Philippine Active Geodetic Network

Its application to surveying and mapping

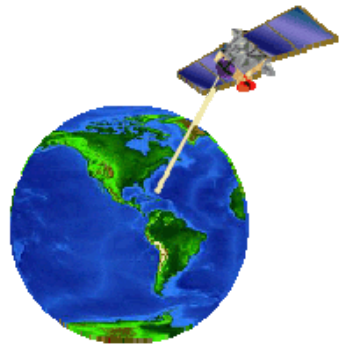
United Nations International meeting on the Applications of Global Navigation Satellite System

Vienna, Austria

12-16 December 2011

Presentation Outline

- Background and Objectives
- Establishment of the Stations
- Current Users and applications
- International Cooperation

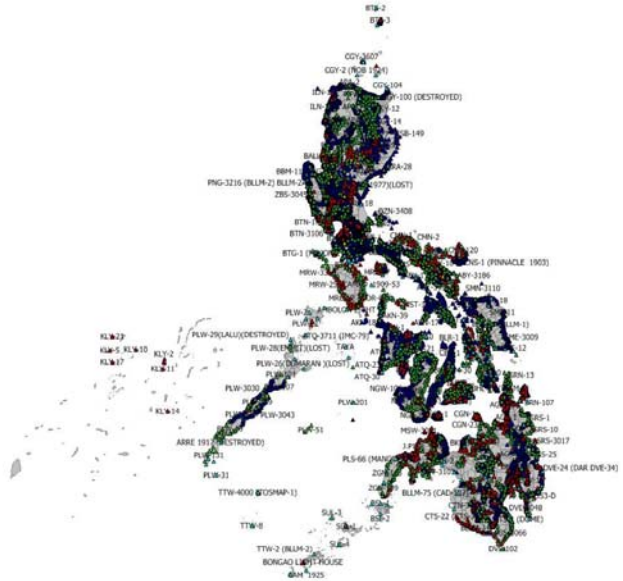


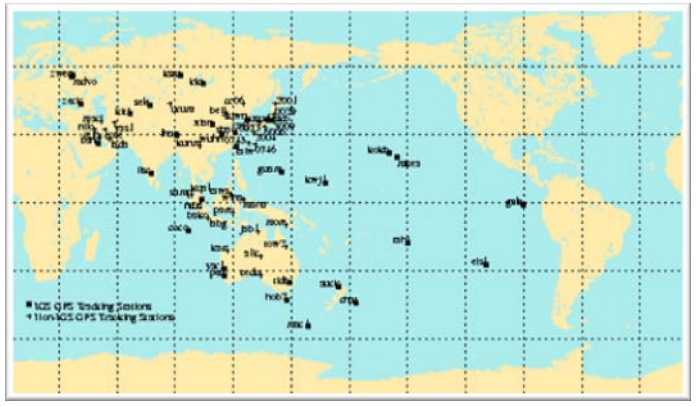
Background

- NAMRIA is mandated to establish and maintain the national geodetic network, the reference for all surveys and maps in the country
- The Agency is spearheading the nationwide implementation of Executive Order No. 45, as amended, which mandates the adoption of the Philippine Reference System of 1992 (PRS92) as the standard reference system for all surveying and mapping in the country
- The establishment of the Philippine Active Geodetic Network (PageNet) is part of the Geodetic Network Development Component of the PRS92 Project.

