To accurately simulate flight dynamics, I need a robust representation of all the forces on the rocket. Here’s the list of forces and torques that will be applied to the rocket during flight:

* Forces:
  + Thrust
  + Gravity
  + Aerodynamic Drag
  + Lift
  + Wind force
* Torques:
  + Gimbaled Thrust
  + Wind-induced Torque
  + Aerodynamic Damping Torque

I need a state vector to fully define the rocket’s dynamics including: orientation, angular rates, position, and translational velocity: