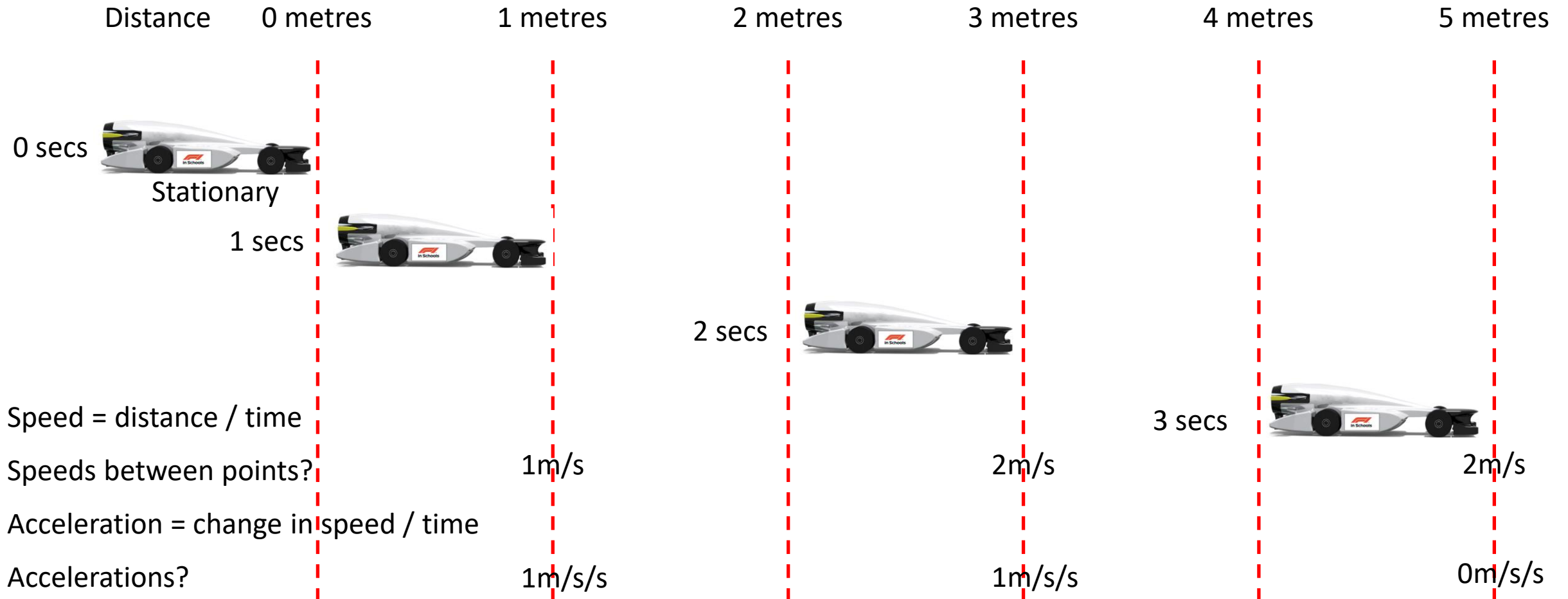
