Geostationary Satellites Tracking is a Matlab based application to predict the orbit and track the geosynchronous and geostationary satellites in real time.

This application predicts the orbital position of geostationary satellites from Public Two-Line Element Orbital Information (TLE). The TLE are created by United States Air Force / Department of Defense (DoD), that tracks all detectable objects in Earth orbit, creating a corresponding TLE for each object, and makes available the TLEs for non-classified objects on the internet.

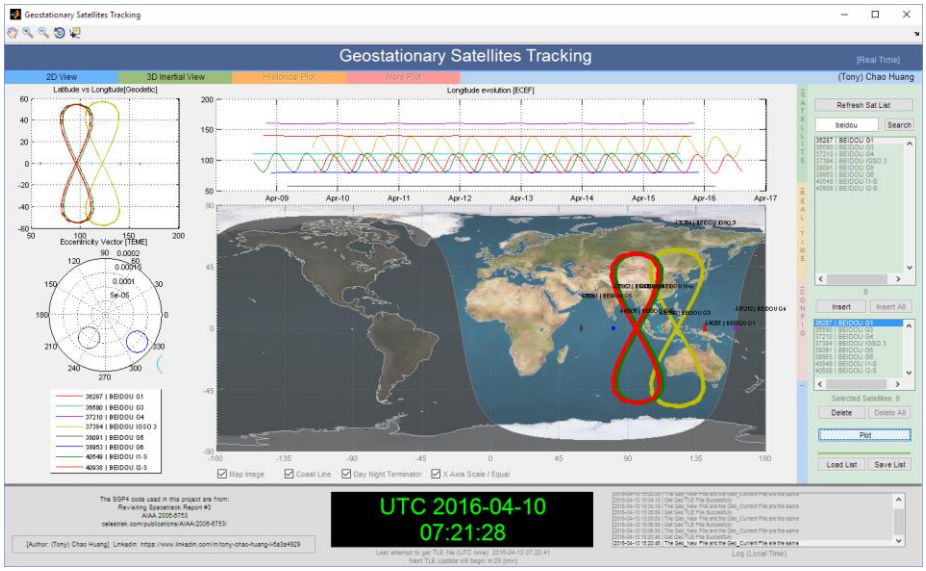
The satellites orbit are predicted/propagated using Simplified perturbations models codes (SGP4) from "Revisiting Spacetrack Report #3" and The results of the orbit prediction are displayed in different types of 2D and 3D plots. The TLE data are updated constantly from http://celestrak.com.

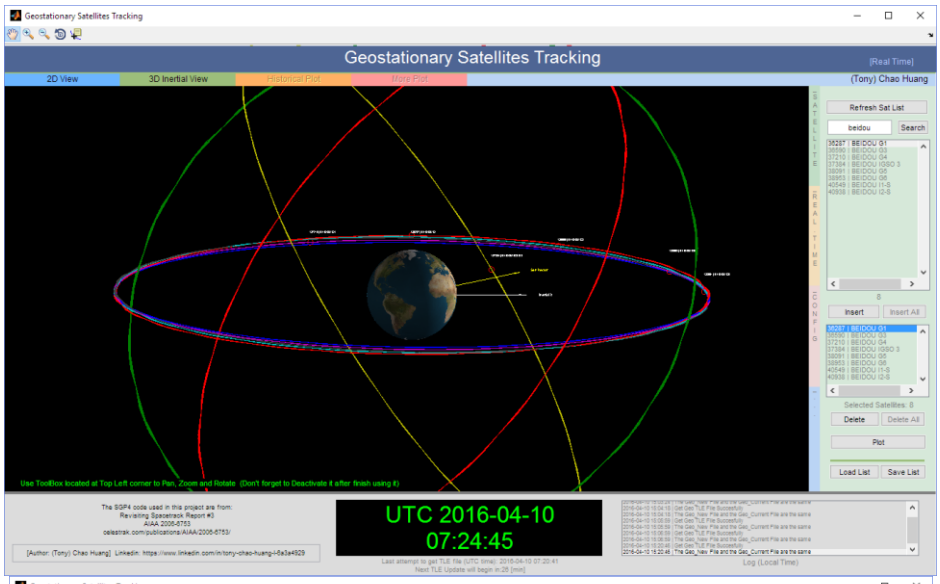
The application is designed for:

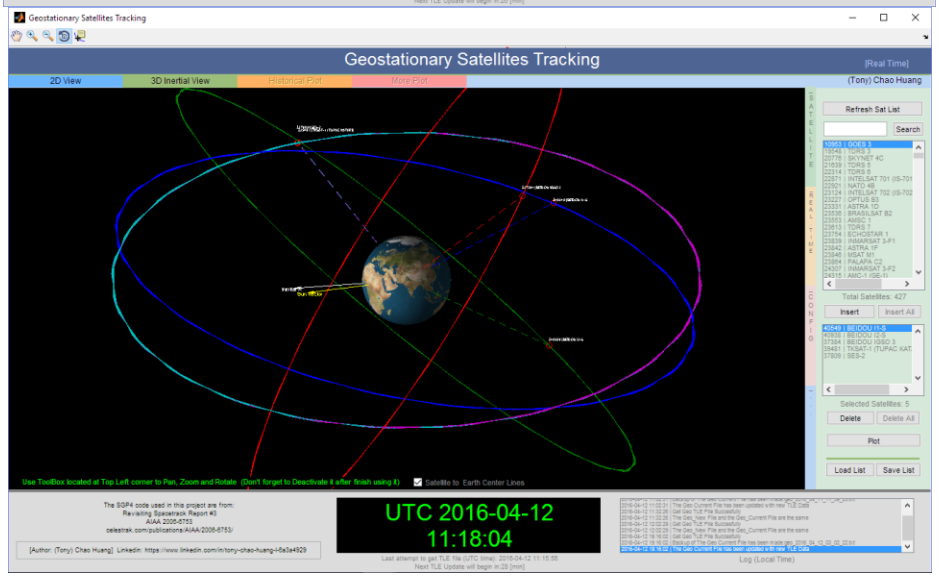
Satellite Orbit Control Professionals, Educators, Satellites Orbit Amateurs, Students and Enthusiasts who wants to predict, track and identify possible collision risk of all the available active geosynchronous and geostationary satellites. (more than 427 until now)

Also it aims to help the community to understand better the concept about geosynchronous and geostationary orbits, Ground track, Orbit station keeping window, Eccentricity Vector, Longitude and Latitude Position, Orbit parameters, Two Line Elements (TLE), UTC Time, Time Zone, Earth Rotation Parameters, Day Night Terminator, Sun Position Vector, 3D Inertial View, Etc.

The Screenshots illustrate how the App is tracking all the Geostationary and Geosynchronous satellites of Beidou System with 2D and 3D graphics:


Geostationary Satellites Tracking
Geostationary Satellites Tracking
[Real Time]
2D View
3D Inertial View
Historical Plot
More Plot
(Tony) Chao Huang
Latitude vs Longitude[Geodetic]
Longitude evolution [ECEF]
Eccentricity Vector [TEME]
Refresh Sat List
beidou
Search
Insert
Insert All
Selected Satellites: 8
Delete
Delete All
Plot
Load List
Save List
Map Image
Coast Line
Day Night Terminator
X Axis Scale / Equal
The SGP4 code used in this project are from:
Revisiting Spacetrack Report #3
AIAA 2006-6753
celestrak.com/publications/AIAA/2006-6753/
[Author: (Tony) Chao Huang] LinkedIn: https://www.linkedin.com/in/tony-chao-huang-i-6a3a4929
UTC 2016-04-10
07:21:28
Log (Local Time)


Geostationary Satellites Tracking
Geostationary Satellites Tracking
[Real Time]
2D View
3D Inertial View
Historical Plot
More Plot
(Tony) Chao Huang
Use ToolBox located at Top Left corner to Pan, Zoom and Rotate (Don't forget to Deactivate it after finish using it)
Refresh Sat List
beidou
Search
Insert
Insert All
Selected Satellites: 8
Delete
Delete All
Plot
Load List
Save List
The SGP4 code used in this project are from:
Revisiting Spacetrack Report #3
AIAA 2006-6753
celestrak.com/publications/AIAA/2006-6753/
[Author: (Tony) Chao Huang] LinkedIn: https://www.linkedin.com/in/tony-chao-huang-i-6a3a4929
UTC 2016-04-10
07:24:45
Log (Local Time)


Geostationary Satellites Tracking
Geostationary Satellites Tracking
[Real Time]
2D View
3D Inertial View
Historical Plot
More Plot
(Tony) Chao Huang
Use ToolBox located at Top Left corner to Pan, Zoom and Rotate (Don't forget to Deactivate it after finish using it)
Satellite to Earth Center Lines
Refresh Sat List
Search
Total Satellites: 427
Insert
Insert All
Selected Satellites: 5
Delete
Delete All
Plot
Load List
Save List
The SGP4 code used in this project are from:
Revisiting Spacetrack Report #3
AIAA 2006-6753
celestrak.com/publications/AIAA/2006-6753/
[Author: (Tony) Chao Huang] LinkedIn: https://www.linkedin.com/in/tony-chao-huang-i-6a3a4929
UTC 2016-04-12
11:18:04
Log (Local Time)

The First version (V1.0) of this project has been submitted to Matlab Course final project of BeiHang University (Jan-2016) on Apr 12,2016, the project has been updated with 3D graphic function (V1.11).

link to download the "Geostationary Satellites Tracking" source code for free: http://www.mathworks.com/matlabcentral/fileexchange/54875-geostationary-satellites-tracking

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