Objectives

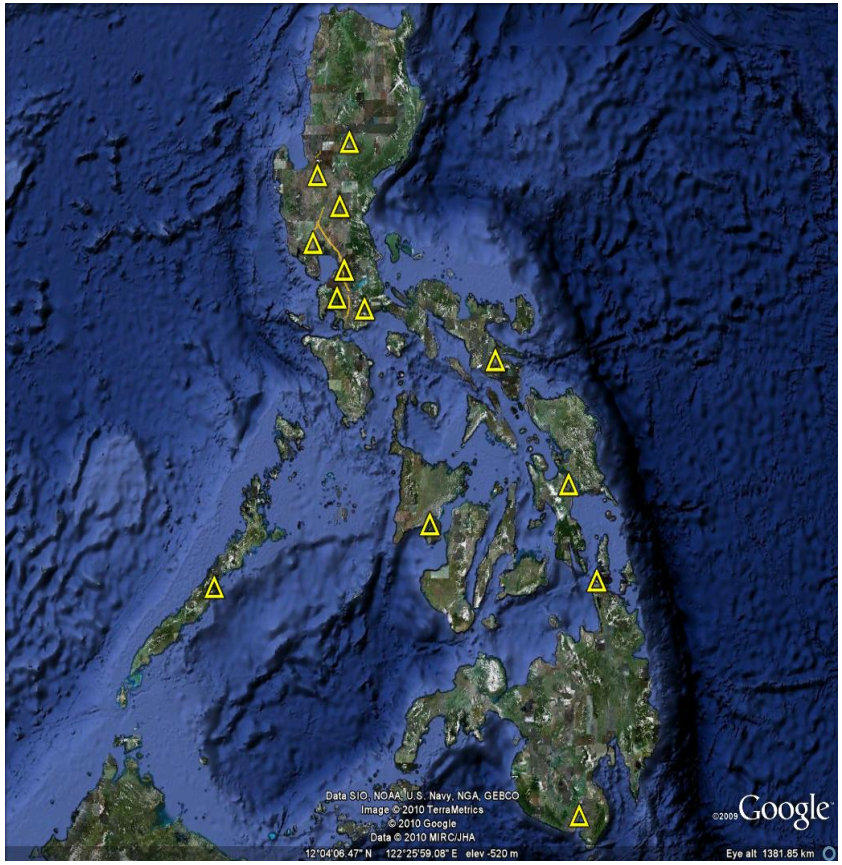
- To support the Densification of Geodetic Control Points and all types of survey in the country.
- To improve linkages among and between surveying and mapping communities both local and abroad.
- To tie the National Geodetic Network to the International Terrestrial Reference Frame (ITRF)





Establishment of stations

- To date: Thirteen (13) stations have been established since 2007
- These network of permanently-installed, continuously operating geodetic stations provide real time, high precision geographic position data via the internet. It is designed to support a broad spectrum of post-processed and real time GNSS positioning techniques and applications.



Establishment of stations

PageNET

Active Geodetic Stations

Each AGS is equipped with a geodetic grade GNSS receiver and antenna, supplementary sensors (meteorological and tilt), router, uninterrupted power supply (UPS) system, back-up battery, and lightning arrestor.

Data and Control Center

Serves as the AGN's Information Communication Technology (ICT) facility for online data processing, network monitoring, as well as data storage and distribution.

Establishment of stations

PTAG
NAMRIA Office

PTGY
TAGAYTAY

PURD
URDANETA

PCAB
CABANATUAN

PCAN
CANDELARIA

PFLO
FLORIDA BLANCA

Establishment of stations

PILC

(Iloilo City, Iloilo)

PSUR

(Surigao City, Surigao del Norte)

PTAC

(Tacloban City, Leyte)

PGEN

(General Santos City)

Establishment of stations

PBAY*
(Bayombong, Nueva Vizcaya)

PLEG*
(Legazpi City, Albay)

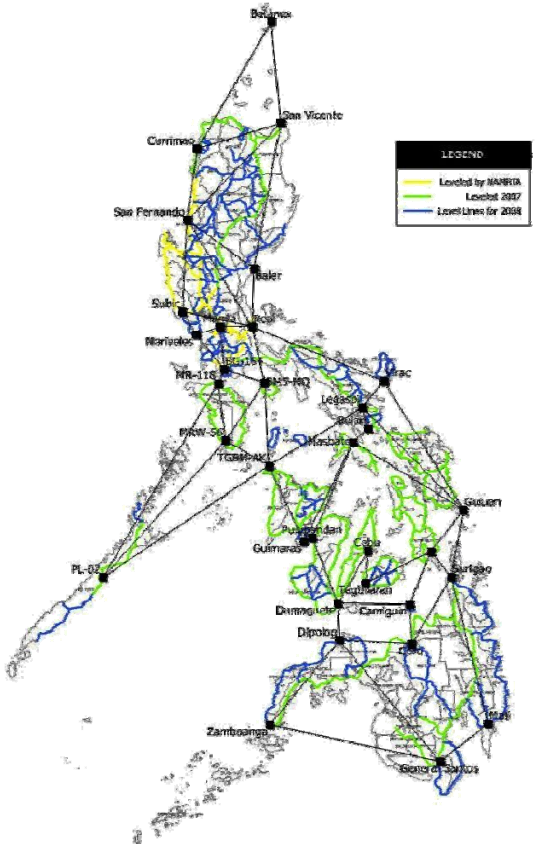
PPPC
(Puerto Princesa City, Palawan)

