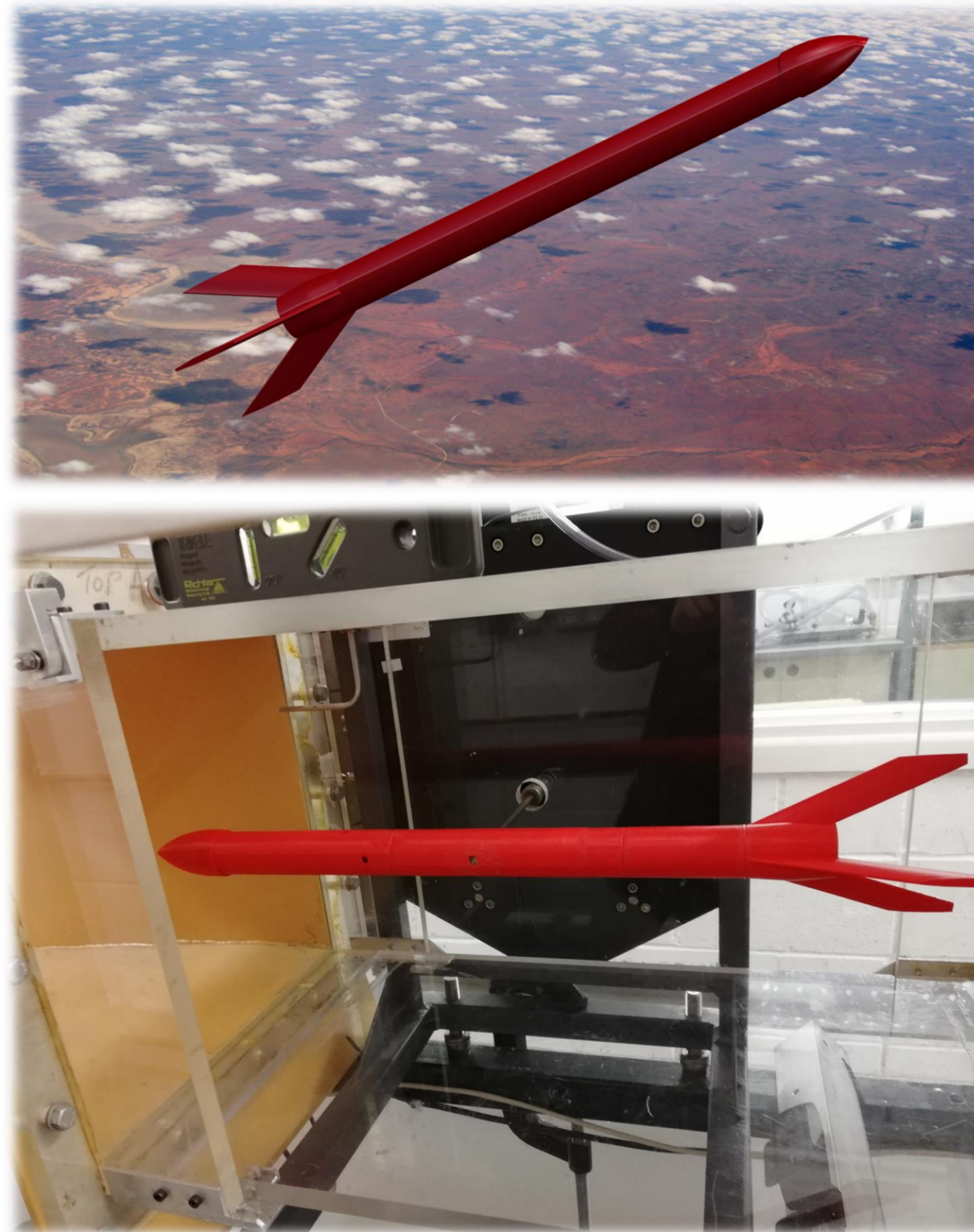
