

# DEVELOPMENT AND SUSTAINABILITY OF NIGNET

## NIGERIAN GNSS NETWORK AND THE RELATION WITH AFREF

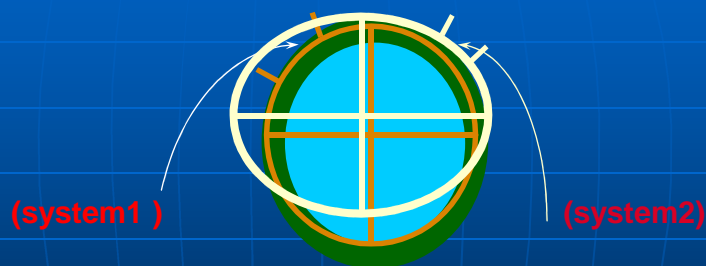


**SURV. U.R. EDOZIE**  
**SURV. A.A. ADEBOMEHIN**



## Problem of classical systems

- Each country has its own geodetic reference system



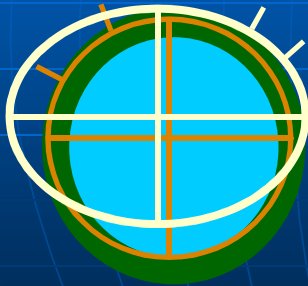
- Mismatch at the national boundaries



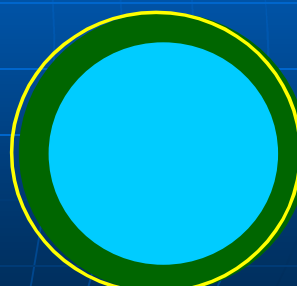
## Solution

- Move from National Reference Systems to Regional or Global Reference Systems

National Systems



Global Systems



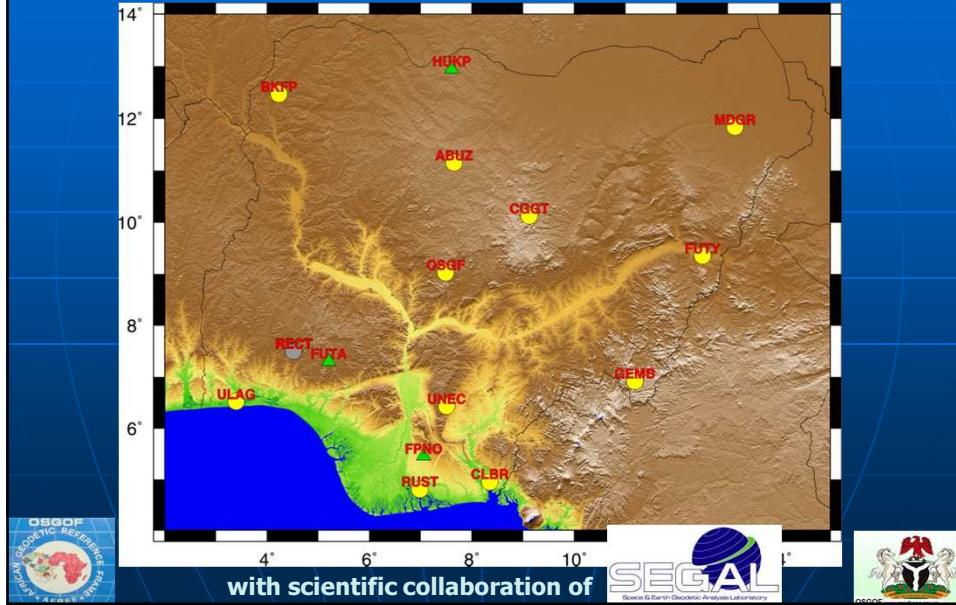
## Objectives of NIGNET

- Adoption of a modern geodetic infrastructure full compatible with the actual techniques of georeferencing.
- Low quality of the existing network based in observations carried out using old techniques.
- Lack of geodetic beacons with known coordinates in some areas of the country (destroyed or never implemented).
- Compatibility with the reference frames of neighbouring countries through the collaboration with international projects, namely AFREF and IGS.

