Role of Academia and Other Players in ITU: Opportunities and Challenges

Field Report of TU Berlin, Chair of Space Technology

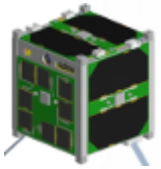
ITU Academia Event: Fostering Innovation and Partnerships in Human Capacity Building

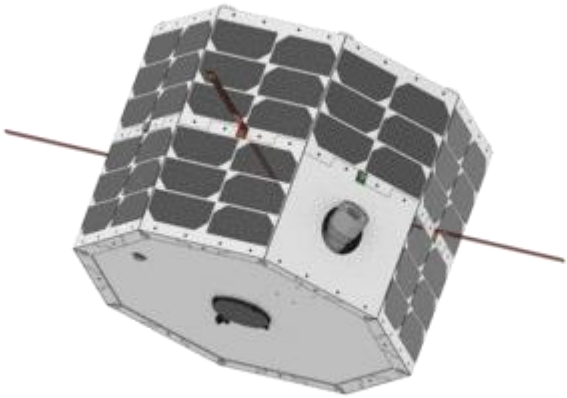
28-29 April 2014 | Prague, Czech Republic | M. Buscher, K. Brieß

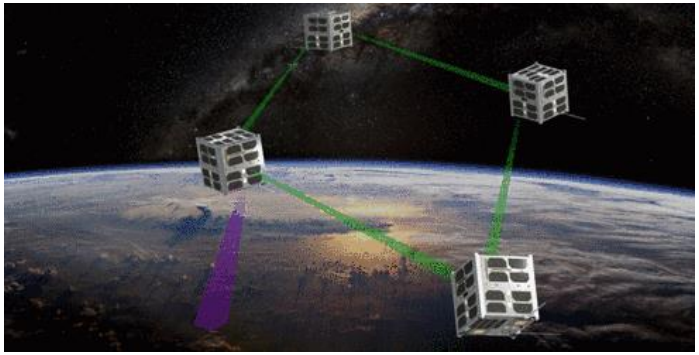
Background of TU Berlin

Design, practical realization and operation of small satellite missions

- 4 Picosatellites
  - BEESAT-1 2009
  - BEESAT-2 2013
  - BEESAT-3 2013
  - BEESAT-4 2015
- 2 Nanosatellites
  - Technosat 2015
  - TUBIN 2016
- 1 Nanosatellite Constellation
  - S-NET 2016



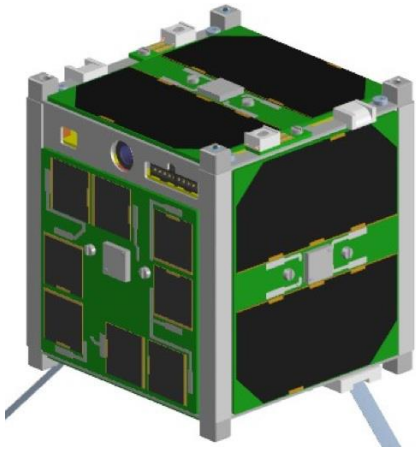




Opportunities of small satellites

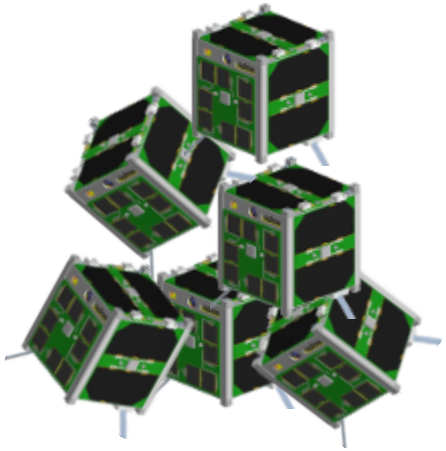
- Inexpensive development & launch compared to traditional satellites
- Great potential in education and training of students
- Comparatively easy access to space
  - For universities
  - For newcomers in the field of space mission operations

