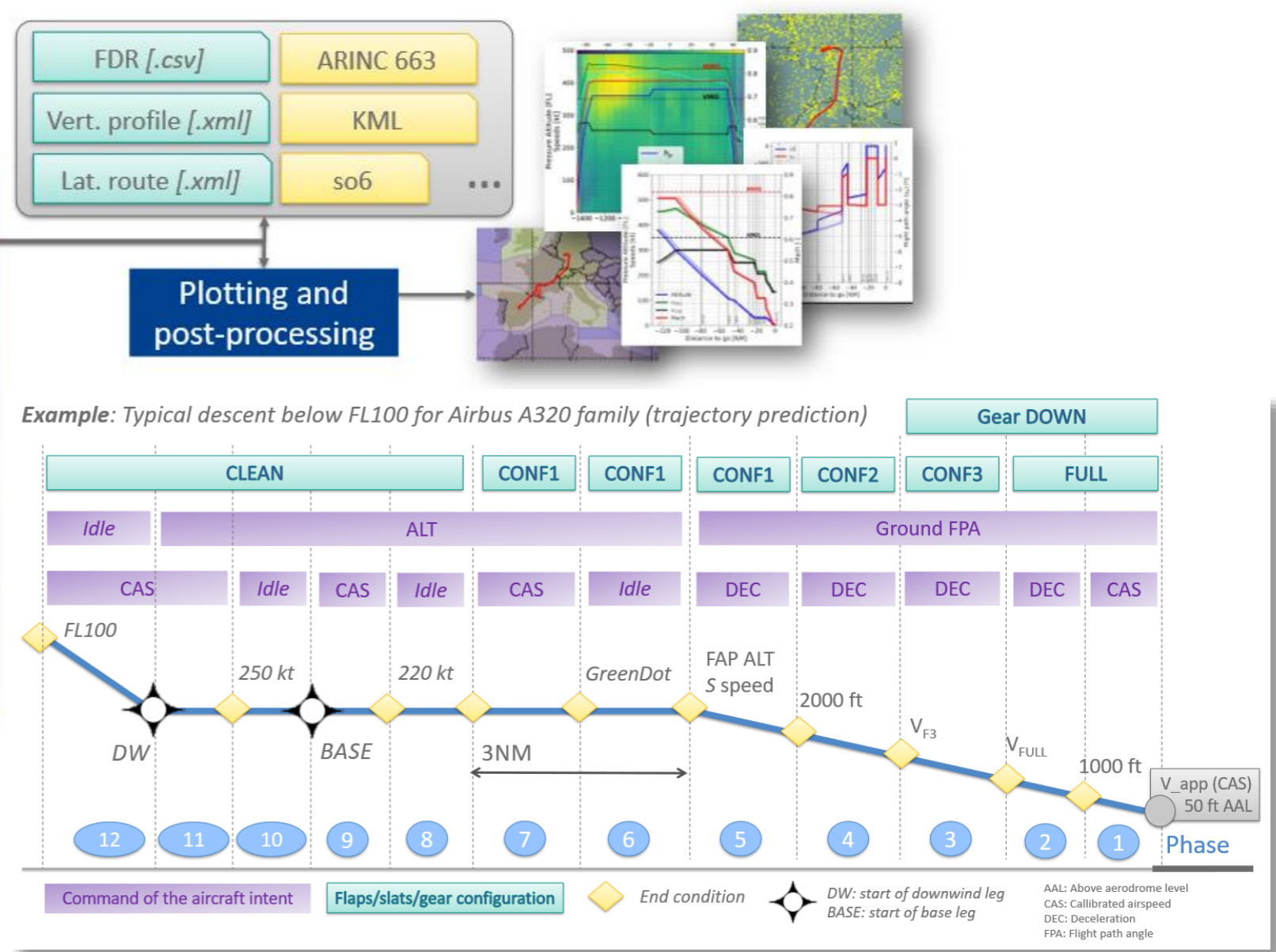
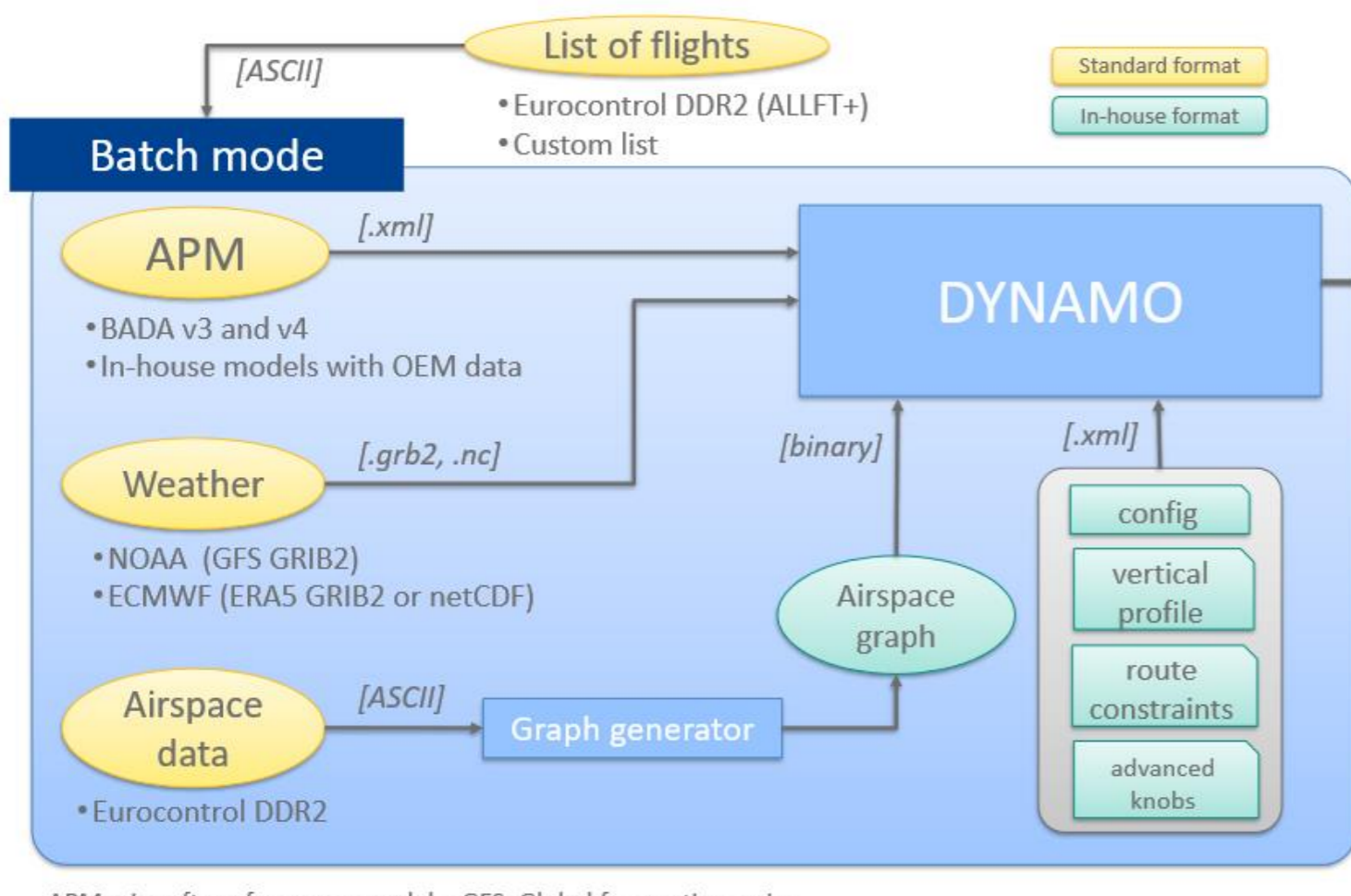
## Aircraft 4D trajectory generator

Research and education tool for air traffic management (ATM) and