
Sensitivity study of radiation pressure models for precise orbit determination

Dominik Stiller

B.Sc. Student, Faculty of Aerospace Engineering, TU Delft, Netherlands

Abstract

Keywords

Radiation pressure, orbit determination

Acronyms: LRO Lunar Reconnaissance Orbiter

1 Introduction

Lunar Reconnaissance Orbiter (LRO)

”SRP is the largest non-gravitational perturbation affecting the LRO orbit and inadequate modeling of SRP is the primary cause of large prediction errors for LRO, particularly during high-beta angle periods” [1]

Operational LRO OD does not use lunar albedo due to computational demand, but used for offline reprocessing. Self-shadowing from Mazarico, Zuber, Lemoine, and Smith is used [3]

High OD error during full-sun periods with cannonball model, but acceptable with multi-panel model and real attitude for SA and HGA [4]

albedo radiation significant since no atmosphere exists, up to 30 % [5]

References

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