

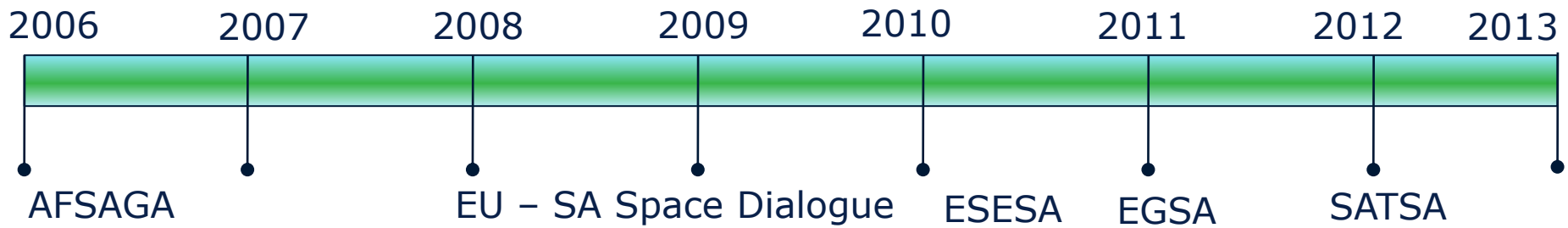


Skills development for Satellite Navigation in South Africa

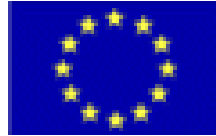
E Avenant

Outline

- Past activities in Navigation
 - Roadmap for Satellite navigation in RSA
 - Past skills development activities
 - Aspects of Satellite Navigation skills set
 - Application space
 - Outflow from Roadmap
 - Future collaborations
- 