aircraft operations (OPS)

- **Model** based (3 degree-of-freedom aircraft dynamics)
- 4D trajectory computation (**prediction**) and **optimisation**
- Realistic operational and ATM **constraints**
- Realistic **weather** models/forecasts (analytic, gridded data)
- Different optimisation **objective functions**
- 3D **airspace** volume **avoidance** capabilities

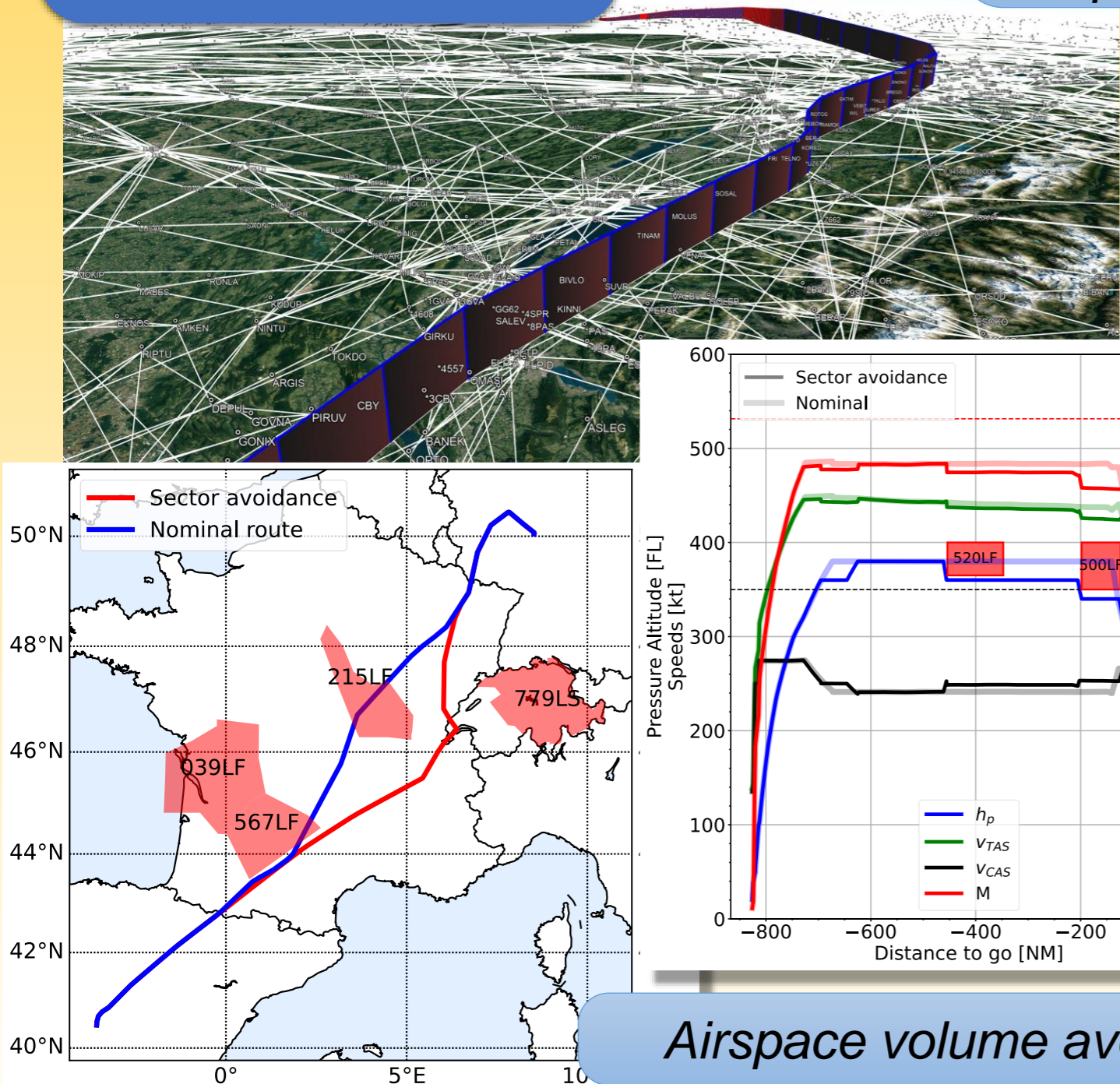
### Interfaces:

- *stand-alone execution (command-line)*
  - *batch execution in a multi-core environment*
  - *web services API + GUI*
