

PRESENTATION TO THE PORTFOLIO COMMITTEE ON SCIENCE & TECHNOLOGY

29 MAY 2007, CAPE TOWN

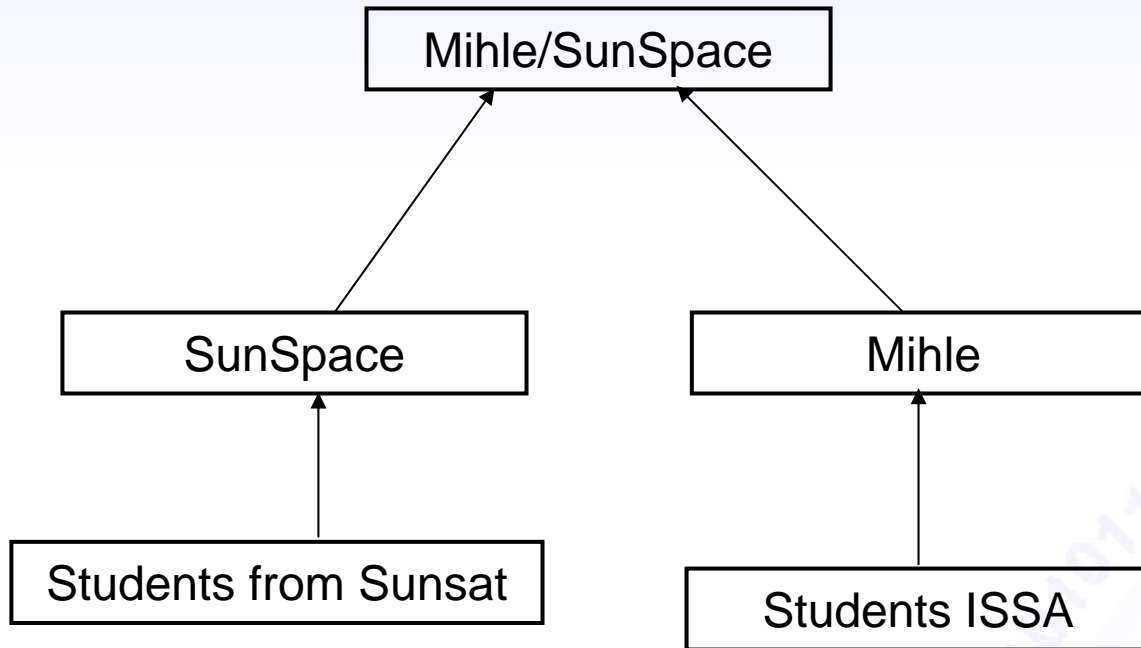


Introduction

Siyabongs Copiso



Mihle/SunSpace : Formation Overview



Ownership and Control

- **Shareholders/Ownership**

- 25+1% BEE Empowered (Mihle Consortium)

- **Board of Directors**

- 8 Directors (3 Executive)
- Chairman: Sybrand Grobbelaar
- Managing Director: Bart Cilliers
- 25% BEE (Themba Vilakazi & Bongani Caga)

- **Executive Management**

- 33.3% BEE Executive Positions
(Siyabonga Copiso, Mzukisi Mazula & Ron Olivier)



Tribute to Prof Garth W Milne
Ron Olivier



Sumbandila Satellite Video



Engineer-in-Training

Gladys Magagula



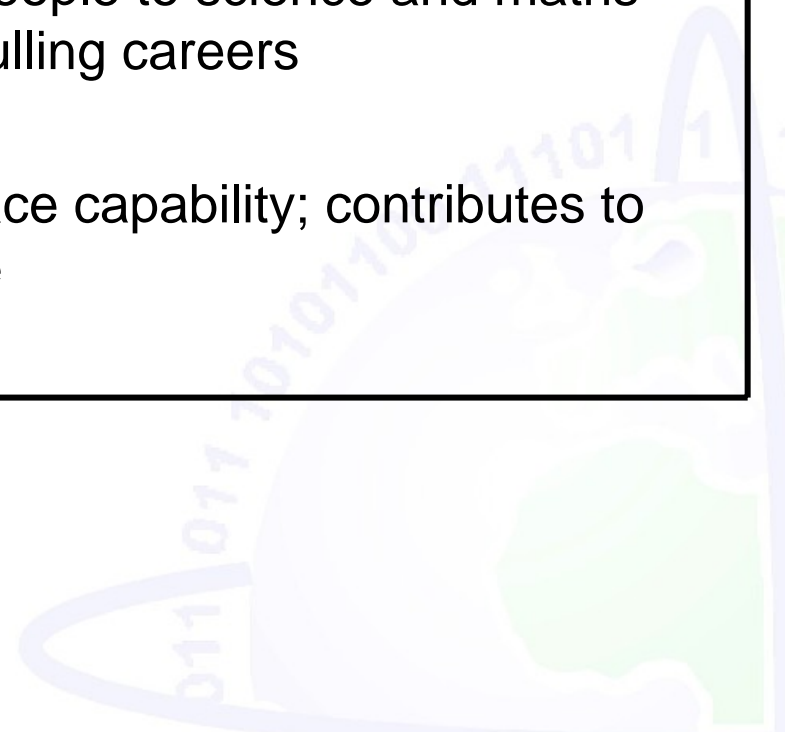
Why Space ?