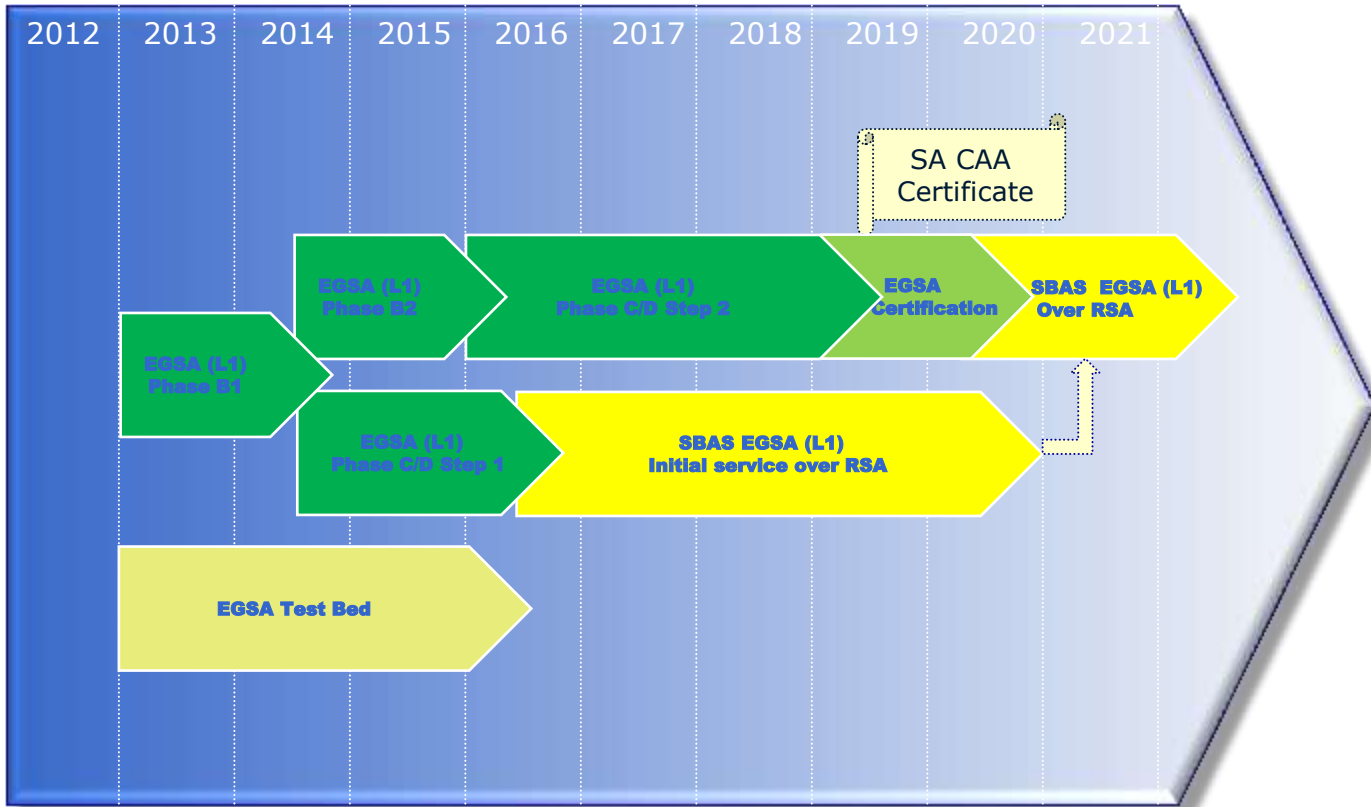
AFSAGA



- January 2009 Initial EU-SA Space Dialogue South Africa
- April 2009 Windhoek EU Aviation conference
- Brussels 2009: Initial performance requirements
- February 2010 ESESA (Egnos service extension to South Africa) Starts
- July 2010 Joint Program Office, SANSA Establishment
- 30 Nov 2011 ESESA ends
- February 2012: Kick-off of SATSA HCD FP7 project
- Joint Statement signed by EC VP Tajani and RSA Minister Naledi Pandor on 21st March 2012
- July 2012 EU-SA Space Dialogue meeting: Task force established
- January 2013 Task Force Document
- February 2013 GLUG workshop
- September 2013 SATSA Ends(Final Dissemination event)



Roadmap for establishing SBAS in RSA



SOUTH AFRICAN



CIVIL AVIATION
AUTHORITY



Past Skills development activities

- ESESA
 - Application workshops in Aviation and Logistics
- SATSA



SATSA



- **SATSA Objectives**
 - “SBAS Capacity Building in South Africa”
 - Training Sessions
 - Working Sessions
 - Trials Sessions
- **“SBAS Way Forward Creation in South Africa”**
 - Consolidation of a roadmap
- **“Promotion of the use of EGNOS, EDAS and Galileo in South Africa”**
 - Use of the EGNOS and Galileo technologies during the training and trials (when available) sessions.

SBAS Training Activities



TWS1

GNSS & SBAS Basics
May'2012 in SA

TWS2

SBAS Engineering aspect for SA
July'2012 in SA

TWS3

SBAS for Aviation
September'2012 in SA

TWS4

SBAS Operations and Service
Provision
November'2012 in EU (Madrid)



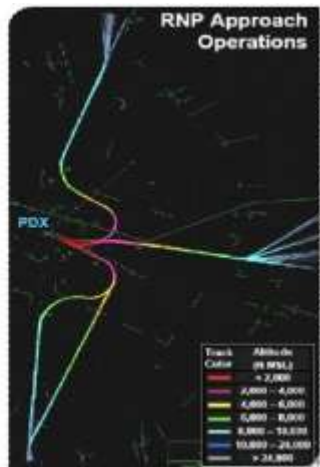
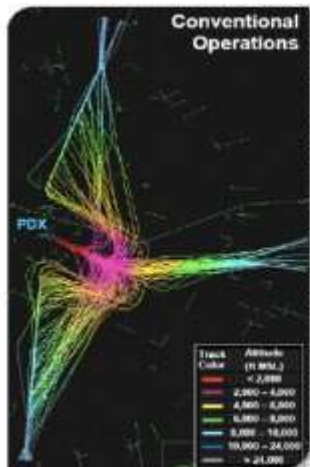
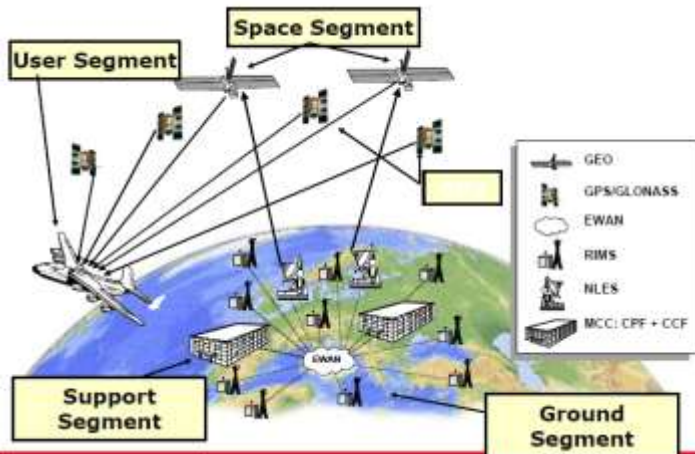
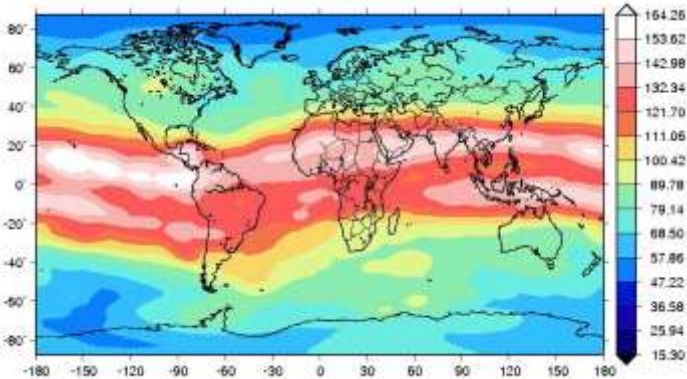
Trials

