This plot demonstrates that varying the thrust force used by the plane, the time spent in reduced-gravity situations also increases. The operational regime shown explains the “successful” situation in which the thrust force applied from the plane allows for a significant time in a decreased gravity setting. The changing amount of time in low-gravity decreases with an increasing thrust value-an unexpected result from previous analysis. This helps explicate why NASA and other commercial airliners do not thrust with forces higher than 231 kN. The marginal benefit decreases even faster with an increase in thrust force, thus the expense in fossil fuel would not be reasonable after this point.

Limitations:

The models does not take into account the changes in the drag and lift force resulting from the manipulation of the wings of the aircraft

The plane is modeled only in 2 dimensions

Assumptions:

The model is a point mass

Described plane using Boeing 727 data

The model’s drag coefficient does not change

The plane’s mass does not change due to fuel consumption

The thrust force is constant and only in 45 degree direction

People will die before the plane breaks down

The plane cannot go into space because atmosphere is infinite.