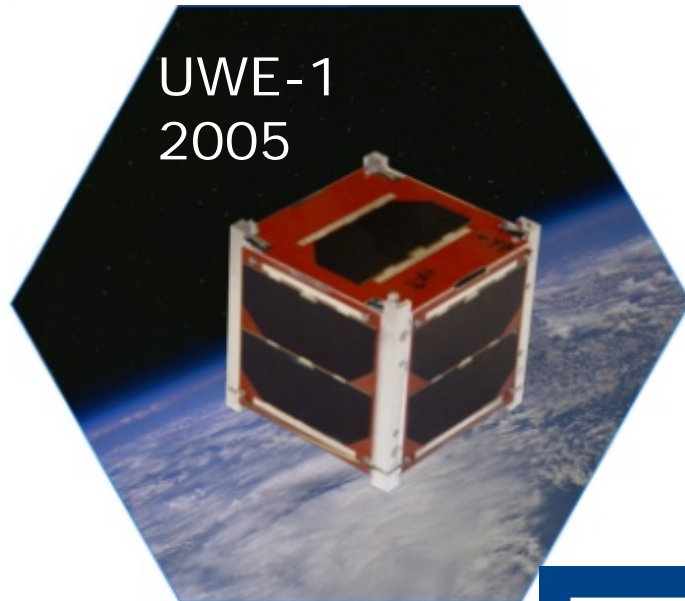




Pico-Satellites in Germany



UWE-1
2005



COMPASS-1
2008

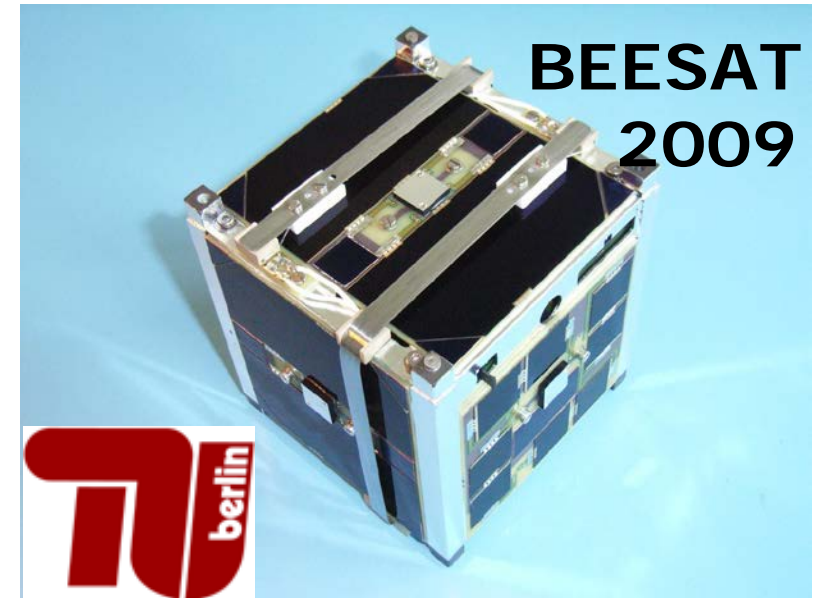


Objectives

Telecommunication tests:
Internet in Space

Technology demonstration AOCS:
magnetometer, magnetic coils, sun
sensors

Educational Pico-Satellites in Germany

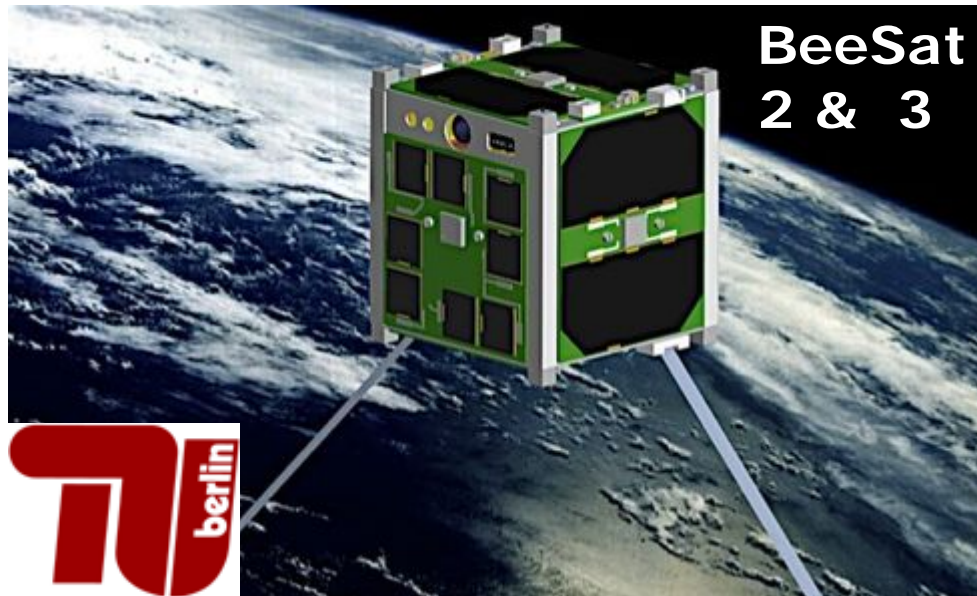


Objectives

- Internet in Space
- advanced attitude determination
- **national program “pico-satellites for education “ by DLR since 2007**
- **annual Pico-/Nano-Satellite national/European Workshop since 2007, alternating between Uni Würzburg and TU Berlin**
- **scientific perspective on very small satellite formation flying**
- **organisation of universities in national Pico-/Nano-Satellite Initiative**

Technology demonstration
reaction wheels

Educational Pico-Satellites in Germany



Objectives

- Verification of 3 reaction wheel attitude control system
- Verification of S-band transmitter HISPICO

BeeSat-2 & -3 were launched 19.4.2013 with Soyuz





Objectives

- Test of solar cell performance
- Characterisation miniature attitude control system
- Modular flexible system design

Launched 21.11.2013 with Dnepr. Both satellites are active



UWE Roadmap

(University Würzburg's Experimental satellites)

UWE-X Formation Flying Mission

- Higher Data Rates
- Formation Control
- DTNs, MANets
- ...

2015 UWE-5

- Relative Navigation

2014 UWE-4

- Position Control

2013 UWE-3

- Attitude Control

2009 UWE-2

- Attitude- and Orbit