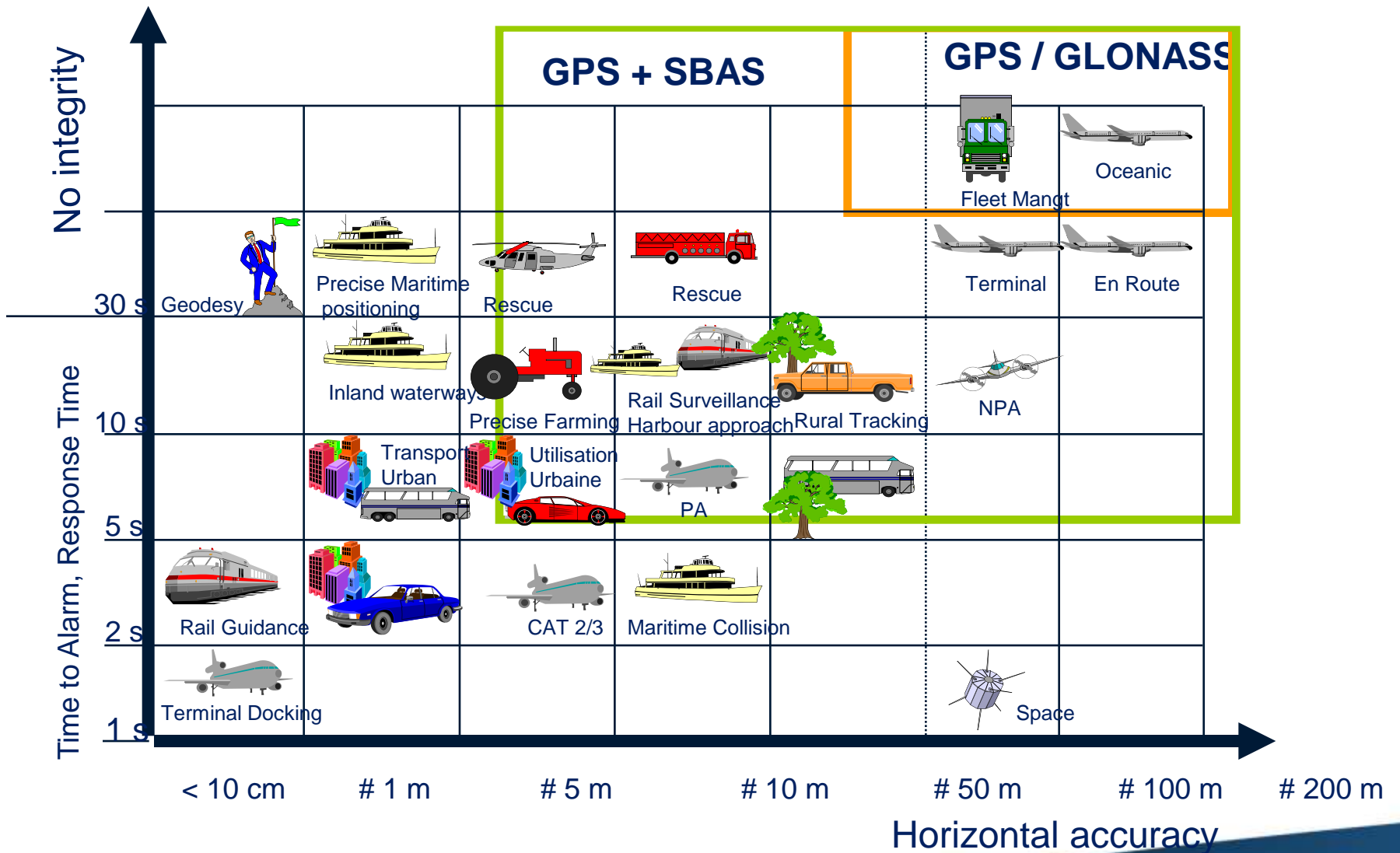
- Trial 1: Precision Agriculture
 - Heilderberg WC
 - 26-28 February 2013
 - Improved accuracy for repeatability for passes for tractors
- Trial 2: Vehicle Logistics
 - Gauteng
 - 4 and 5 March 2013
 - Improved distance measurement for logistics and insurance environment
- Trial 3: GIS
 - Kruger National Park
 - 6-8 March 2013
 - Use of COTS receivers to gather groundtruthing tie points



