Catégorie:User Manual 4.6 Attitude

Sommaire

Introduction

This section describes attitude features of Patrius: attitude laws, slew, guidance, etc.

Applicable and Reference Documents

Applicable Documents

[A1] *CDCF - Fonctions de Base du Patrimoine de Dynamique du Vol*, V1.2, SIRIUS-CF-DV-0049-CN, 2011.
[A2] *Dossier de réutilisation Orekit et Commons Math*, V1.0, SIRIUS-DLR-DV-0080-CN, 2010.

Reference Documents

None applicable.

Overview

The Attitude package of the PATRIUS library has been developed according to the SIRIUS Scope Statement **[A1]**. The themes developed are described hereafter :

Directions
: Implementation of directions of space that can evolve in time.

Attitude laws
: Several attitude laws are available. These laws were originally designed for orbit determination needs: in order to broaden their applications, a wrapper object has been created to meet the spacecraft attitude field needs.

Attitudes sequence
: Implementation of an attitudes sequence for orbit determination: it is possible to define an attitude law as a series of attitude laws in the context of a propagation.

Attitude legs sequence
: Implementation for spacecraft attitude field of an attitude sequence: it is possible to define an attitude leg as a series of attitude legs.

Attitude composition
: Implementation of an object that enables to define an attitude law as a composition of several laws.

Orientation
: Orientations are similar to attitude providers except that it returns only one angle.

Slew
: Implementation of slew. Slews are used in the attitudes sequence to define the transition between two laws. Slews are splits into two functions: slew computations through dedicated classes and slew realization.

Kinematics
: Implementation of a tool box for kinematics calculations.

Guidance command
: Implementation of the ground and the on-board guidance commands. The first one is computed, the second one is simulated. In both cases, it should be possible to compute the guidance command from a law and to consider the guidance command itself as a law.

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