Mzukisi Mazula



Why space in Developing Countries

Areas of Concern	Contribution of space technology
<p>Shortage of Technical Skills</p> <p>Brain-drain (Loss of top scientists & engineers to the developed world)</p>	<ul style="list-style-type: none">• High technology attracts & retains high quality engineers & scientists• Attracts young people to science and maths disciplines – fulfilling careers• Stimulates R&D• Independent space capability; contributes to world knowledge



Space in South Africa

- **2007 State of the Nation Address**

- To speed up the process of skills development
- To improve our export performance, focussing on services and manufactured goods
- To increase spending on scientific research and development

- **Human Capital Development**

- Raises science and technology manpower pyramid
- Positive impact on universities and industry
- A basis for scientific international interaction and collaboration

- **Access to independent decision making information**

- Can be achieved with turnkey satellite system or through own efforts to develop and build a satellite
- Decision making information allows increasing the economic return of traditional economic sectors

- **International diplomacy and collaboration**

- Benefit to other countries in case of disaster
- Contribute to a research “club”, like oceanography
- Initiate regional large scale resource management initiatives

Imaging Applications

Element	Application	Data Requirements
Fishing resources	Vessels position and identification determination	High spatial resolution and interrogation-communication
Water quality and levels	Agricultural infrastructure management and planning Disaster monitoring & management	High spatial for water body outline, and extra light-blue-green line for water quality
Ground water	Agricultural management and infrastructure planning	Medium spatial resolution for seepage line identification
Ground coverage	Agricultural, deforesting and urbanisation management	High spatial and multi-spectral resolution in more than 3 bands
Plant health	Plant stress monitoring	Green, red, red-edge and NIR bands needed