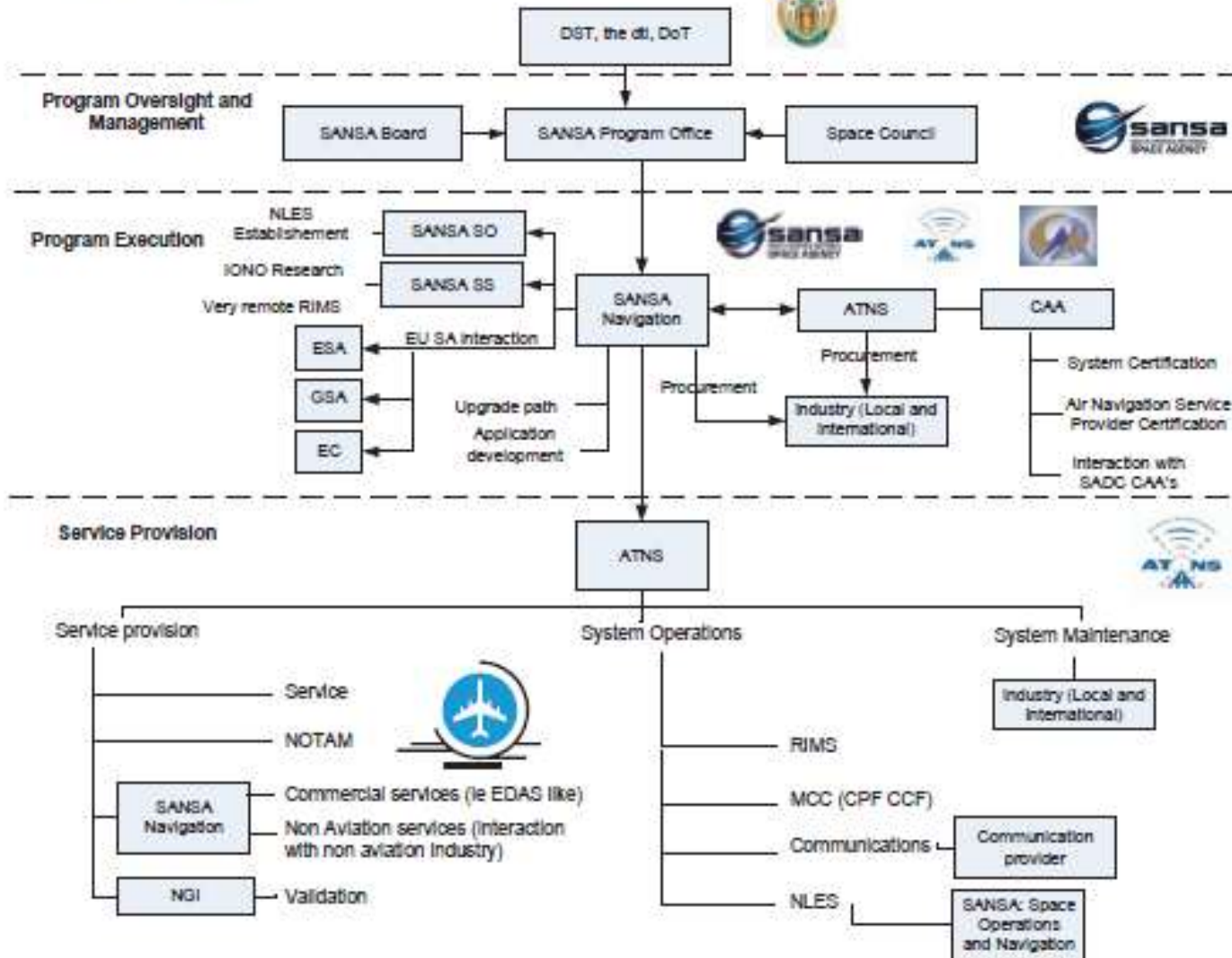
Aspects of Satellite Navigation Skills set

