Test Class

- DownwashCalculator theDownwashCalculator = new DownwashCalculator(aircraft);

- double distanceZeroLiftLine = theDownwashCalculator.calculateZDistanceZeroLift();

- double downwashGradientLinear = theDownwashCalculator
  .calculateDownwashGradientConstantDelft(distanceZeroLiftLine);

- double downwashAngle = downwashGradientLinear * alphaAbsolute;

$$\epsilon = \frac{d\epsilon}{d\alpha_w}(\alpha_w - \alpha_{0_w})$$

DownwashCalculator

Builder

It calculates all the necessary variables useful for the calculation of the downwash gradient and the distances.

calculateZDistanceZeroLift()

Using the parameters calculated before, this method calculates the distance between the aerodynamic center of th ehorizontal tail and the zero lift line of the wing.

calculateDownwashGradientConstantDelft(distVortexPlane)

This method evaluates the downwash gradient using formula.