Mass	< 10 kg
Edge length	< 30 cm
Development time	< 3 years
Mission lifetime	< 2 years

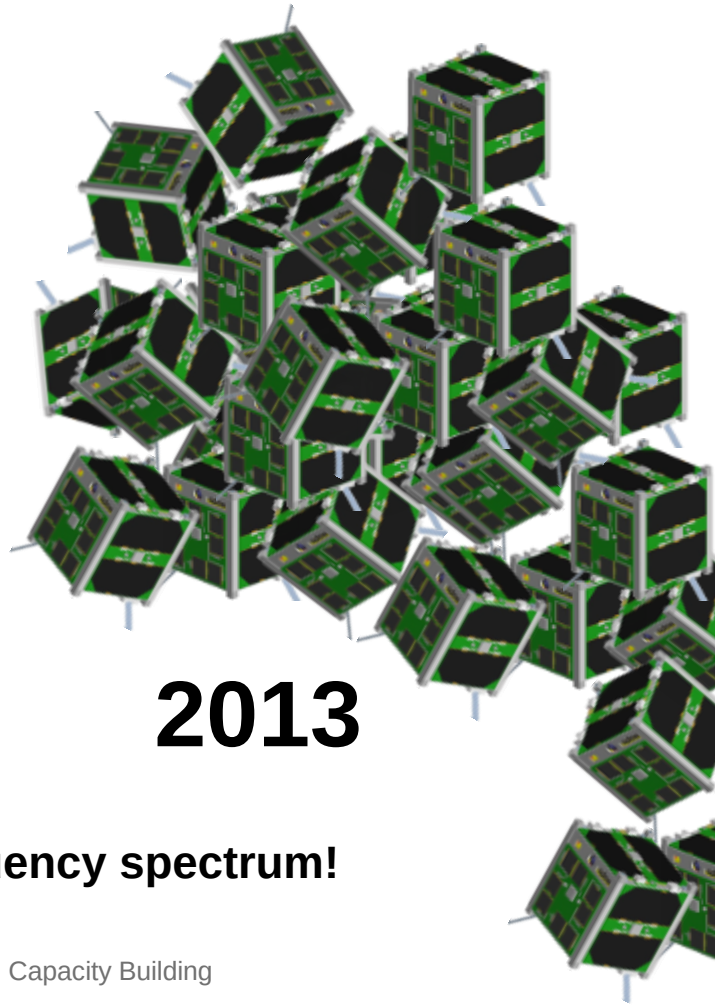


Opportunities of small satellites

2003



2008



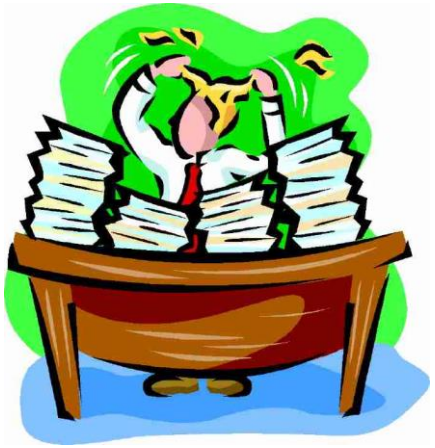
2013

Growing need for the efficient use of frequency spectrum!

Challenges of small satellites

1. Some regulatory procedures might not fit the needs and resources of small satellite developers

2. Small satellite developers normally have no or not sufficient experience in frequency coordination & regulatory timelines



[http://www.clipartbest.com/clipart-RiGBraoiL]

Role of TU Berlin in ITU

1. We identify challenges for small satellite developers
   - Analysis of previous and future small satellite missions
   - Analysis of ITU regulatory procedures
   - Proposal of possible modifications of the existing procedures in ITU study groups

2. Training in frequency management
   - For our students
   - For other interested stakeholders
     - By setting up guidelines
     - By publications on efficient coordination and regulatory bottlenecks

Conclusion

- Examination of ITU procedures from a academic perspective
- Training of students in frequency management
- Integration of newcomers by easening the regulatory access to space