



# SBAS-ASECNA Programme

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Session 4 : Regional projects in Air Navigation

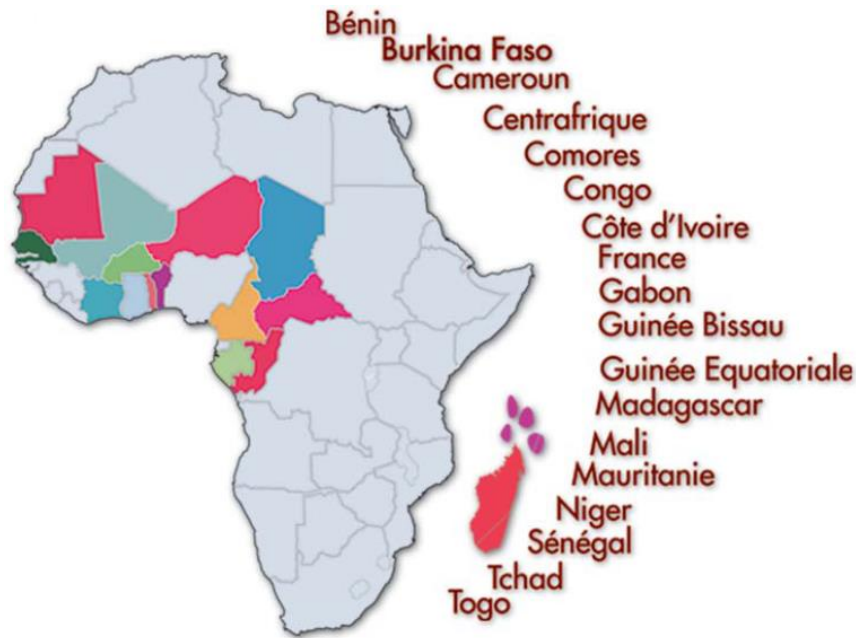
# ASECNA at a glance



Agency for Air Navigation  
Safety in Africa  
and Madagascar



Benin, Burkina Faso, Cameroun, Centrafrique, Congo, Côte d'Ivoire, France, Gabon, Guinée Bissau, Guinée Equatoriale, Madagascar, Mali, Mauritanie, Niger, Sénégal, Tchad, Togo, Union des Comores



Cooperative management of a Single Sky of 16,1 millions km<sup>2</sup>  
(1,5 \* Europe)

# Policy background



**Africa-EU Strategic Partnership:  
a widespread multilateral political support to  
satellite navigation in Africa**

- ‘Roadmap 2014-2017’ adopted by African & EU Heads of State at the 4th Africa-EU Summit (April 2014) - Commitment to provide sustainable and adequate financial and human resources [...] for the deployment EGNOS in Africa



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## **ASECNA Member States:**

**A strong commitment to introduce EGNOS/GALILEO  
-based satellite navigation services**

- Resolutions n°2005 CM 44-11 and 2011 CA 120-18
- Mandate of the Director General



# Policy background

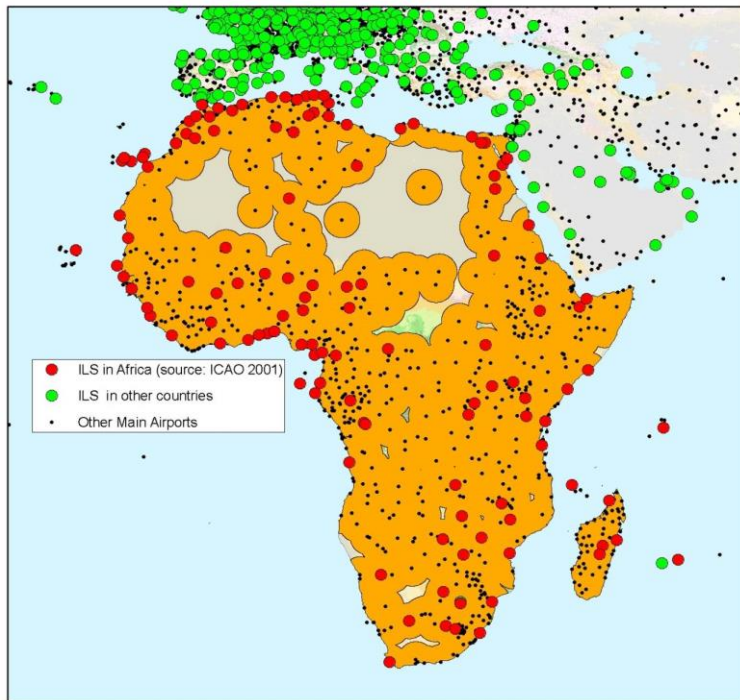


## **African Union Space Policy and Strategy: Policy drivers for African Space programmes towards social, political and economic integration**

