The Simulation of Missile Kinetics with Distance &Time Depended Speed on Moving Object

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Abstract

The simulation about missile kinetic behavior is going to search attacked moving object in this study. The speed and distance with time could be searched and find some information about it. Firstly the OA value is going to increase when the time increases. Secondly the OA is going to decrease from 1,000m to 100m while object speed enhances from o.1Km/s to 1Km/s that means that the OA with maximum 1Km will follow minimum speed 0.1Km/s accordingly. Thirdly the time is going to decrease from 4s to 0 while object speed enhances from o.1Km/s to 0.7Km/s. correspondingly the attacking time will demand 4s when object speed becomes 0.1Km/s.
Keywords: simulation; missile kinetics; distance; time; speed; movement's object

Introduction

The missile as an important weapon could be used in defence department. Specially in war period it can play an significant role on modern inter-country's conflict, therein the corresponding emphasis will be taken in world's main countries. The missile has been searched in advanced assembly to attack enemy's device whose meaning is significant from the strategic view. So we must search it and make it to be more aggressive continuously by engineer and scientist for planning new functions to be precision attack which can be put urgent position. In this paper its Kinematics establishment can attack a moving object like ship, flighter etc which may be establishing simulation equation to analyze its precise problem because the accurate attack may promote its effectiveness. So the research could investigate that factor to look forwards to seeking important message for us to search continuously [1-4]. In short through this research the important parameters should be sought and found for making sure the demand from engineer and scientist. For the sake of making low cost weapon like missile the relevant high performance should be cultivated and developed, which has been destination of this paper in brief and concluded in here. We have found the distance and time depended speed relations from the simulating results.

Modeling for missile Kinetics

It is supposed that one object in y axis movement with v speed. We can establish the modelling with below steps for attacking the object in B point whose principle is shown as shown in Figure 1. The A point will be missile starting one while B point is able to attack placement. There q☐presents angle in x-z coordinate; f☐presents angle in OA and y axis.

Since AA′=OAsinθ ---(1)

and OA′=OAcosθ ---(2)

Due to OA=$\sqrt{AA'^2 + OA'^2}$

So it has v = tg∅ · OA/t ---(3)

Here in x-y-z coordinate system A presents x-z coordinate system one point and A′ presents in x axis. At last in y axis there is a moving object with v speed. The t is the time.
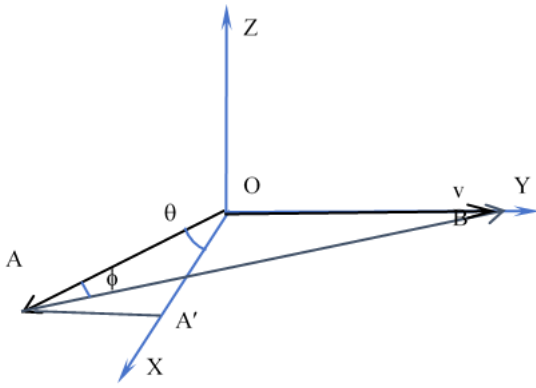
Figure 1 The missile attacked Kinematic resolution diagram.

Discussions

In light of the above principle for attacking the moving object the detailing relationships have to be made for further knowing the conditions including OA, speed v and time t. we could process the discussion about the procedure to approach the target object as below. If the parameters has been described with logic relationship they would be resolved into OA-t, OA-v, t-v three aspects with certain angles.
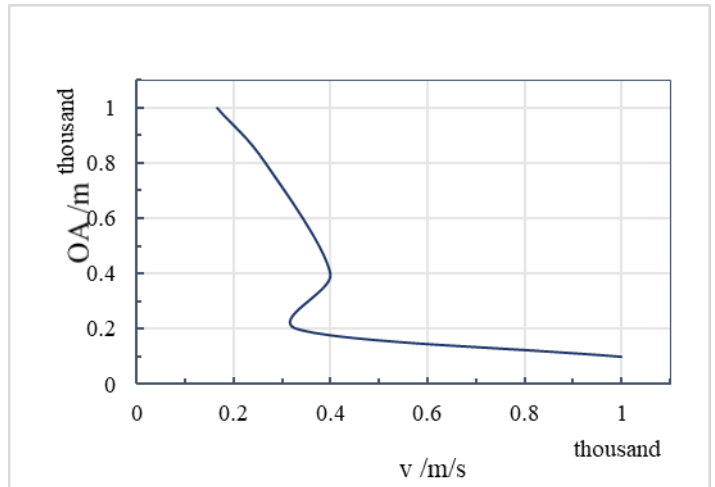

Figure 2 The OA and time t relationship with q=30°; f=45° in missile track.

Figure 2 shows the OA distance and t time relations under certain θ &f. The OA is going to increase from 100m to 1,000m while the time t enhances from 0s to 6s. That means that the OA value is going to increase when the time increases.

Figure 3 The speed and OA relationship with q=30°; f=45° in missile track.