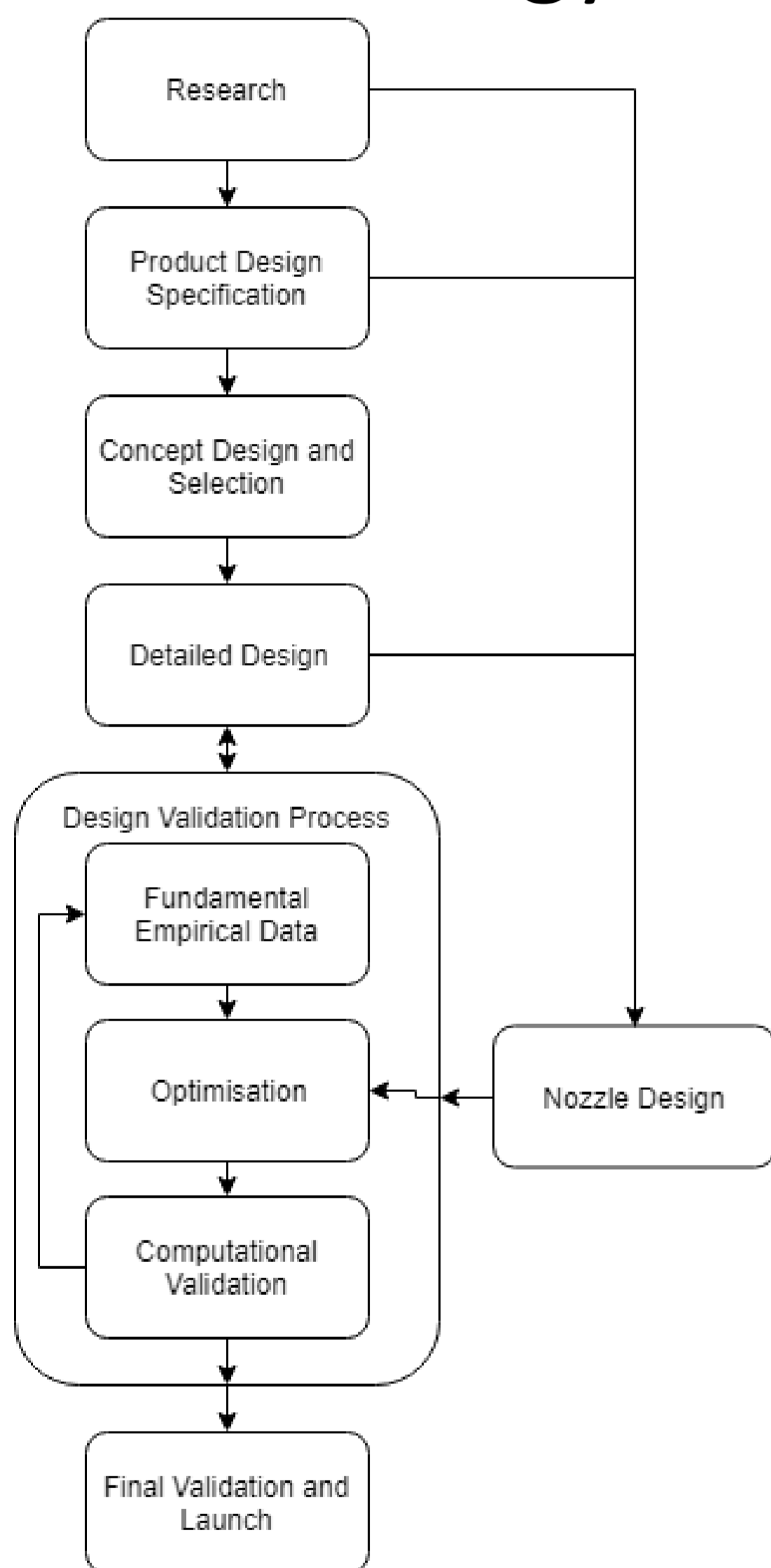