### **Navigation and positioning**

- Development of indigenous continental level navigation augmentation system
- Building on existing infrastructure such as ASECNA

# Operational needs



## Safety lessons learned

37% of Africa is 250 km from ILS equipped airport (14% of runways ends):

- main international airports
- only one runway end

87% of Africa is 250 km from a main or regional airport

IATA forecasting 2013-17 CAGR : 5,3%

LNAV/VNAV (Baro) (short-term)  
LPV/LP (SBAS) (medium-term)

**Need for RNP APCH APV**

**SBAS-ASECNA services**

# Strategic objectives

- **Strategic vision**
  - Prepare the future
  - Strengthen the positioning of the Agency as an added-value services provider
- **Directions:**
  - Ownership of the SBAS infrastructure
  - Control and provision of Signal in Space (SiS)
  - Autonomous provision of SBAS services to end users
- **Service provision objectives:**
  - **Step 1:** Early SBAS services (LPV, L1) by 2019/20
  - **Step 2:** Full SBAS services (LPV, DFMC) by 2023 onwards



# Towards early services

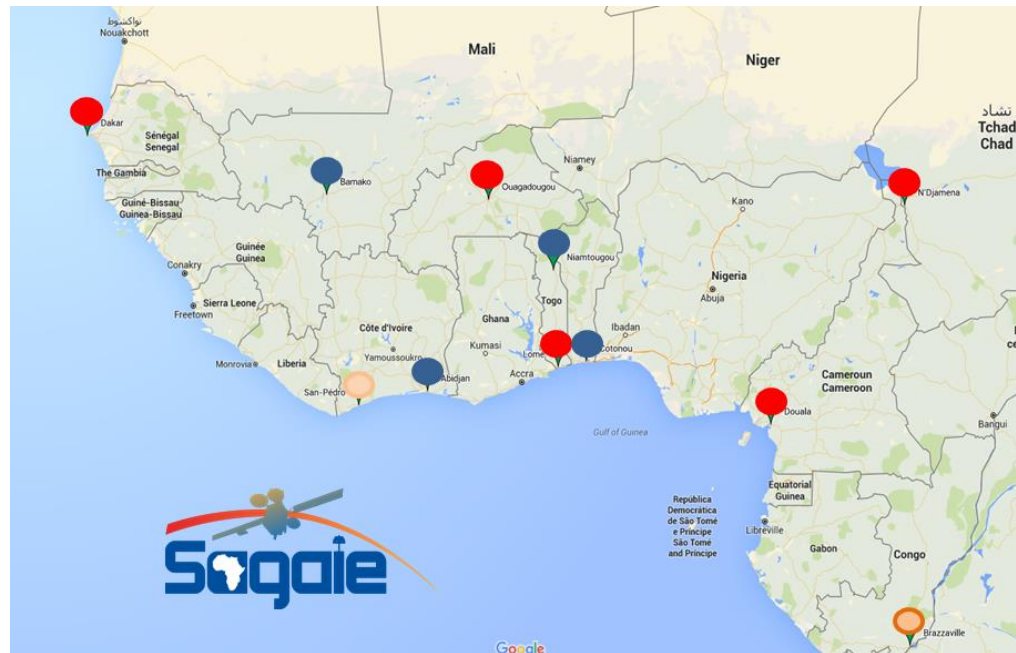


- **Ionosphere characterisation: SAGAIE (2013-on-going)**
  - Following-up the first feasibility study performed in 2011 with CNES
  - Deployment & exploitation of a network of GNSS stations in ASECNA
  - Collection of GNSS raw data for ionospheric studies, to improve knowledge on equatorial ionosphere in order to optimise EGNOS model for SBAS-ASECNA system