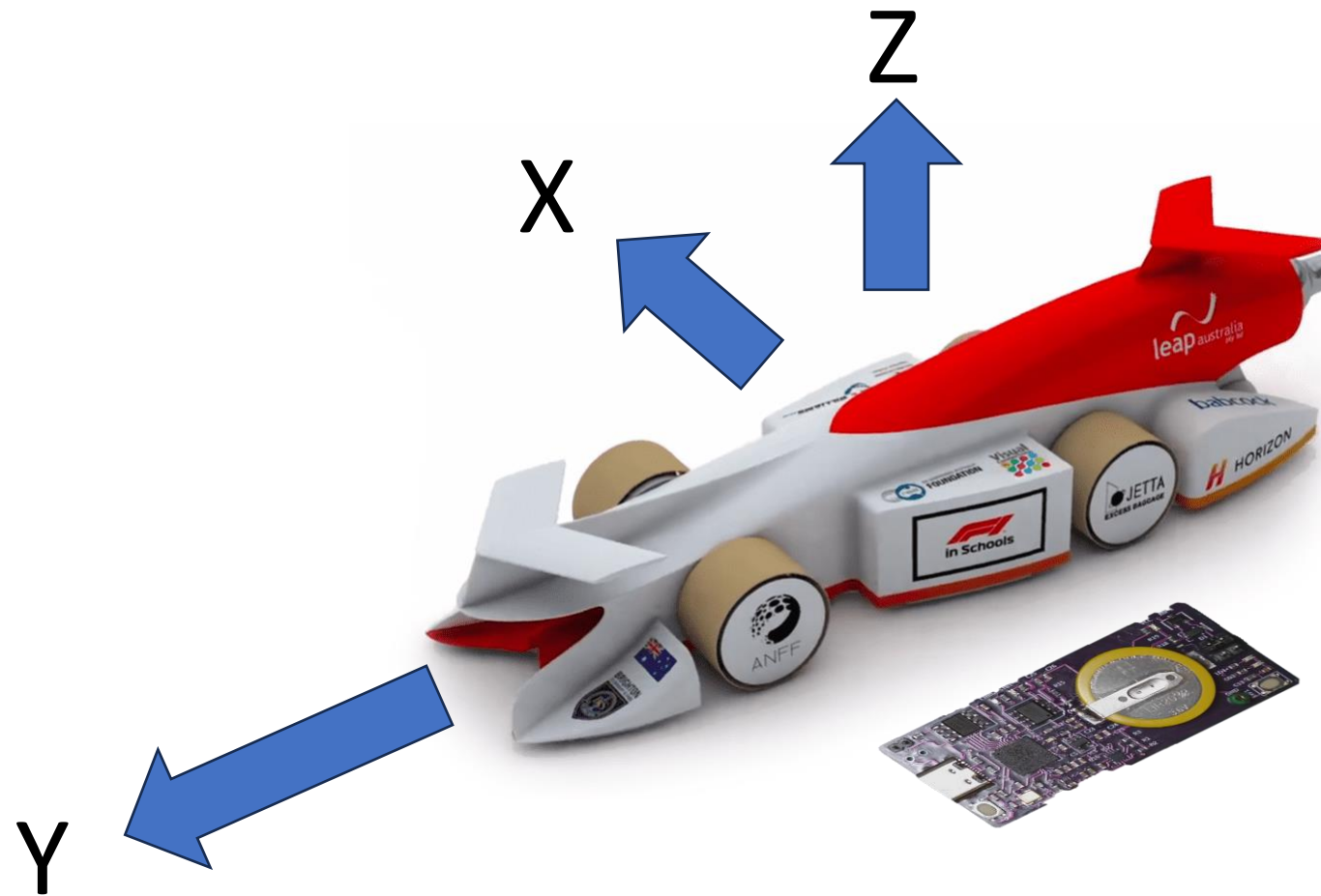