- *Core algorithm in C++*
  - *Pre- & post-processing wrappers in Python*
  - *Execution time: 2-5 seconds per trajectory*



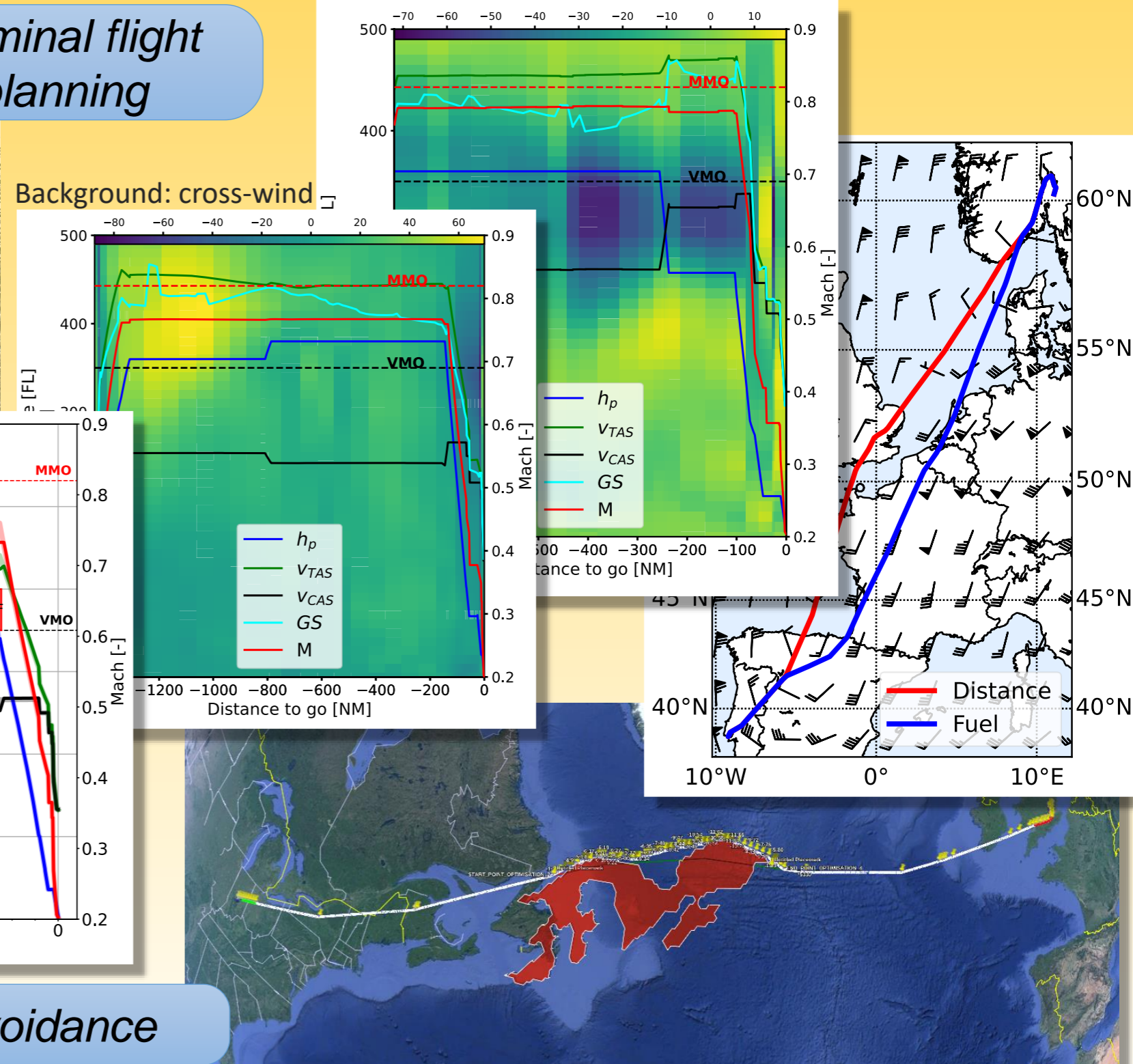
### Flight dispatch

### Nominal flight planning



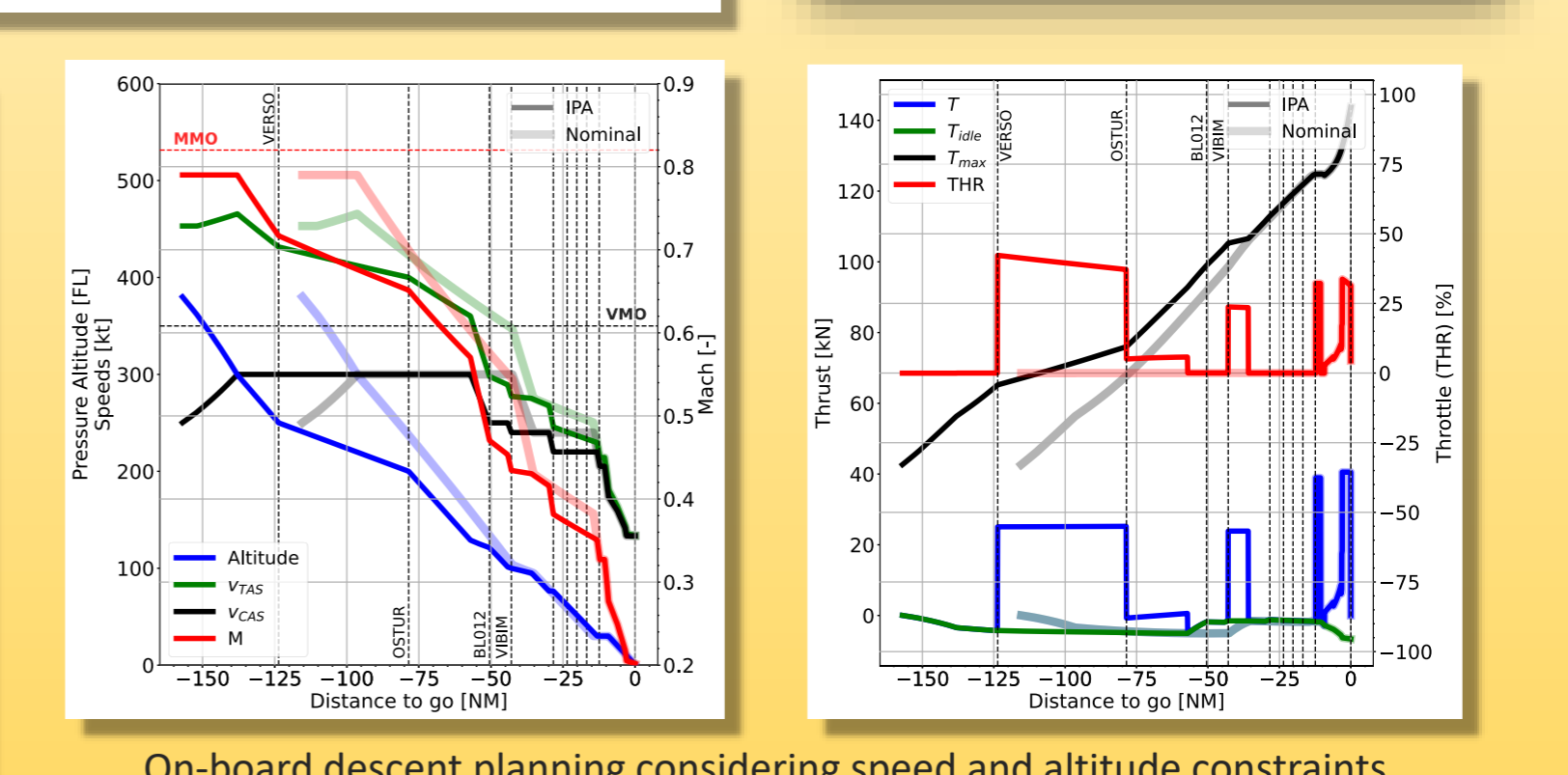
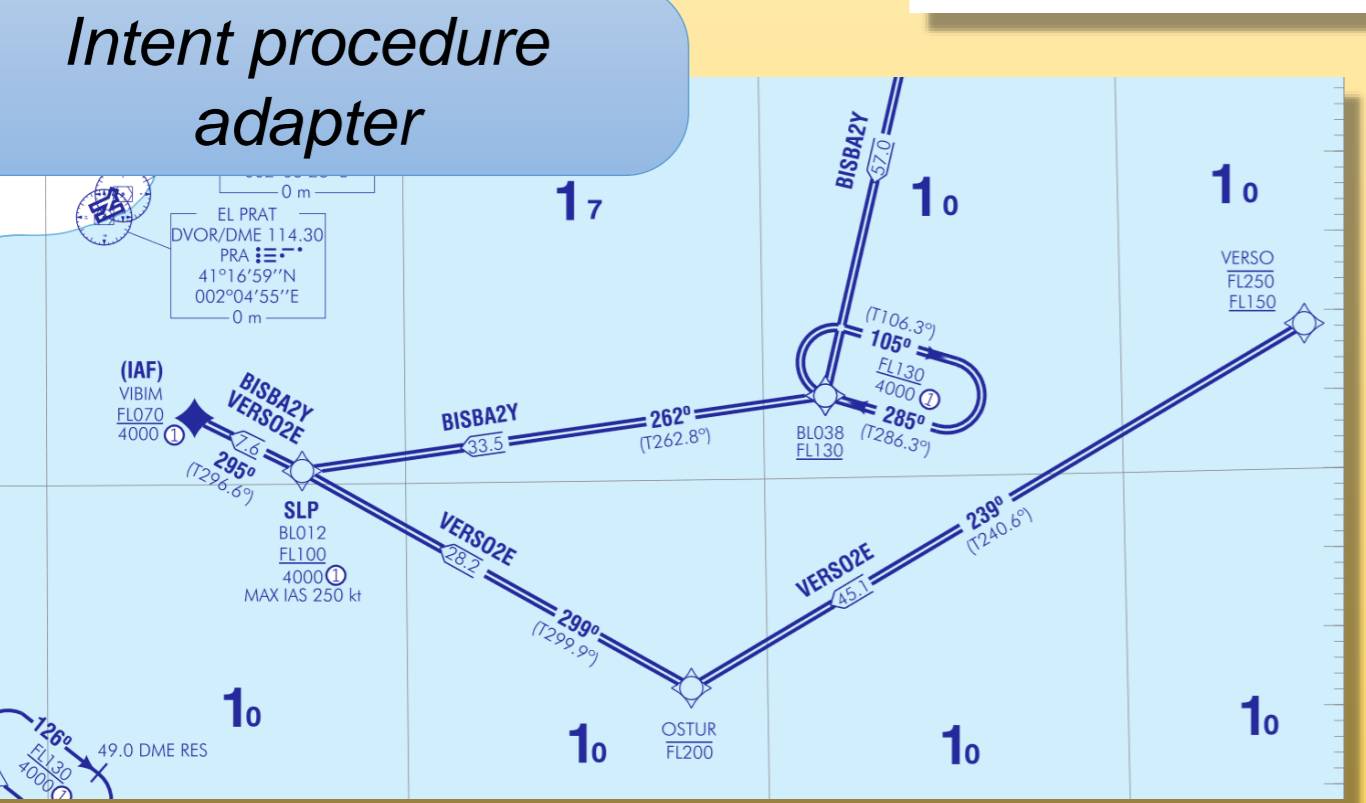
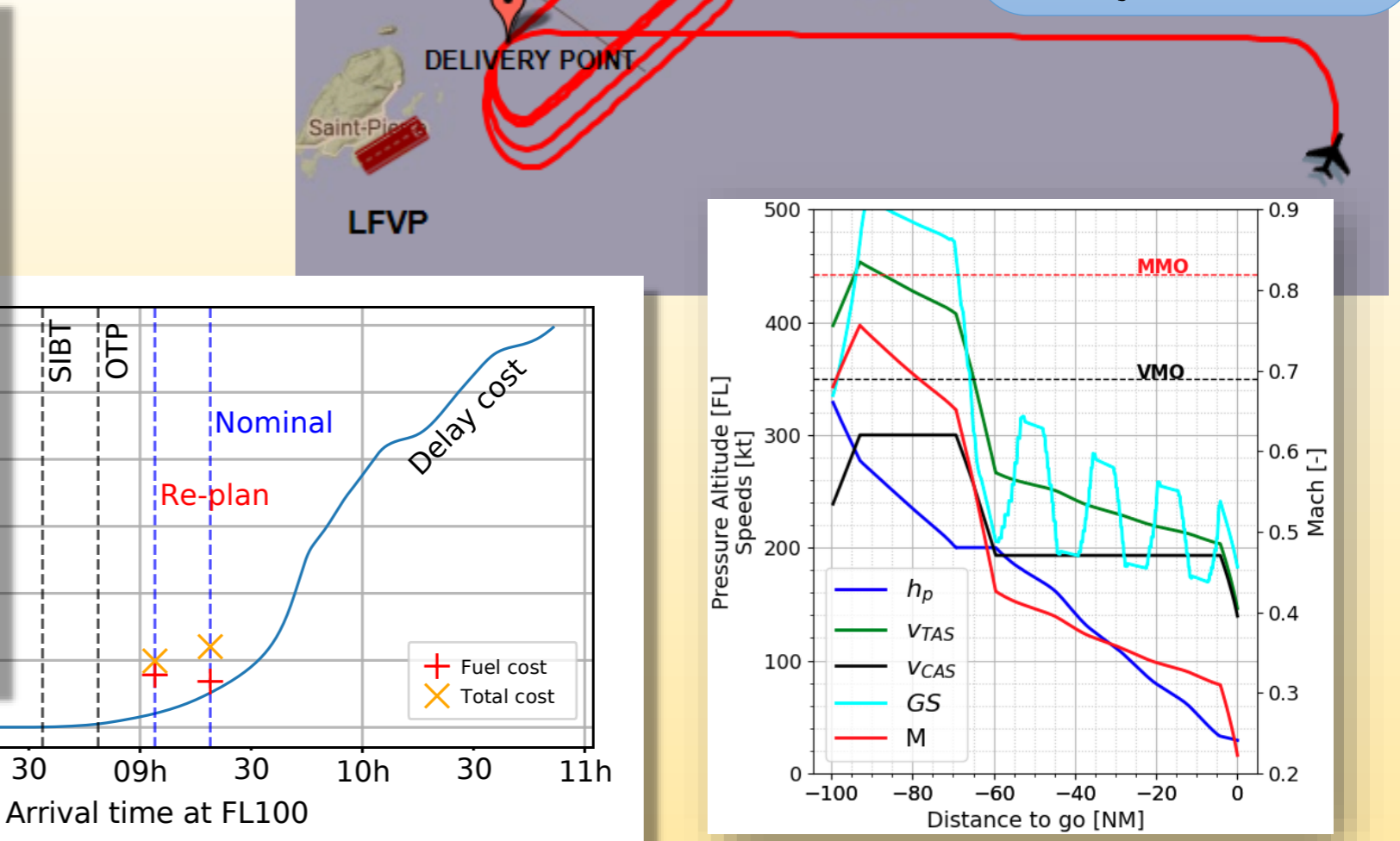
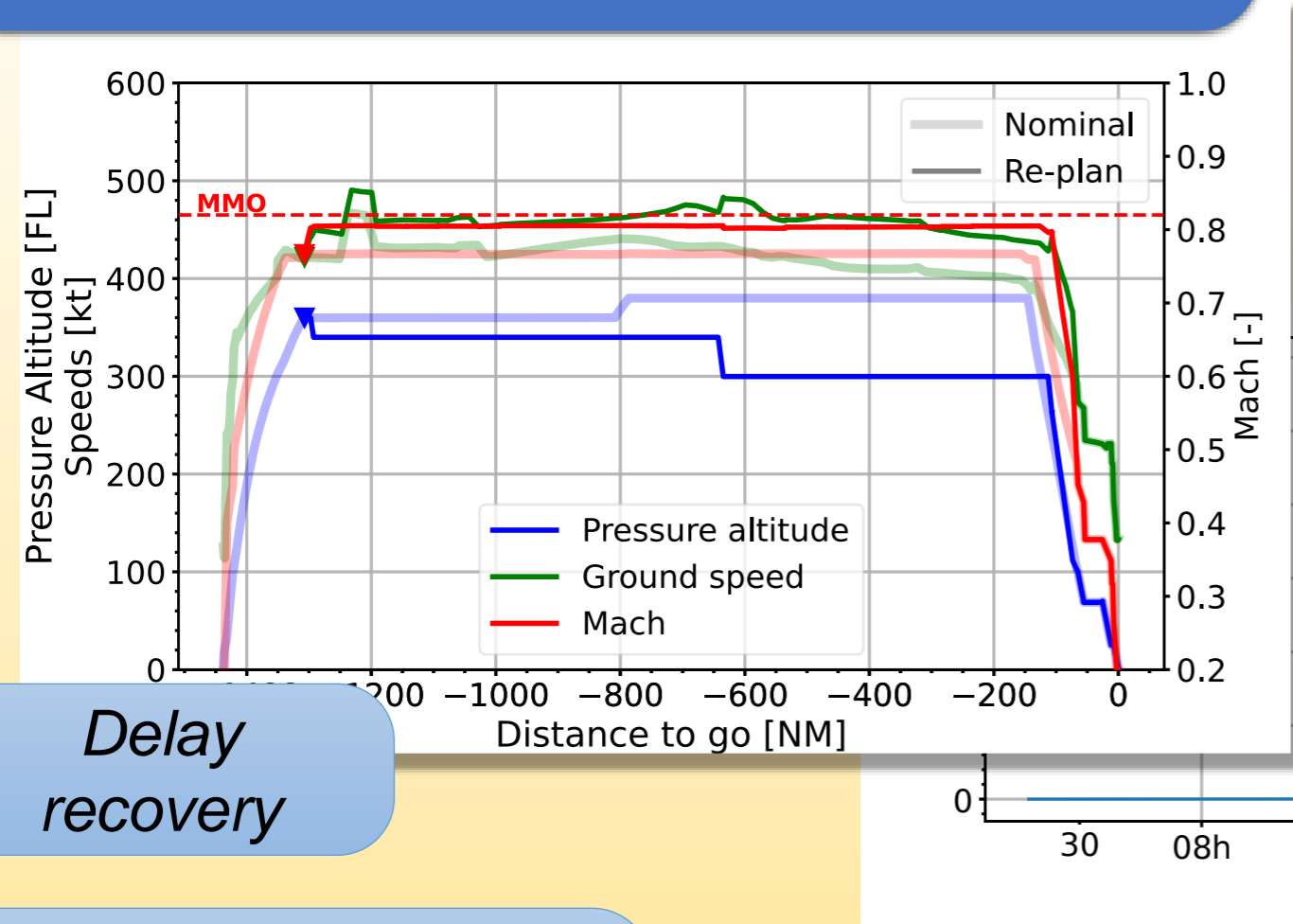
### Background: along-track wind

### Background: cross-wind



### In-flight trajectory (re)planning

### Emergency trajectories



### Other applications:

- Support to procedure design
- ATM analytics and ATM performance assessment
- Trajectory prediction for ATC decision support tools



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