Design of a Competition Capable Hobby Rocket

Overview:

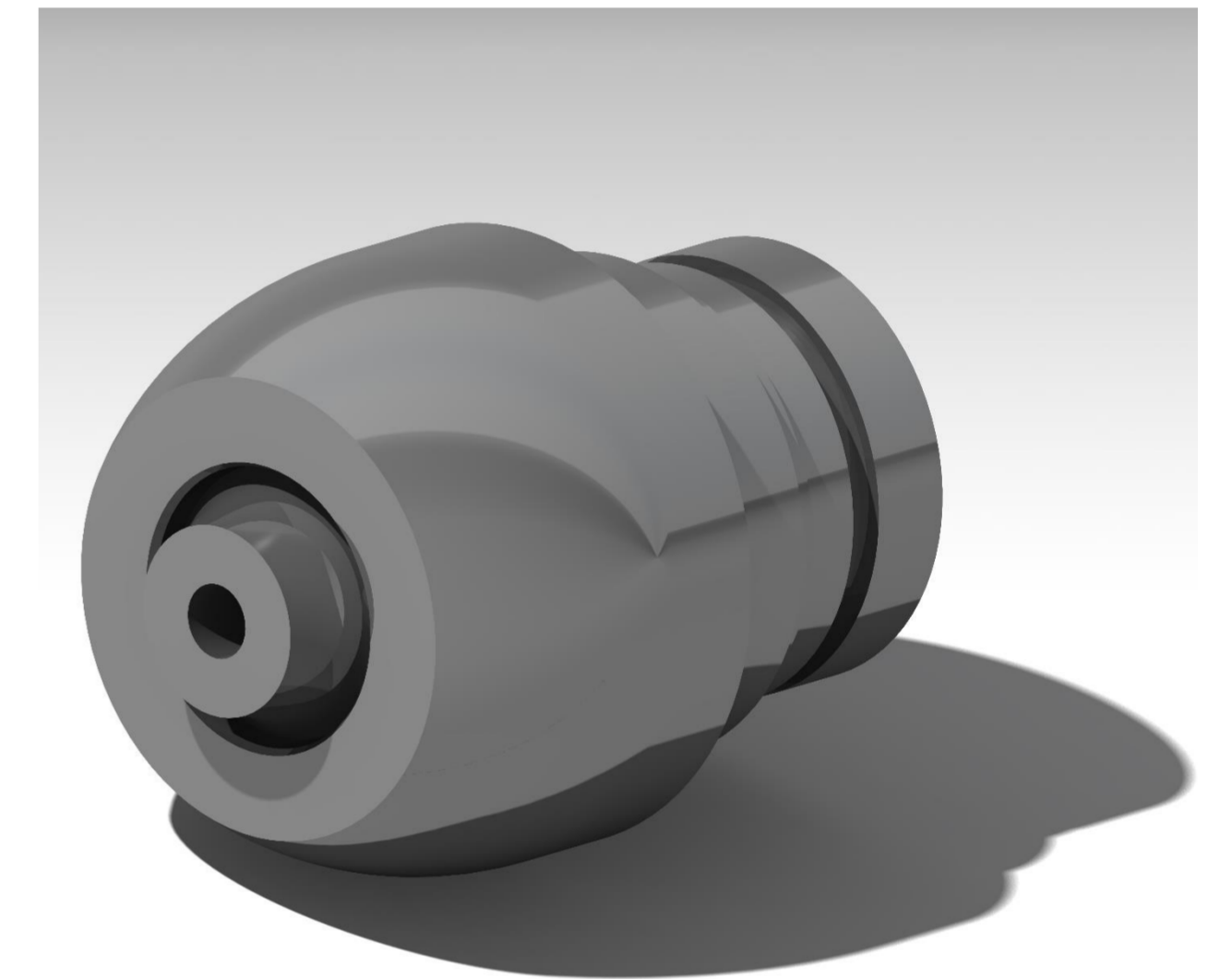
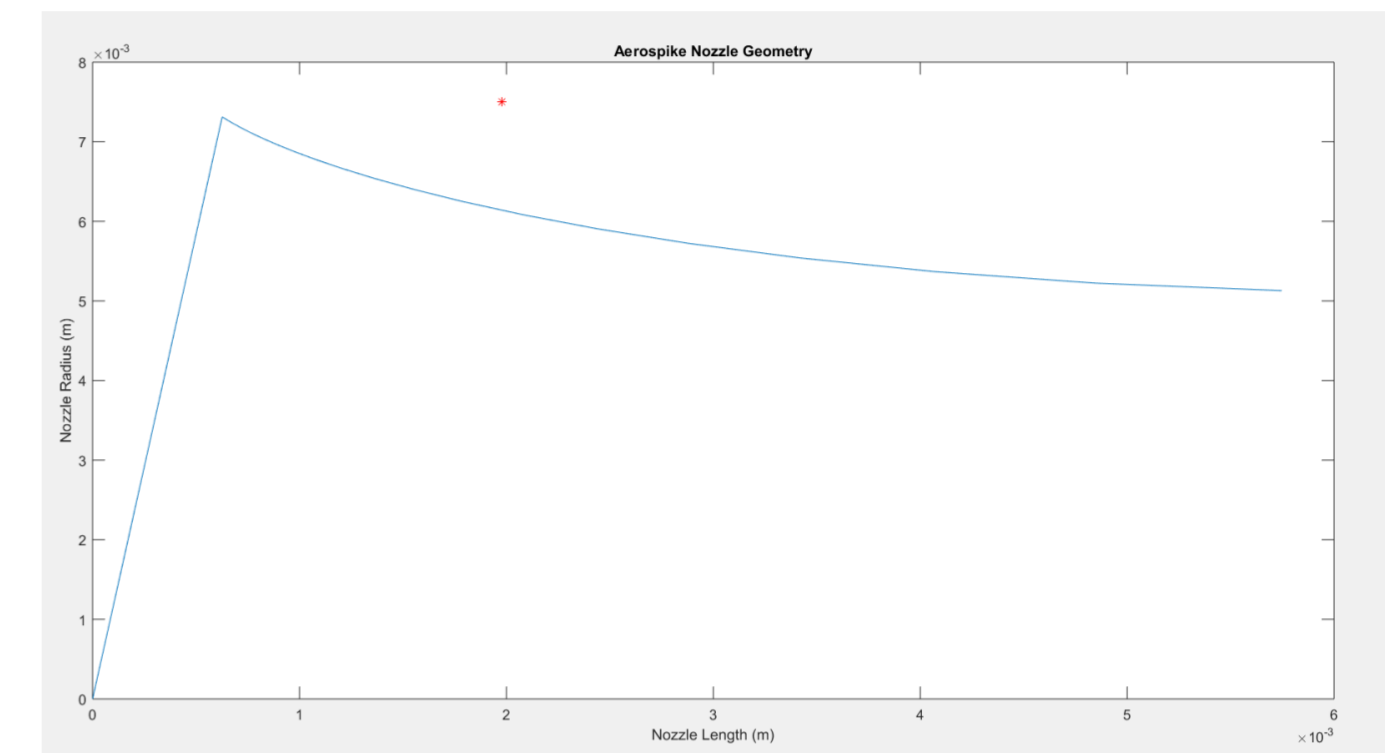
Rocket Performance is key aspect of the Astronautical Sector
This project aims to demonstrate the performance benefits of multi-physics optimisation

