

# Students of South Africa

by  
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# South Africa

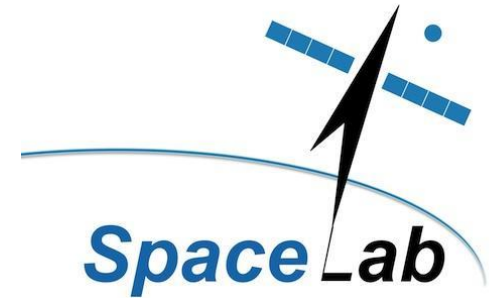


# Interesting Facts

- First settlers arrived in 1652 to establish refreshment station
- Became democratic in 1994
- 11 Official Languages
- 1 EURO = 16 ZAR
- Sunny Christmas on the beach
- Drive on the left (ex. British Colony)
- Love to braai (“barbeque”)
- Invented the creepy-crawly



# University of Cape Town SpaceLab

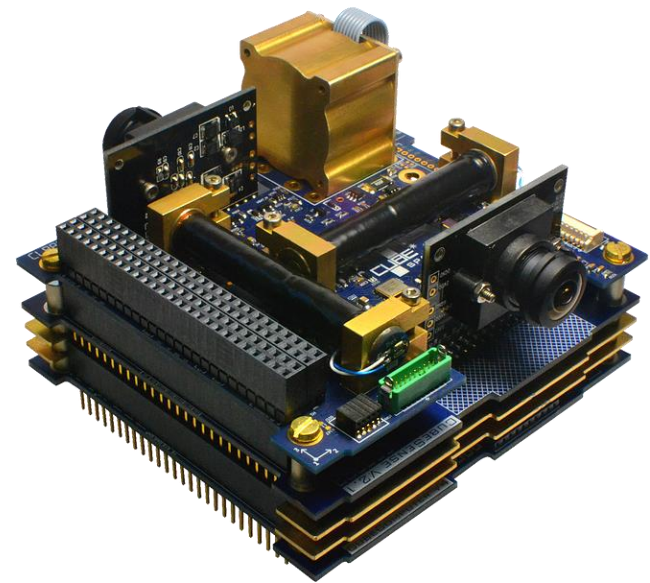


- Aerodynamic Deorbit Device
- Debris Capture System
  - DDC Participant
- Waste storage/reusability methods for Long Duration Human Space Flights
- Effects of radiation models on electronic devices.
- Imaging of sprite phenomena.
  - First ground based observations.



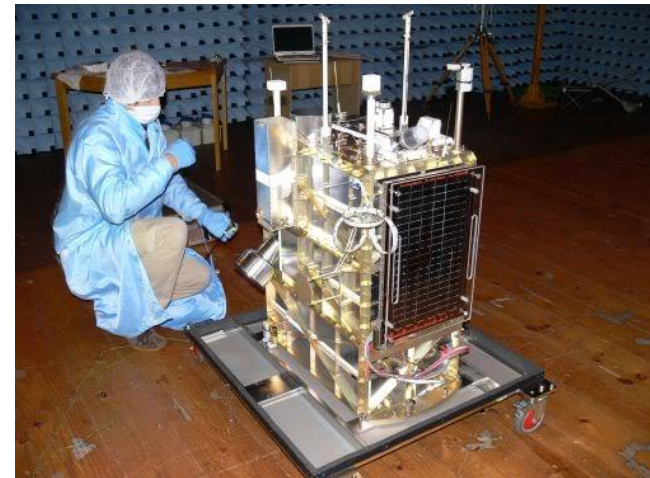
# Stellenbosch University Electronic Systems Laboratory

- Investigating Satellite Image Processing
  - FPGA testing.
- Infrared Horizon Sensor
- Simulating Multi-Satellite Multi-Groundstation
- Parallel Multiple Protocol Receiver
- Rocket booster flight control system
  - ALV Project



# Satellite Exposure For Students

- Satellite Course to design entire satellite system and mission.
- Close proximity to innovative satellite businesses.
- Participation in international contests.
- Satellite experts always close by.
- Motivation by proud space heritage (SunSat, Sumbandila, etc).
- Outreach Programs for high school students
- Undergraduates rebuilding of scaled Curiosity



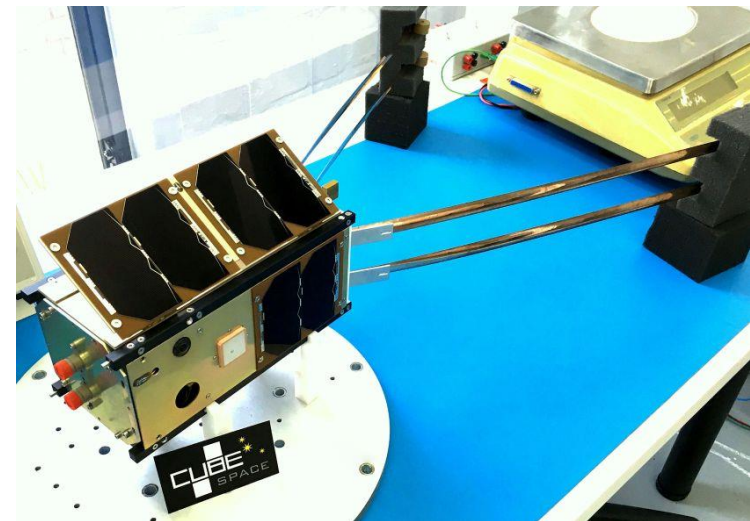
# Our QB50 Participation

## ZA-AeroSat (initially Africa's only contribution to QB50)

- SU project to design and manufacture 2U CubeSat
- Collaborate with CPUT – supply comms payload
- Demonstrate passive aerodynamic stabilisation (antennae used like the feathers on a shuttlecock)
- Main payload: FIPEX science sensor
  - To measure the flux density of atomic and molecular oxygen
- New CubeStar star tracker experiment
  - Small: Size 5 x 3 x 7 cm, Mass < 90 g
  - Low power: 350 milli-Watt average
  - Accurate: 0.01 degree RMS bore sight error
- Novel experimental gravitational wave sensor



CubeStar



# Conclusion

- UNISEC created environment with:
  - Different cultures...
  - Different expertise...
  - Different ways of solving problems...
- Gained experience and knowledge
- Made some friends
- Will try to come again

**Doumo arigatou UNISEC**