



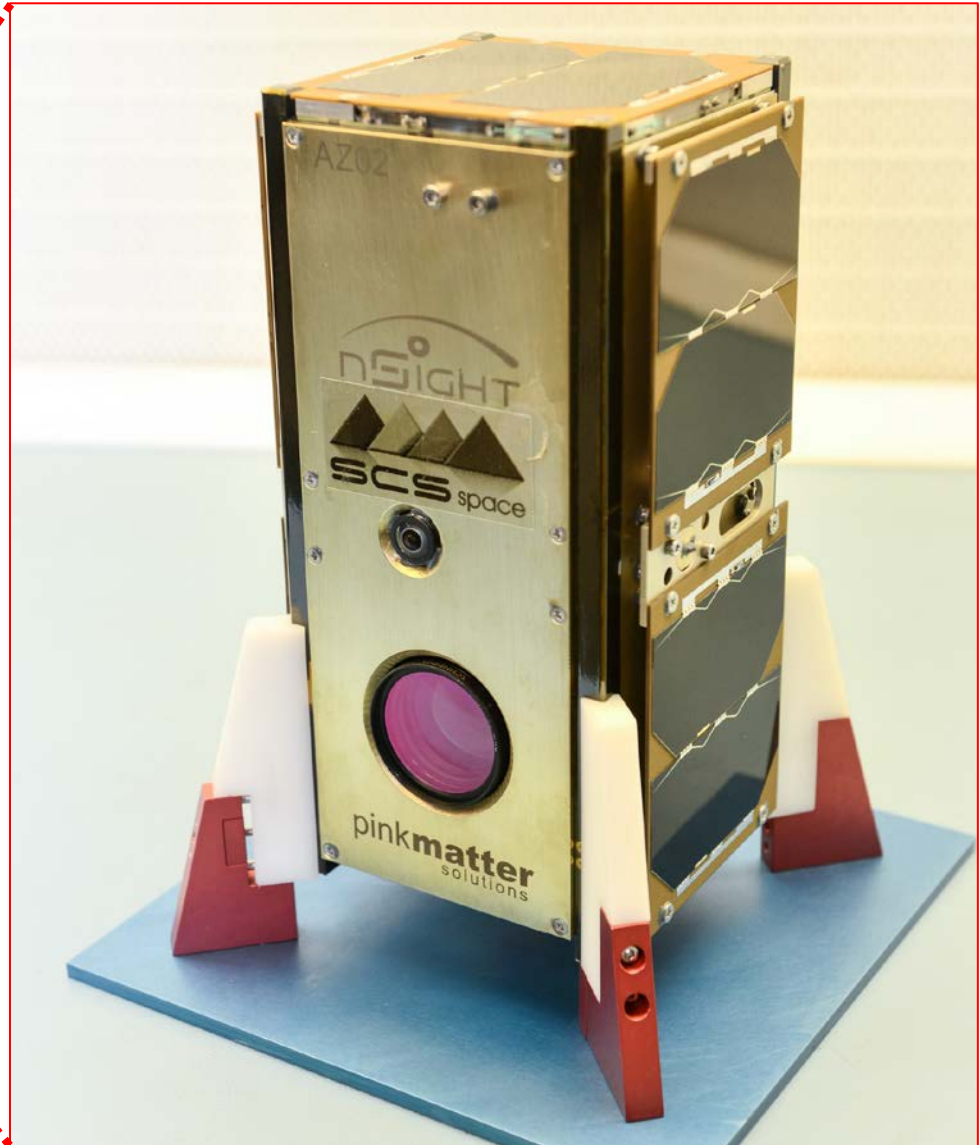
**nSight-1: a Reliable nano-satellite platform for
Remote Sensing Capacity Building**

Celebrating 25 years of Capacity Building

Dr. Sias Mostert



nSIGHT



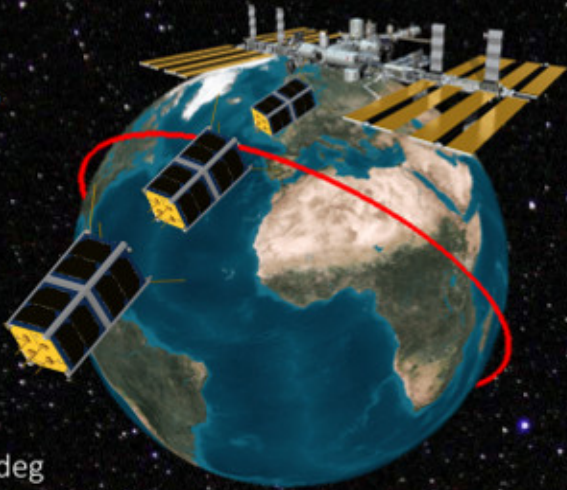


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Project

28 CUBESATS FROM THE INTERNATIONAL SPACE STATION



- QB50-ISS**
- 28 CubeSats
 - Altitude 415km
 - Inclination 51.6deg
 - Launch on 16th March 2017
 - Atlas-V Rocket from Cape Canaveral (USA)