Sumbandila Image Expectation

Resolution:
GSD = 6.25m

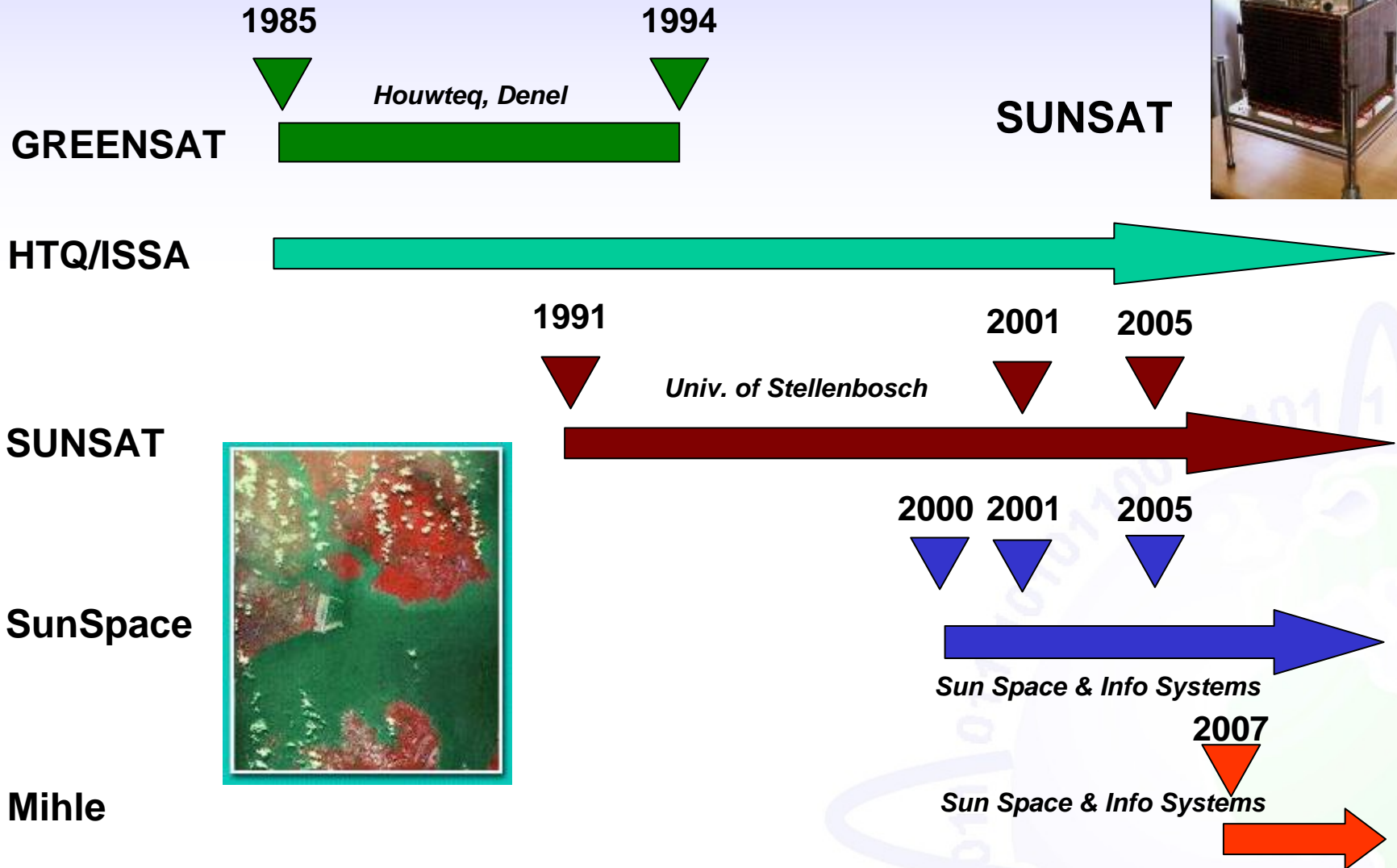
Size:
5.8 x 4.2 km

Full image:
45 x 45 km

Location:
Kayamandi &
Stellenbosch



South African Satellite Technology – 20 years

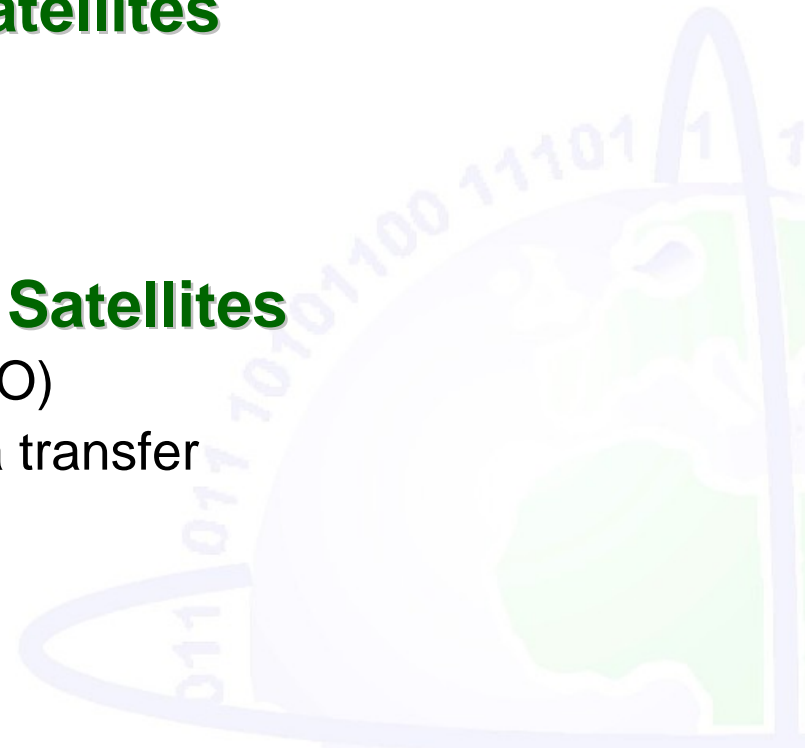


Space Law & Regulations

- ***South African Council for Space Affairs***
(Space Affairs Act No 64 of 1995)
- **South African Non-proliferation Council**
- **National Conventional Arms Control Committee (SA signatory to Wassenaar)**
- **Cabinet has approved the establishment of the SA Space Agency**
- **Internationally: ITU & UNCOPUOS (UN treaties) for frequencies and orbital slots applications and for non proliferation of space, respectively**