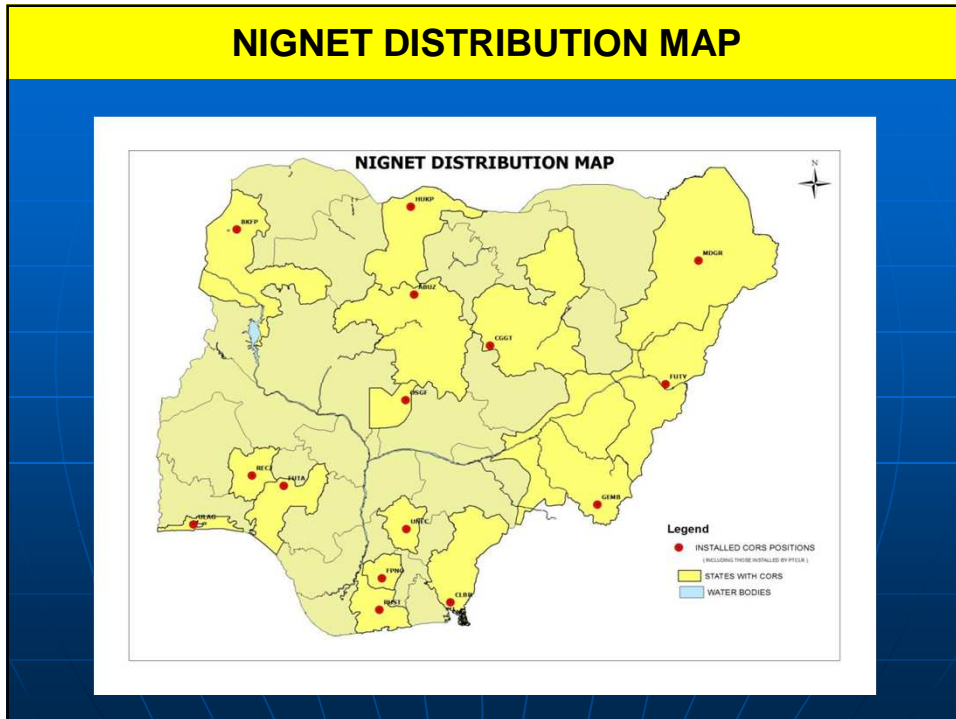


# CURRENT STATUS

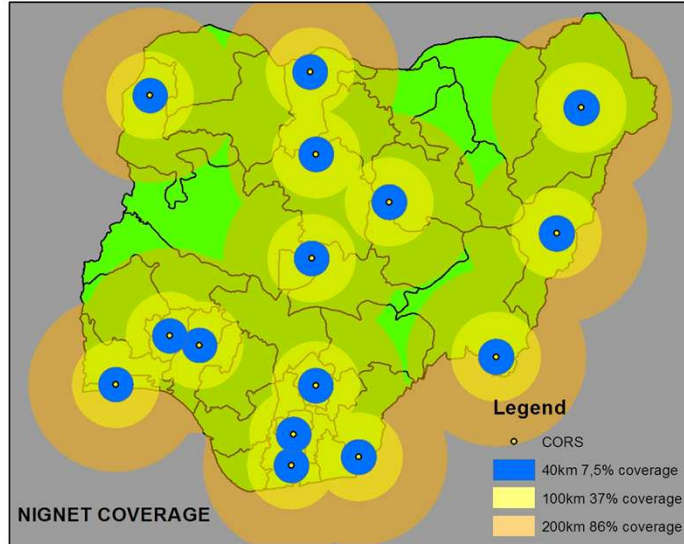
## 15 (NIGNET COR STATIONS)



# NIGNET DISTRIBUTION MAP



## NIGNET DISTRIBUTION MAP



## OSGF (Abuja)





## BKFP (Birnin Kebbi)



## CGGT (Toro)



## FPNO (Owerri)



## RECT (RECTAS – Ile-Ife)



<http://www.nignet.net>

**Monitoring NIGNET GNSS Network**

OSGoF (Office of Surveyor General of Federation) is currently active establishing NIGNET (Nigerian GNSS Reference Network). This network, formed by state-of-art CORS (Continuously Operating Reference Station) GNSS (Global Navigation Satellite Systems) equipments, intends to implement the new fiducial geodetic network of Nigeria.