8 CUBESATS ON THE PSLV INDIAN ROCKET



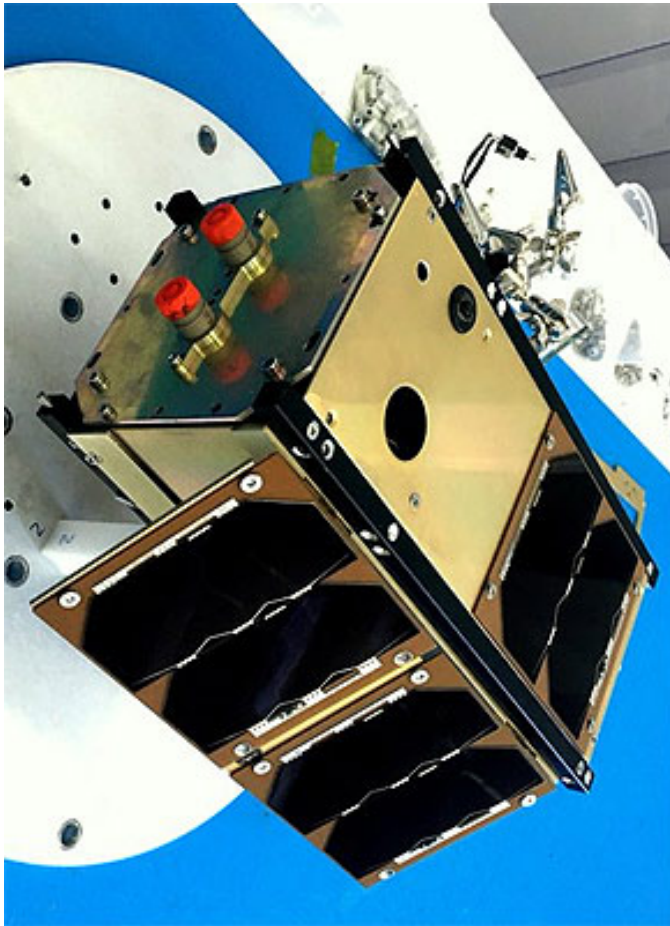
- QB50-PL**
- 8 CubeSats
 - Altitude 500km
 - Sun Synchronous Orbit 97.1deg
 - Part of the Science Campaign
 - Launch on 21st April 2017
 - PSLV Rocket from Satish Dhawan Space Centre



VON KARMAN INSTITUTE



South African QB50 Satellites:



ZA AeroSat (QB50 AZ01)
Stellenbosch University



nSight 1 (QB50 AZ02)
SCS Space

nSIGHT 1 Overview



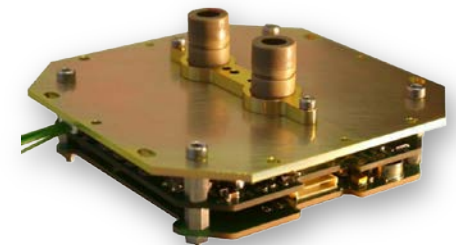
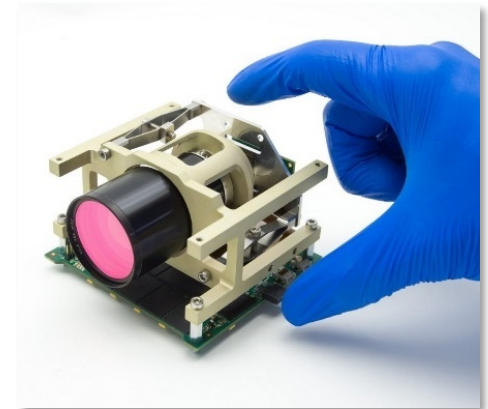
Complete satellite weighs only 2.5 kg

- Part of the international QB50 constellation
- Deployed from the ISS
- Satellite built in six months in 2016



Payloads

- SCS “Gecko” imaging payload
 - Integrated data storage
 - Integrated image processing
- FIPEX atmospheric science instrument (supplied by University of Dresden)
- Radiation tolerant digital design (NMMU)



nSight-1 Imaging capability



30m GSD, 61km x 32km RGB (Bayer) snapshot

Rio de Janeiro
(simulated using LANDSAT8)



Demonstrating the results of 25 years of Capacity Building

1992

1997

2003

2008

2017

- From 1 university post graduate program to three programs
- From 1 university research to six universities with research programs in space
- From one technology demonstration satellite, Sunsat, to an experimental platform, nSight 1
- From University satellite plus Science council to Industry plus University plus Science council
- No fewer than thirteen contributing partners from the Space Hub in South Africa



What does it mean for the future?

nSight 1 Experimental Platform



Nanosatellite Platform



Imager Payload



HumanCapital Development



Data Management Platform



Ground Station



nSIGHT 1 Experimental Platform

Launch! (16 April 2017)



Atlas V OA-7 launch – Photo: United Launch Alliance

Arrival at the ISS (22 April 2017)



OA-7 Cygnus capture at the ISS – Photo: NASA



Deployed
from the ISS

25 May 2017

51.6°, 400km orbit.
Expected lifetime: 12-18 months.



**nSight-1: a Reliable nano-satellite platform for
Remote Sensing Capacity Building**

**International collaboration welcome in
nSight 2 and nSight 3 missions**