- Research
 - Physics
- Development
 - Engineering
 - Safety
- Operations
 - Engineering
 - Legal
 - Safety
- Applications
 - Application domain specific knowledge
 - Aviation
 - Agriculture
 - Logistics





Political Oversight



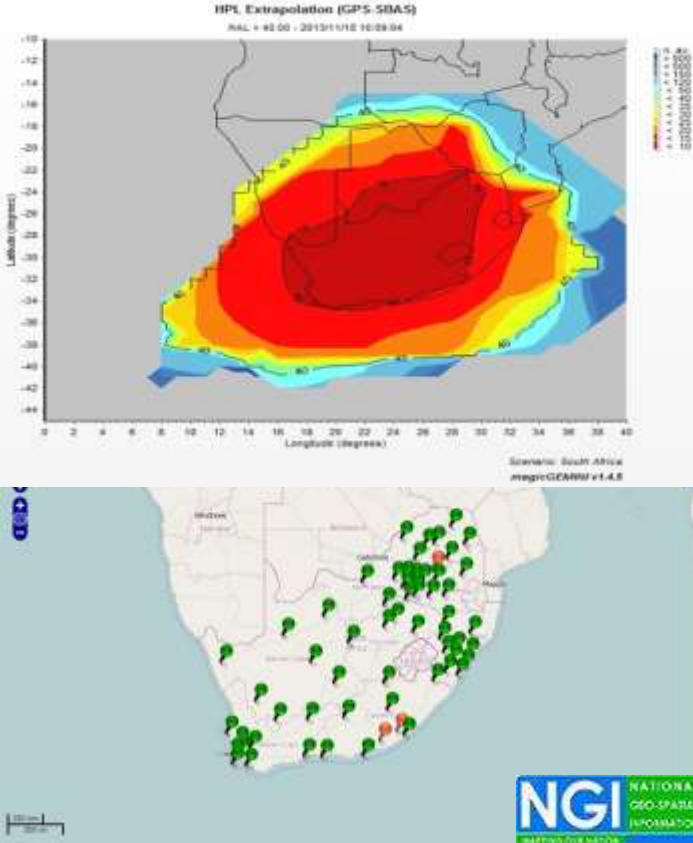
Institutions for skills development

- **Academia**
 - Fragmented
 - Aspects at most HEI
 - No specific curricula
 - Review required
- **Institutional: SANSA Space Operations**
 - Outreach
 - Internships
 - Bursaries
- **Industry: ATNS**
 - PBN in RSA
 - Procedure design
 - Certification
 - Operations and Maintenance
 - ATNS Training school



Outflow from Roadmap

- TESTBED opportunities:
 - Research
 - Training platform
 - Demonstration
 - Phase B study elements:
 - Communications
 - Uplink
 - Rims density and location
 - Algorithms



Future Activities

- Collaboration in H2020
- Euro Africa level cooperation:
 - SAFIR
- ESNC
 - Application level development with industry focus

THANK YOU