Methodology



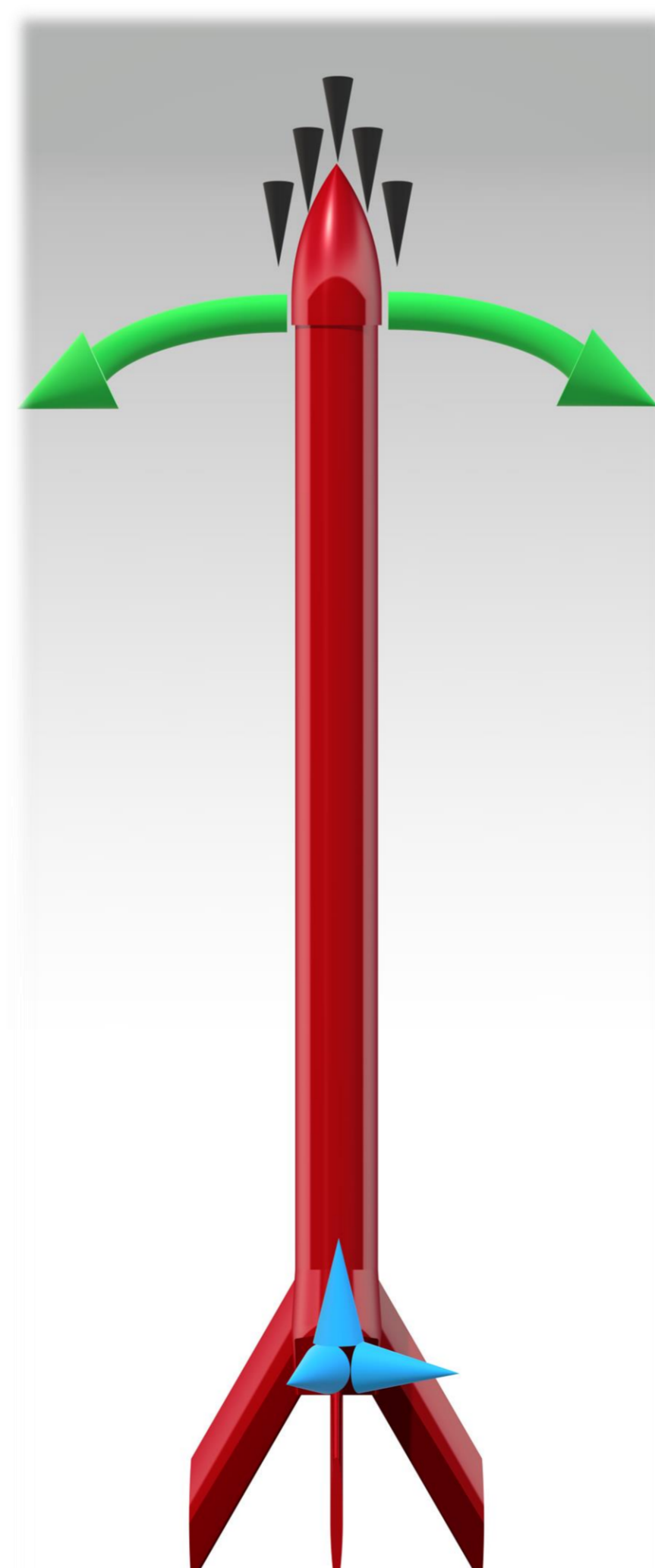
Aerospike Nozzle:

An aerospike nozzle was designed using Prantl-Meyer expansion theory and calculated using an iterative Matlab solver



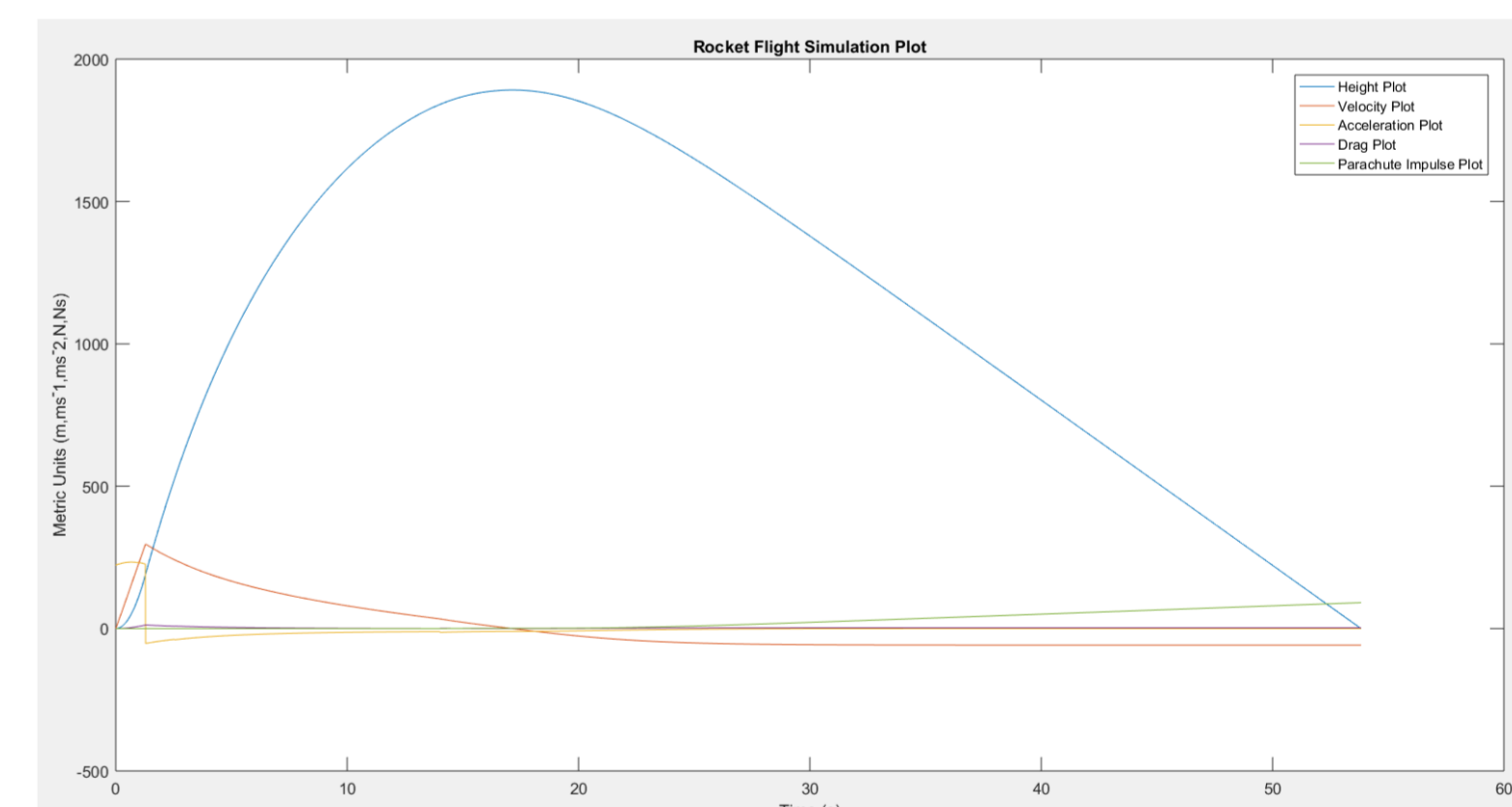
Structure

Structural integrity was maintained with aerodynamic data, buckling equations and compression testing



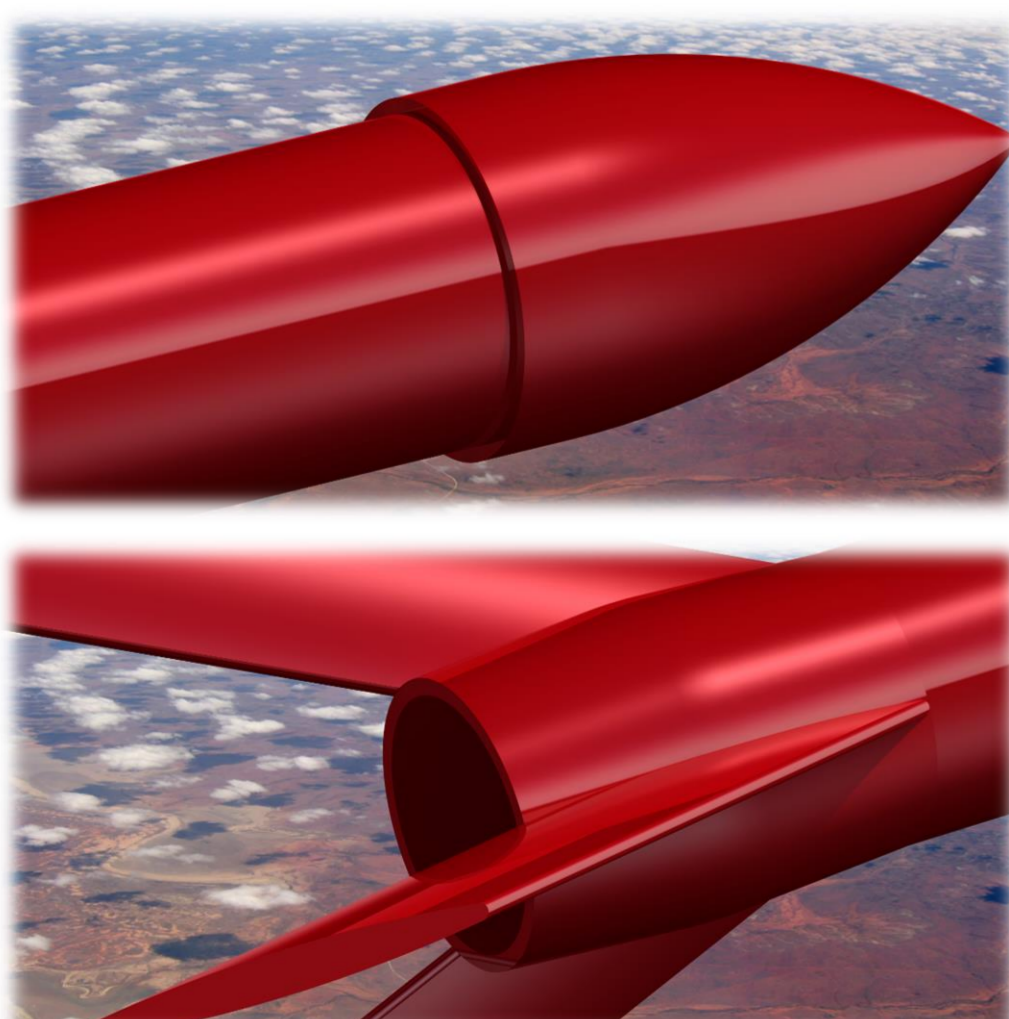
Simulation:

A Matlab Code was written in order to simulate the flight using data from the wind tunnel



Aerodynamics

Aerodynamics were optimised using iterative fuselage changes, CFD simulations and Wind-Tunnel Tests



Launch:

The rocket reached an altitude of 505 m on a F impulse motor