Types of Satellites

- **GEO-Stationary Satellites**
 - Communications
 - Space research
- **Medium Orbiting Satellites**
 - Astronomy
 - Space research
- **Low Earth Orbiting Satellites**
 - Earth Observation (EO)
 - Store & Forward data transfer



Satellite Data Market Review

- **Satellite data**

- Total Market estimated \$500M per annum (conservative)
- Very high resolution \$400M
- High resolution \$80M
- Medium resolution \$20M
- Replacing the aerial survey market

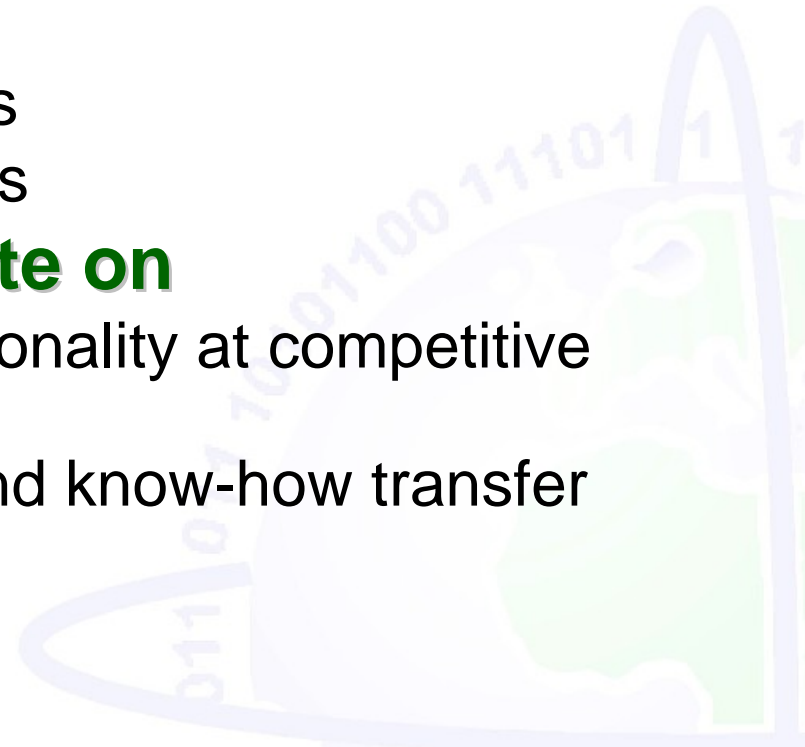
- **Where does Google earth fit in?**

- Popularised geospatial backdrop
- Utilises low value data for new business models



Future Satellite Market

- **Very high resolution national satellites**
 - Global demand from South America to Asia
- **Very high resolution data**
 - 90% of market in USA and middle east
- **Competition**
 - Existing large manufacturers
 - Small satellite manufacturers
- **South African differentiate on**
 - Can provide essential functionality at competitive price = innovation
 - Technology development and know-how transfer



Space Activities in Africa

#	COUNTRY	SPACE AGENCY	SPACE ACTIVITY
1	EGYPT	Space Science and Technology Research Council	<ul style="list-style-type: none"> •Owns and controls two telecoms satellites Nilesat 101&102, launched in 1998 &2000, respectively •Has an aggressive space program with the following collaborations (ESA, Russia, Canada, Ukraine, etc) •EgyptSat1 a scientific satellite & isscheduled for launched in Kazakhstan late in 2007
2	NIGERIA	National Space Research and Development Agency (NASRDA)	<ul style="list-style-type: none"> •NigeriaSat launched in September 2003 •Nigeria launched a Chinese built Geostationary Satellite (May2007) •Nigeria planning (LEO)NigeriaSat2 for 2008 •NASRDA currently building space facilities similar to SA(ISSA/Denel's Houwteq Facilities)
3	ALGERIA	Algerian Space Agency (ASAL)	<ul style="list-style-type: none"> •Alsat1launched in November 2002 •ASAL formally expressed interests in the partnering with SA Government and develop joint satellite programs •ASAL is planning AISat2A &B by 2008 •ASAL, also building space facilities

