From teaching tools to mission design and operation tools

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ISAE-SUPAERO Mission

Teaching support

- Space Mechanics
- Mission Analysis
- Thermal
- Telecommunication
- Power system
- AOCS
- LOS
- Launchers
- ...

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Orekit Day 2017
ISAE-SUPAERO Mission

Research & Support
- Engineering Projects
- Research Projects

Means
- UHF/VHF
- S-Band
- Sat’ Operation
1. ISAE-SUPAERO Software Legacy
   - Satorb
   - Simusat
   - Simulaunch
   - Synthesis

2. JSatorb: a Satorb possible evolution

3. Ground Segment & Operations

4. Conclusion & Questions
1 ISAE-SUPAERO Software Legacy
   - Satorb
   - Simusat
   - Simulaunch
   - Synthesis

2 JSatorb: a Satorb possible evolution

3 Ground Segment & Operations

4 Conclusion & Questions
People involved

Initiator (before 2001!):
- Christian Colongo

Current Dev Team:
- Patrice Labedan
  - Guillaume Garrouste
  - Thibault Gateau

Lot of support from:
- Students Projects
- Internships
- PhD students
- Collaborations (UTM)
Satorb

Ground Segment & Operations

Conclusion & Questions
Simusat
Simulaunch
Kerbal Space Program before Kerbal Space Program...
Pros: Homemade

- Fit exactly to ISAE-SUPAERO needs
- Adapt what we want
- No intellectual property issue
- Short dev cycles

Cons: Homemade

- Not open-source, no community behind
- Costful for internal developers
- Not cross platform
- Validation by hand
1. ISAE-SUPAERO Software Legacy

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JSatorb: Julio HERNANZ-GONZALEZ (PIR 2016)

From Satorb...

... To JSatorb

Microsoft VB.net

Orekit

Java
1. ISAE-SUPAERO Software Legacy
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Nowadays academics requirements

- Open-Source
- Cross-platform
- Standardized

Next steps:

- Still cover teachings requirements
- Required software suite for a whole nanosatellite project
  - Mission analysis
  - Simulation
  - Operation
- Intercompatibility - Input/Outputs Standardization
Thank you for your attention!

Any question?