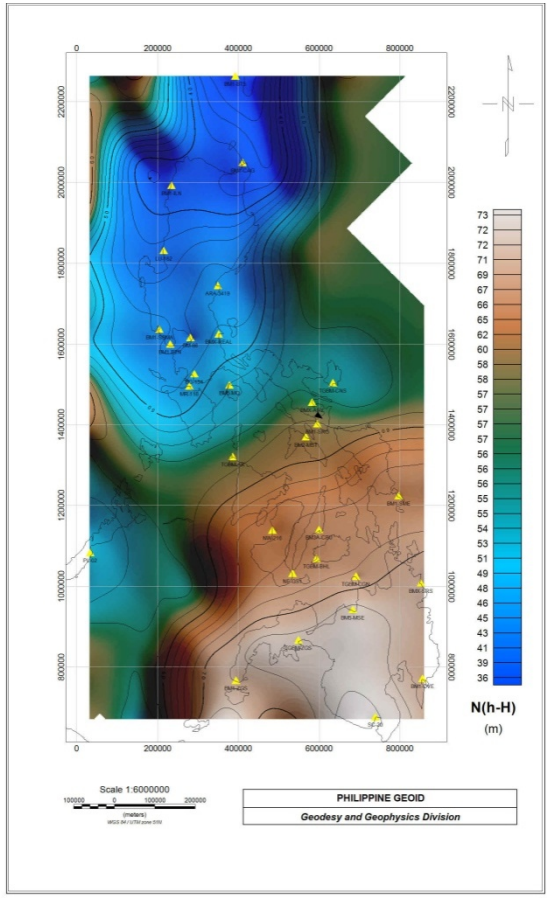
**All stations are currently connected to the DCC through leased/wireless internet connection except for PBAY and PLEG. Application of internet connection for the said stations are on-going.*

