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

Celebrating 25 years of Capacity Building

Dr. Sias Mostert
QB50 Project

28 Cubesats from the International Space Station
- 28 CubeSats
- Altitude 415km
- Inclination 51.6deg
- Launch on 16th March 2017
- Atlas-V Rocket from Cape Canaveral (USA)

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
South African QB50 Satellites:

ZA AeroSat (QB50 AZ01)
Stellenbosch University

nSight 1 (QB50 AZ02)
SCS Space
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

<table>
<thead>
<tr>
<th>Year</th>
<th>Description</th>
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<tbody>
<tr>
<td>1992</td>
<td>• From 1 university post graduate program to three programs</td>
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<tr>
<td>1997</td>
<td>• From 1 university research to six universities with research programs in space</td>
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<tr>
<td>2003</td>
<td>• From one technology demonstration satellite, Sunsat, to an experimental platform, nSight 1</td>
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<td>2008</td>
<td>• From University satellite plus Science council to Industry plus University plus Science council</td>
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<td>2017</td>
<td>• No fewer than thirteen contributing partners from the Space Hub in South Africa</td>
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What does it mean for the future?

nSight 1 Experimental Platform
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.
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International collaboration welcome in nSight 2 and nSight 3 missions