NIGNET will serve many different applications at national and continental level. In fact, the first motivation to implement NIGNET is to also contribute for the AFREF (African Reference Frame) project - <http://geoinfo.uneca.org/afref/>. At national level, NIGNET will serve primarily as the fiducial network that will define and materialize a new reference fully consistent with the modern space-geodetic techniques for Geodesy and Surveying.

[Network live status available here for authorized users](#)  
[Public data available here.](#)

OSGoF  
NIGERIAN GEODETIC REFERENCE FRAME  
AFREF

SEGAL  
SOUTH AFRICAN GEODETIC REFERENCE FRAME

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## Data Holdings (daily updated)

**Data available at UNEC**

[Back to network status](#)

2011 2012 **2013**

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
Jan	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
Feb	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
Mar	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
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Dec	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green

Number of days of data present: 124  
Number of days of missing data: 2

OSGoF  
NIGERIAN GEODETIC REFERENCE FRAME  
AFREF

SEGAL  
SOUTH AFRICAN GEODETIC REFERENCE FRAME

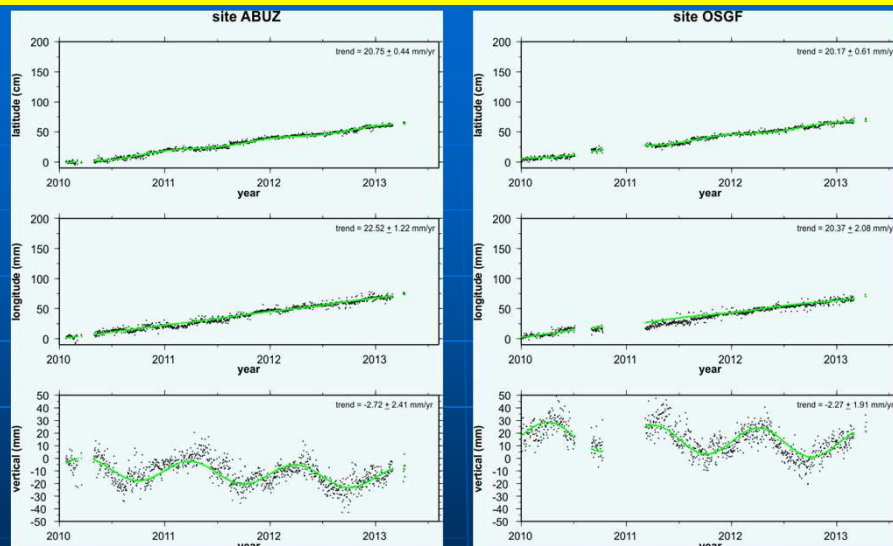
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## DATA PROCESSING/CONTROL CENTRE

- The data processing/control centre is housed in the Office of the Surveyor General of the Federation.
- Data streaming, quality control and processing is going on in OSGOF.
- Data can be accessed via [www.nignet.net](http://www.nignet.net).



## Quality Control Monitoring



with scientific collaboration of





## ABUJA DATA PROCESSING/CONTROL CENTRE

- Data server (4TB) – Backup on Cloud
- Internet facilities.



## FUTURE DENSIFICATION

MAP OF NIGERIA SHOWING INSTALLED CORS AND PROPOSED CORS LOCATIONS



## CONCLUSIONS

- Ability to provide reliable data for effective decision making leads to a dramatic growth in the development of GIS.
- The GNSS Technology should be embraced and used for effective decision making by turning the volume of spatial data into useful information.
- This would be achieved by:
  - ✓ Proper coordination
  - ✓ Proper maintenance
  - ✓ Encouraging other users participations
  - ✓ Management systems.



THANK YOU