Joint initiative:



complemented by



# Towards early services

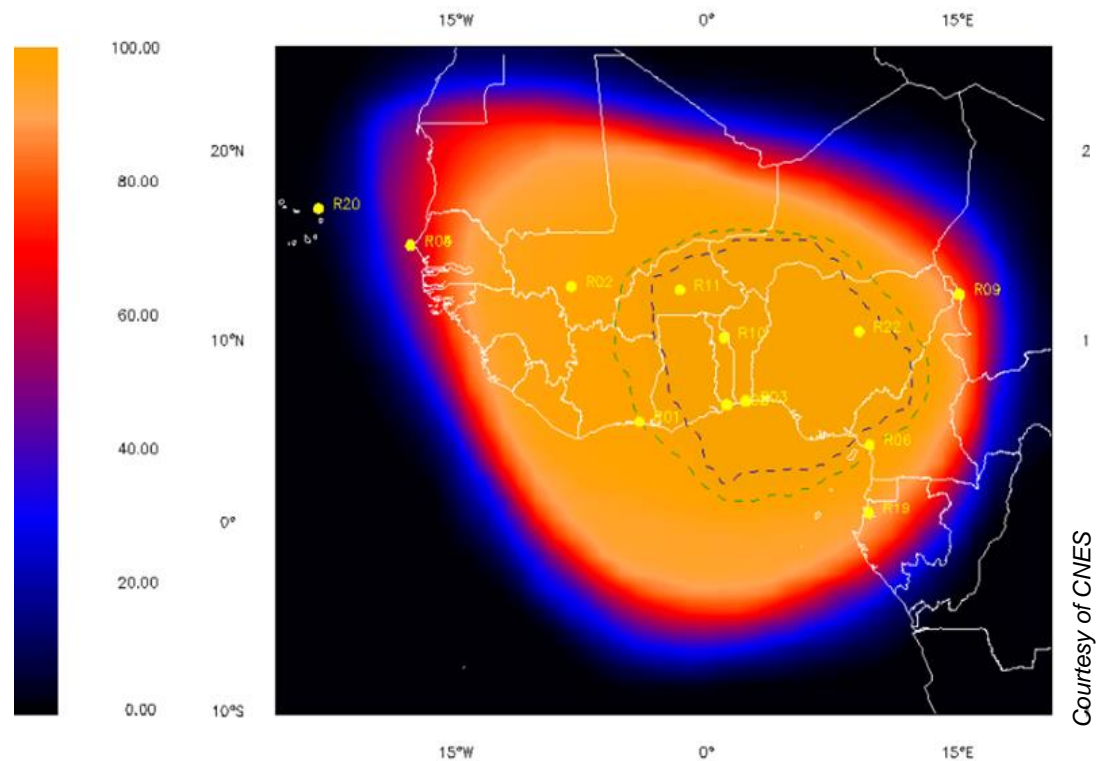


- Ionospheric studies => dedicated iono algorithm => performance assessment

**APV-1  
availability**

**11/10/2015  
(24h)**

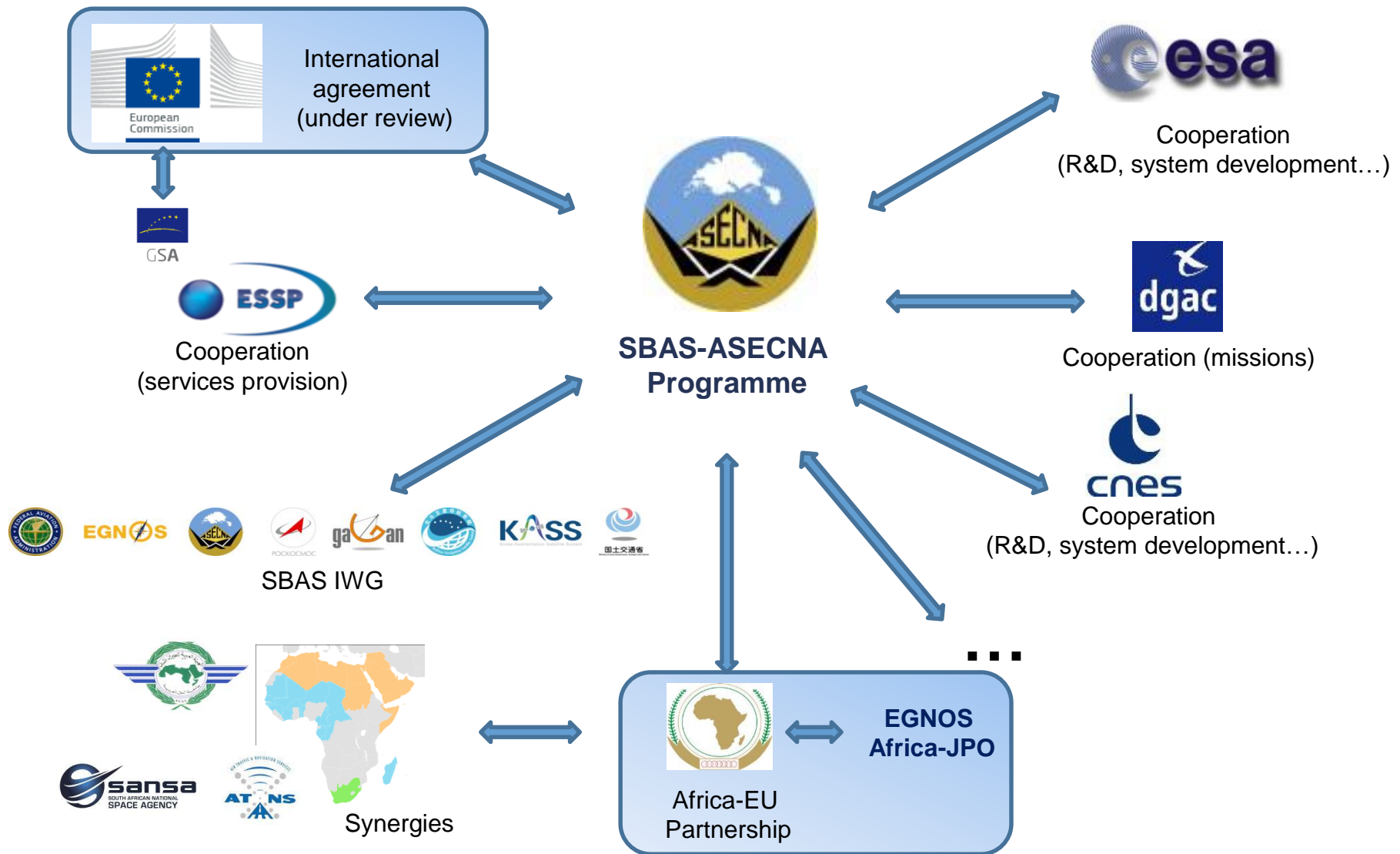
**(high iono  
activity)**



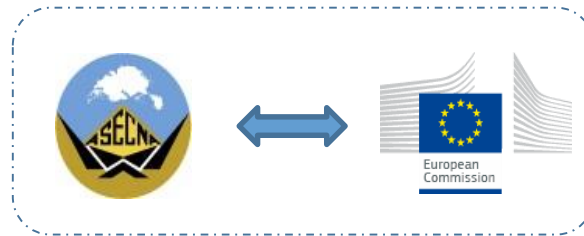
- Important progress towards the resolution of the high ionosphere activity issue for SBAS L1 service in equatorial area !



# Institutional ecosystem for international cooperation



# ASECNA-EU international agreement



- To lay down the terms and conditions for the provision of SBAS services, based on EGNOS, in the ASECNA area
- As per the Regulation (EU) 1285/2013 and the resolution n°2011 CA 120-18 of ASECNA Member States
- Opening of negotiations authorised by the Council of EU (Competitiveness Council, 25-26 September 2014)
- Negotiations launched on March 2015 in Dakar, very satisfactory progress, main phase completed on April 2016 in Dakar
- Draft of agreement under review within the EU institutional system

# EGNOS-Africa Joint Programme Office

## Pan-African entity to coordinate and support harmonised SBAS/EGNOS development and services provision in Africa

- Implementing measure of the Africa-EU Strategic Partnership
- Pan-Africa team of experts based in Dakar, Senegal
- Phase 2016-17 (funded by EU and ASECNA): to accelerate the adoption of SBAS/EGNOS in Africa
- Regional modular approach foreseen:
  - Northern (**M1**),
  - West-Central (**M2**),
  - Eastern Africa(**M3**),
  - Southern (**M4**)
- Status: on-going consultations with RECs for the creation of modules



# THANK YOU FOR YOUR ATTENTION

