

# **ASE 389P.4 Methods of Orbit Determination**

## **Homework 5: Setting Up the Term Project**

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The theory and algorithms are derived and computer program to establish the trajectory of an Earth-orbiting satellite is developed. The assumptions for the study are:

- Three tracking stations taking apparent range and range-rate data are available for tracking the satellite. Apparent quantities imply that the one-way light time between signal transmission and reception were modeled into the measurement (i.e. the effect is dealt with).
- The force model used to generate the truth is the EGM96 gravity field of degree and order 20, attitude-dependent solar radiation pressure, and atmospheric drag.
- The satellite is a box-wing shaped with one Sun-pointed solar panel with known component sizes, material properties, and orientation. The spacecraft -Z axis (in the spacecraft body reference frame) is always Nadir-pointed and has the antenna.

### **Problem**

#### **Problem 1**

## **Appendix**

**HW5 MATLAB code**

## **References**