Human Capital Development in Space

Siyabonga Copiso



Human Development Strategy

JIPSA: Joint Initiative on Priority Skills Acquisition

- **JIPSA (2007) Report by Deputy President, Ms Phumzile Mlambo-Ngcuka:**
 - Shortage of Engineering skills are in high demand
 - SA produces 1400 engineers and in short f 1000 more students
- **Sunspace Initiative:**
 - Through support from DST & DOC, managed Internship
 - Engineering Training for Defense and Intelligence



Space Industry and ASGISA

- **ASGISA targets:**
 - Increase Gross Domestic Product (GDP) by 6%
 - Half unemployment and poverty by 2014
- **Intervention required:**
 - Establishment of SASA
 - Develop a space programme
 - Support for local industry
 - Jobs creation
 - HCD

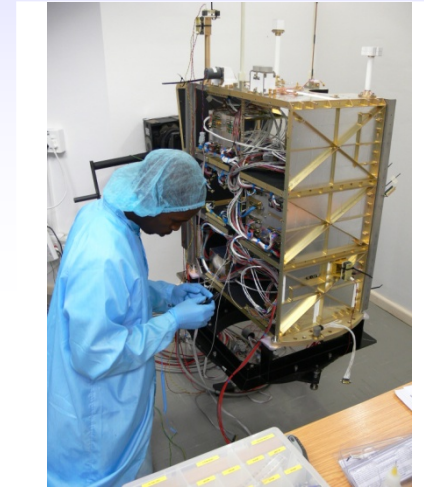


SunSpace & other role players in SA



Overview

- **Roots in SunSat**
- **80+ employees**
 - 50% Masters & PhDs (project staff)
 - Approx. 50 more involved as contractors
 - 9 engineering and science interns (DST, SAC and DOC sponsored)
- **Expertise**
 - Core of South African satellite expertise
 - Experienced Aerospace & Defence Engineers
- **Culture**
 - Strong sense of innovation
 - “Can do” attitude



Industry Participation in Sumbandila

Name of Company	Number of Employees
British American Tobacco	70
Calculus Products	35
Clip-Lok Sim-Pak SA	12
Comar International	23
Daliff Engineering	45
Denel Optronics	
Dowd Engravers	20
Flexi-Gear & Engineering	13
GCC U/S	12
ITM U/S	30
Sagex	400
SED U/S	4
SMD U/S	6
Tellumat	100
West Eng Supply Co	13

Name of Company	Number of Employees
Aeromec Engineering	40
Barry Stott Cases	3
C&C Tooling	3
CHg Engineering	7
Chromar	1
Elite Engineering	4
Fabrinox	50
GRP Tubing	11
Loci Laser Cut & Manufacturing	12
Proto Engineering	20
Stopak	200

Name of Company	Number of Employees
BJR	10
Clive Wire Cutting	3
Eikestad Bolt & Nut	3
ISSA	20
M&H Engineering	2
Metal Grapho	200
Multicam RSA	7
Pro-Bolt	3
Schuurmans	60
Somchem	
Strand Anodizing	2
Techni-Rig & Freight	10
Theo Marnewick Engineering	3
Topfast	8
West Beach Instrumentation	5

37.5 %

27.5 %



BEE: YES BEE: NO

Conclusion



Conclusion

- **SunSpace supports the establishment of SASA**
- **SunSpace supports the Human Capital Investments by Government (DST/DOC/DOD/DOI) through Internships & R&D activities in Universities and Industry**
- **Key to the success and sustainability of the Space industry in South Africa is**
 - Vision
 - HCD
 - R&D
 - Competitive industry
 - Partnerships/Joint Missions



Space - A Catalyst for Development

“There are some who question the relevance of space activities in a developing nation. To us, there is no ambiguity of purpose. We do not have the fantasy of competing with the economically advanced nations in the exploration of the moon or the planets or manned space-flight.”

"But we are convinced that if we are to play a meaningful role nationally, and in the community of nations, we must be second to none in the application of advanced technologies to the real problems of man and society.“

-Dr. Vikram A. Sarabhai, Father of India's Space Program

“Space can be an instrument of immense inspiration and I cannot overemphasise the impact that can be achieved for our young and very impressive engineers. The gender composition of this group is of great significance in a world where gender bias is so pervasive.”

- Mr Themba G Vilakazi, Chairperson of the Mihle Consortium

THANK YOU!!!

SunSpace Headquarters in Tegnopark, Stellenbosch

