Chapter 4. Design Project

4.1. Modify `forces_moments.m` that implements the gravity, aerodynamic, and propulsion forces and torques described in this chapter. Use the parameters given in the aerosonde.m file.

4.2. Complete the gust block using the Dryden gust model for the light or moderate turbulence condition. Modify `forces_moments.m` so that the outputs are the forces and moments resolved in the body frame, the airspeed V_a, the angle of attack α, the sideslip angle β, and the wind vectors resolved in the inertial frame $(w_n, w_e, w_d)^T$. Also, in Simulink, complete the draw_aircraft block using given 'from' blocks (currently disconnected) of airdata and control deflection (delta).

4.3. Verify your simulation by setting the control surface deflections to different values. Observe the response of the MAV. Does it behave as you think it should?

Tip
* For the simplicity of the code, Va can be assumed as P.Va0 (initial value) in the Dryden wind gust model block.
* The effect of gust can be ignored for analysis of the MAV's control surface response.