What is Acceleration?



Measuring Accelerations

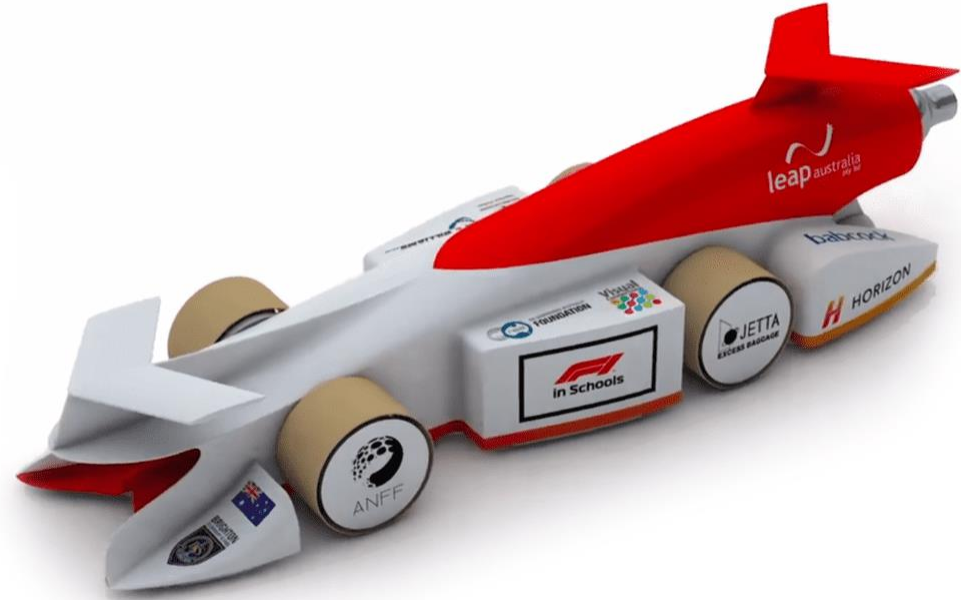


- Accelerations are measured in 3 axes
- Which acceleration(s) are desirable?
- Which accelerations are not desirable?
- What is special about the Z axis?

Forces

Newton's Laws of Motion:

1. An object will not change its motion unless a force acts on it.
2. The force on an object is equal to its mass times its acceleration. ($F=ma$)
3. When two objects interact, they apply forces to each other of equal magnitude and opposite direction.



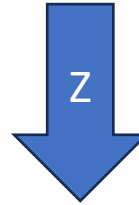
Consider:

1. What forces act on the car?
2. What are the effects of the forces?
3. Which forces help to win races?
4. Why is the car's mass important?
5. Why is the car's shape important?

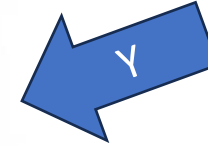
Forces Acting

- Uneven Track
- Wheels out of round
- Aerodynamic lift
- Propulsion misaligned

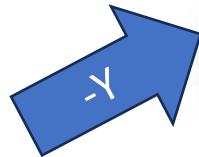
Gravity



Gas
Propulsion



Air Drag
Wheel Friction

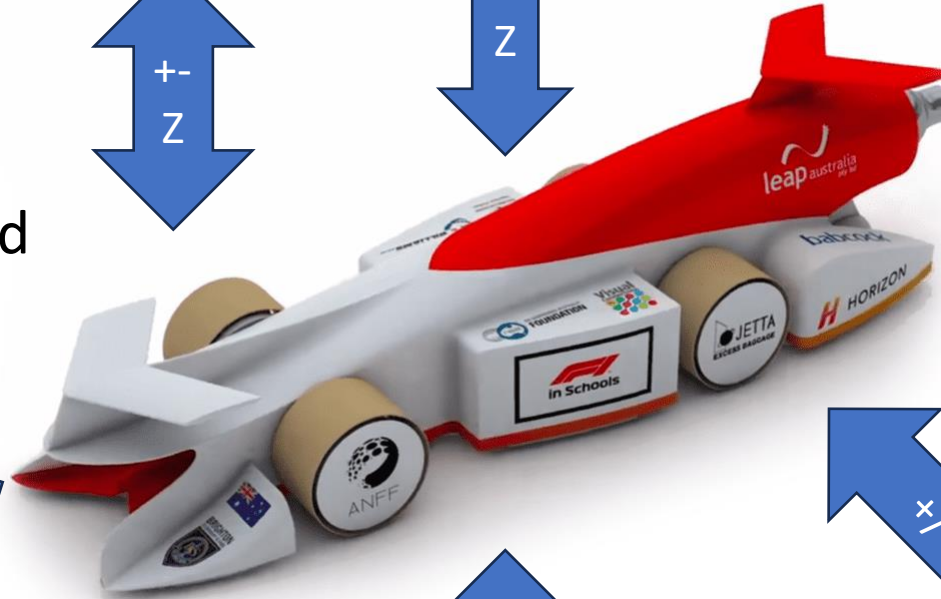
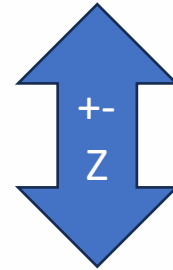
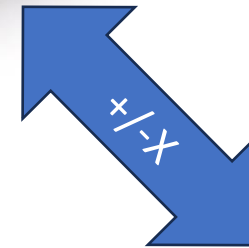


