Plyades Documentation

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Contents

Plyades is an MIT-licensed astrodynamics library written in Python. It aims to provide a comprehensive toolset for fast development of performant mission analysis applications. The API provides powerful high-level objects for pythonic ease-of-use while the low-level functional building blocks can also be used independently.

Warning: This library is currently a proof of concept and has not been validated or used within an operational context. As soon as this changes the validation results will be documented here.

CHAPTER 1

Features

- Reference frame transformations
- Numerical orbit propagation

CHAPTER 2

User Guide

2.1 Installation

2.1.1 Dependencies

Plyades depends on the following third-party libraries: * Astropy

2.2 Getting started

2.2.1 Create an Epoch object

2.2.2 Create a State object

2.2.3 Transform to a different reference frame

2.2.4 Create an Orbit object

2.2.5 Propagate by solving Kepler's equation

2.3 Reference frame transformations

2.4 Orbit propagation

2.4.1 Semi-analytical solver

2.4.2 Numerical solver

Force model

2.5 Visualization

CHAPTER 3

API Documentation

3.1 High-level wrapper

3.2 Low-level routines

3.2.1 Utility Functions