Determination

2005 UWE-1

- Telecommunication “Internet in Space”



SpaceMaster

Joint European Master in Space Science and Technology



Education and Culture

Erasmus Mundus

SpaceMaster is supported by scholarships within the "ERASMUS MUNDUS"-Program of the EU for European elite-curricula. It is offered at University Würzburg in cooperation between Computer Science and Physics/Astronomy, and by the partner universities

- Luleå University of Technology,
Sweden
- Cranfield University, United Kingdom
- Czech Technical University,
Czech Republic
- Helsinki University of Technology,
Finland
- Université Paul Sabatier Toulouse III
France

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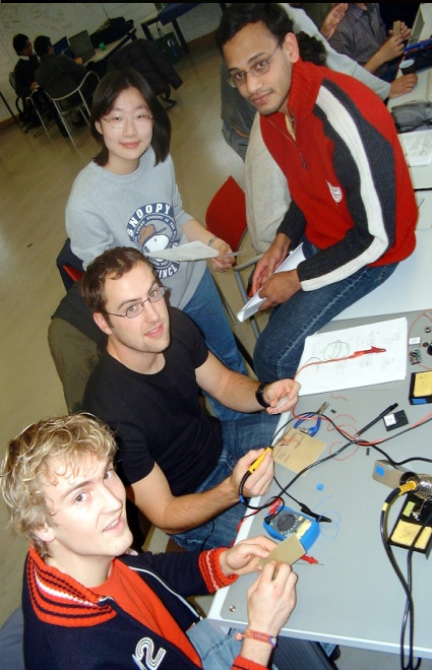
Education: SpaceMaster

SpaceMaster

Joint European Master in Space Science and Technology



Erasmus Mundus



University partners outside the EU :
Stanford University, USA
University of Tokyo, Japan
University of Toronto, Canada
Shanghai Jiao Tong Uni, China



International students :
~ 25 from outside EU
~ 15 Europeans outside
Germany
~ 10 German students



Recent awards of Würzburg students

- ZARM Award 2006
- 1st price in Student Contest at Internat. Astronautical Conference 2006 Valencia
- Award of the British Interplanetary Society
- IABG-Award 2008 for Oliver Kurz
- Silver medal at Student Contest IAC 2008 Glasgow
- Rotary Award 2011
- Gold medal at IAC 2013 in Beijing
- 2013 Amelia Earhart Fellowship by Zonta

International Education