Figure 3 shows when two angles are defined as above the v speed and OA distance relations. The OA is going to decrease from 1,000m to 100m while v enhances from o.1Km/s to 1Km/s. That means that the OA value is going to decrease when the speed decreases.
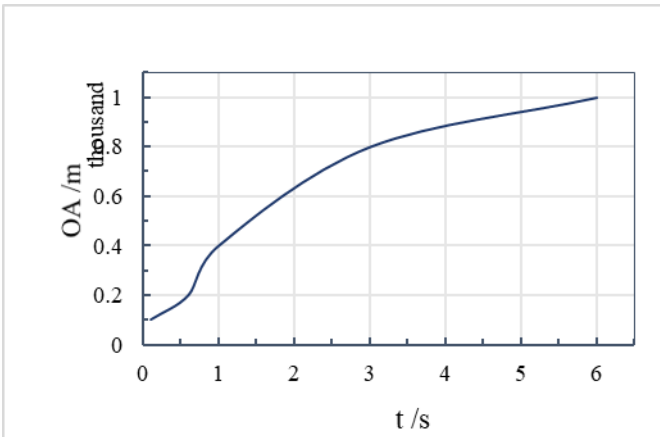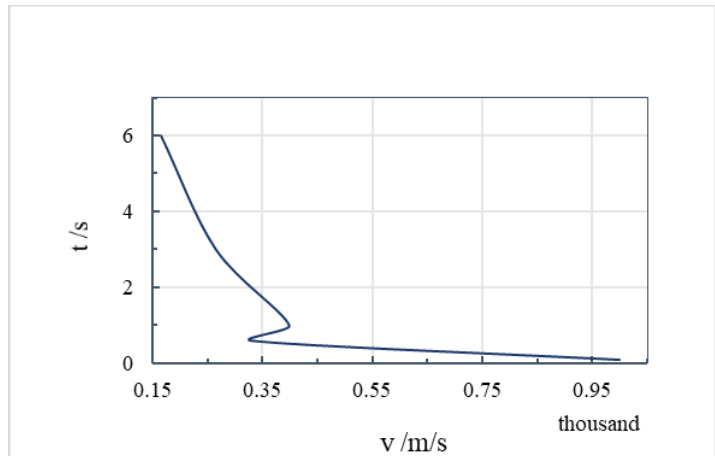

Figure 4 The speed and time relationship with q=30°; f=45° in missile track.

Figure 4 shows when two angles are defined as above the v speed and t time relations. The t is going to decrease from 6s to 0 while v enhances from o.1Km/s to 1Km/s. That means that the t value is going to decrease when the speed increases.
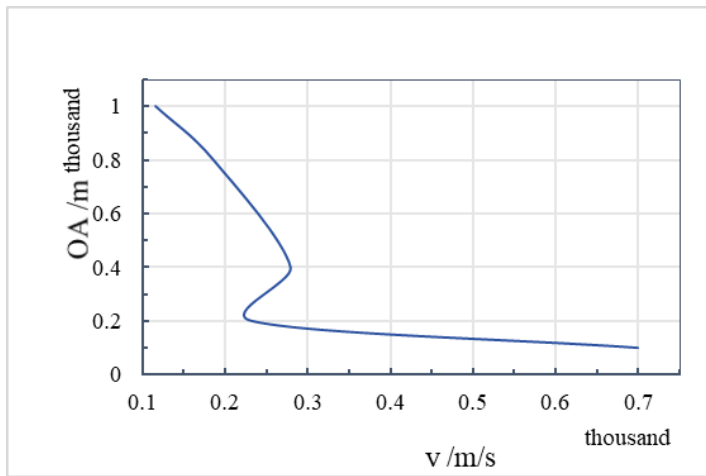
Figure 5 The speed and OA relationship with q=30°; f=35° in missile track.

Figure 5 shows when two angles are defined as above the v speed and OA distance relations. The OA is going to decrease from 1Km to 100m while v enhances from o.1Km/s to 0.7Km/s. That means that the OA value is going to decrease when the speed decreases. The speed has indicated the littler one with f=35° than the Figure 3 with f=45°.

Figure 6 The speed and time relationship with q=30°; f=35° in missile track.

Figure 6 shows when two angles are defined as above the v speed and t time relations. The t is going to decrease from 4s to 0 while v enhances from o.1Km/s to 0.7Km/s. That means that the t value is going to decrease when the speed increases. The speed has indicated the littler one with f=35° than the Figure 4 with f=45° as well. Meanwhile the time has indicated littler than Figure 4. In short the three parameters are concluded here, and find some message between them. The OA and time with object speed changing can be solved in this study. The changing the angle can bring over data some changes. The bigger angle f could enhance the attacking time while q can not bring over any changes. The proof can be found from parameters changing of relevant equation.

Conclusion

The OA and time depended speed is able to be solved through this study. The three parameters can be clarified to attack a moving object. The speed and distance with time could be searched and find some information about it. Firstly the OA value is going to increase when the time increases. Secondly the OA is going to decrease from 1,000m to 100m while object speed enhances from o.1Km/s to 1Km/s that means that the OA with maximum 1Km will follow minimum speed 0.1Km/s accordingly. Thirdly the time is going to decrease from 4s to 0 while object speed enhances from o.1Km/s to 0.7Km/s. correspondingly the attacking time will demand 4s when object speed becomes 0.1Km/s. Hereby the simulation about missile kinetic behavior is going to search attacked moving object in this study.
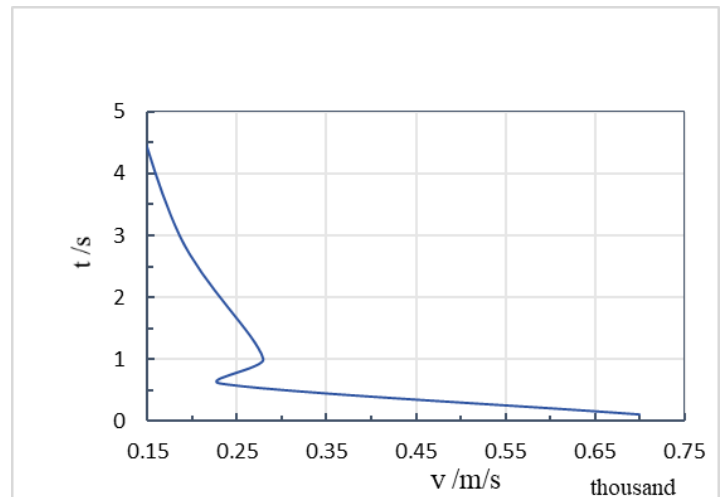
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