Earth
Opposition

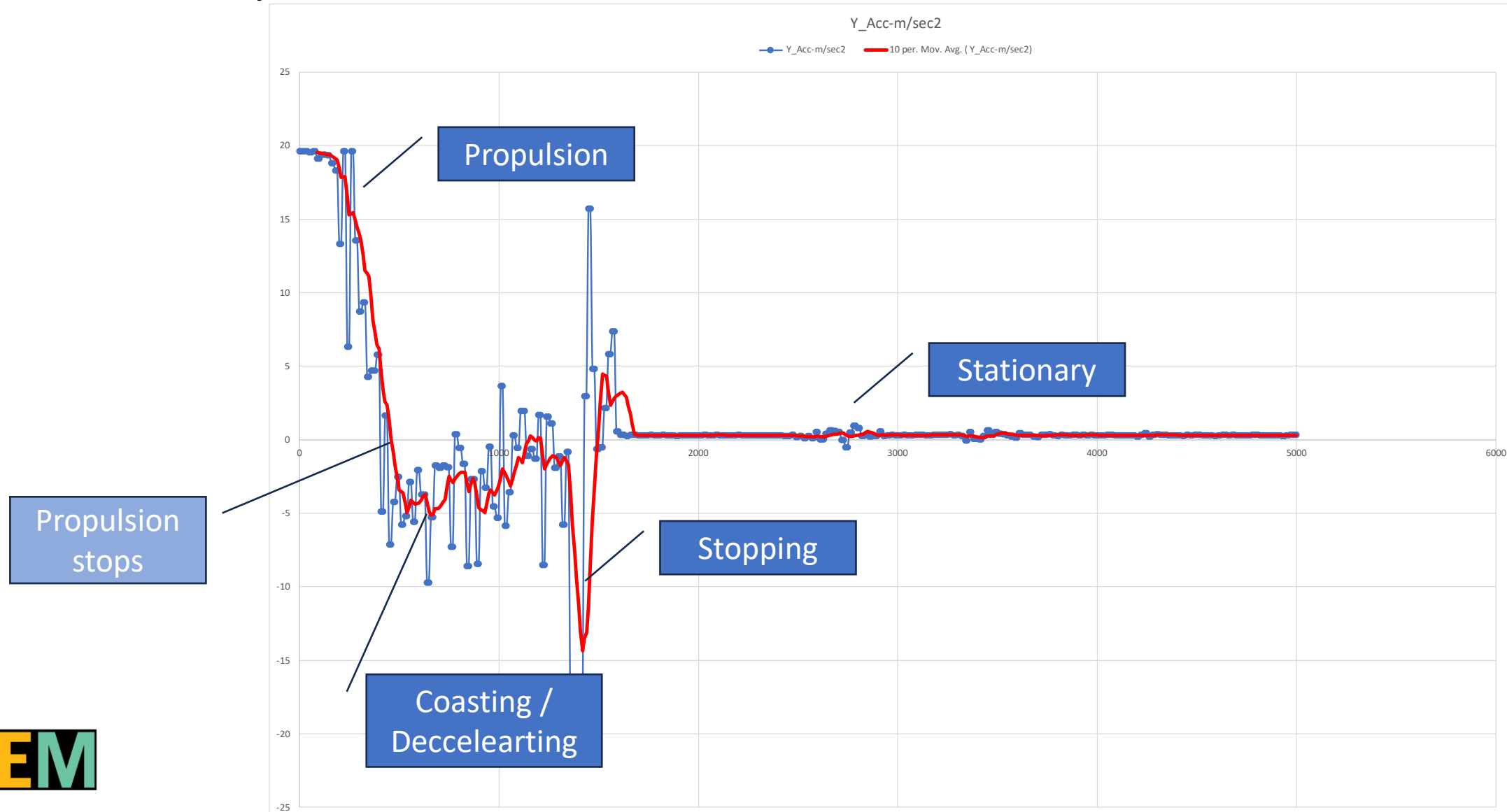


Misalignments
with centre of mass

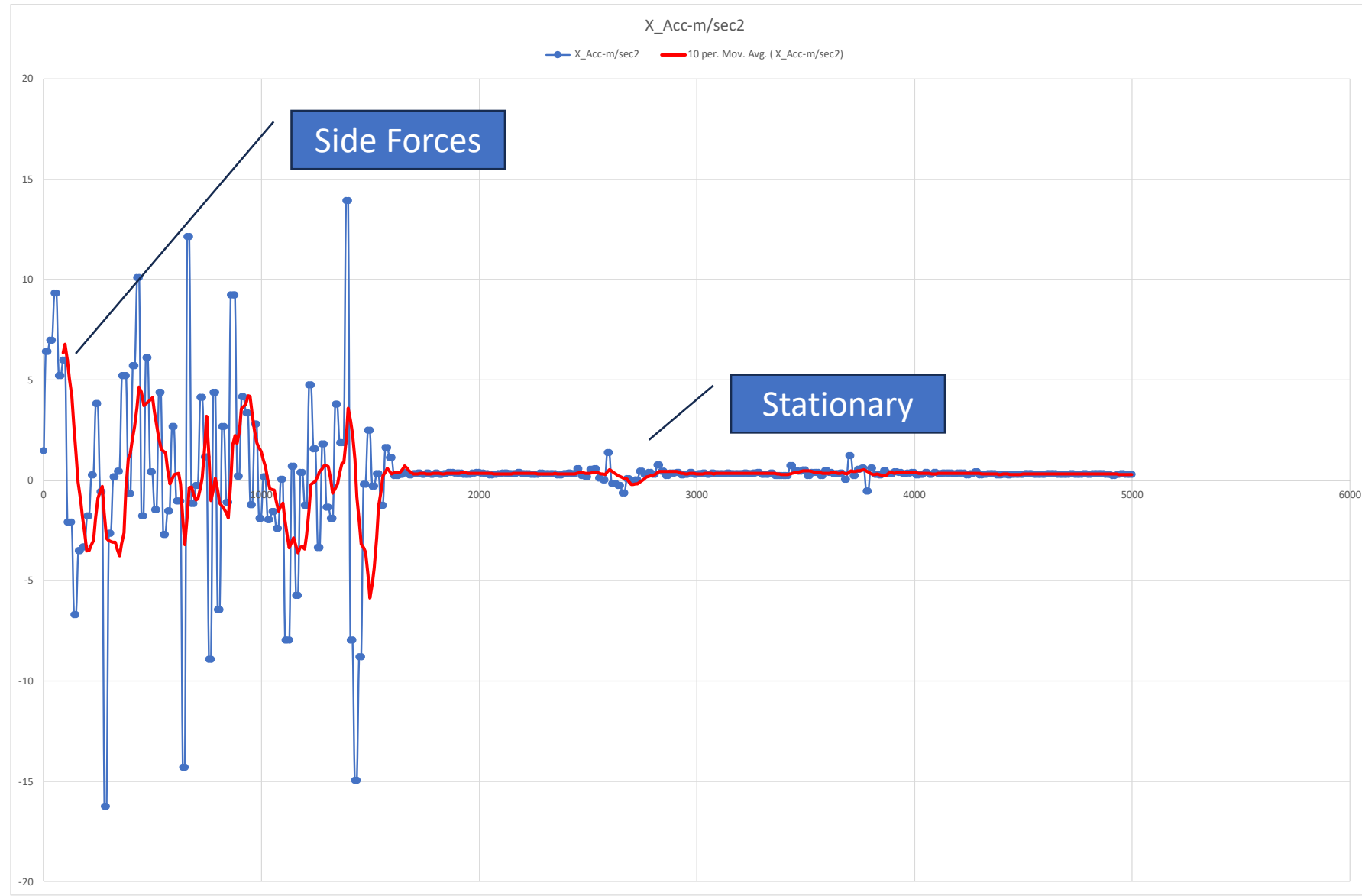
- Propulsion
- Wheels
- Aerodynamic



Y (Forwards) Acceleration Data



X (Sideways) Acceleration Data



Z (Vertical) Acceleration Data