***All stations are working and continuously logging GNSS data.*

Current Users and applications

❑ NAMRIA

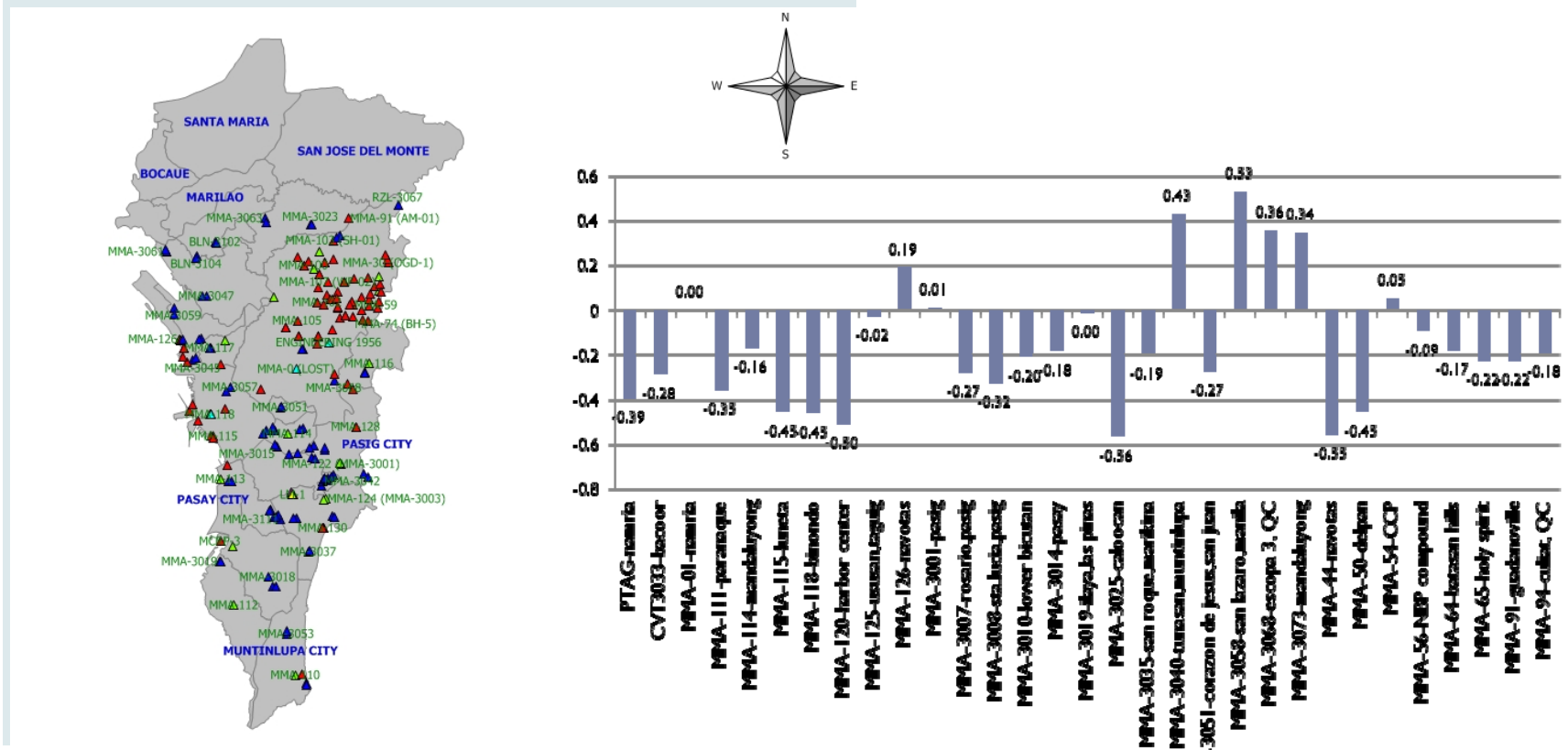




ZERO Order Network Observation and Inter- Island Benchmark connections

Current Users and applications

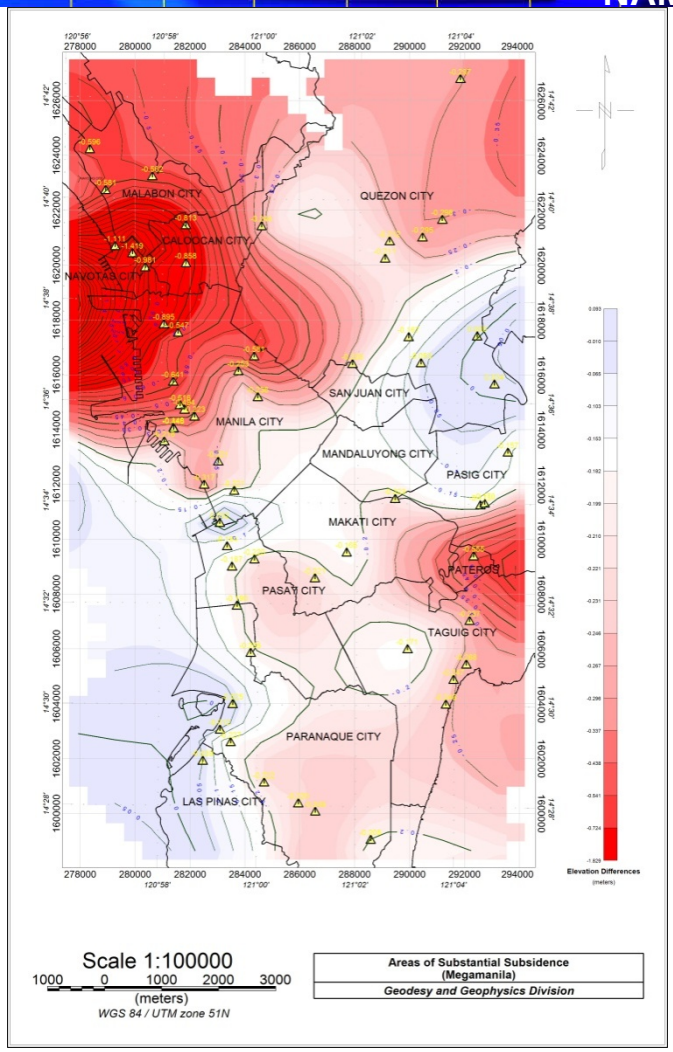
❑ NAMRIA



Ground Subsidence Study in Metro Manila Area

Current Users and applications

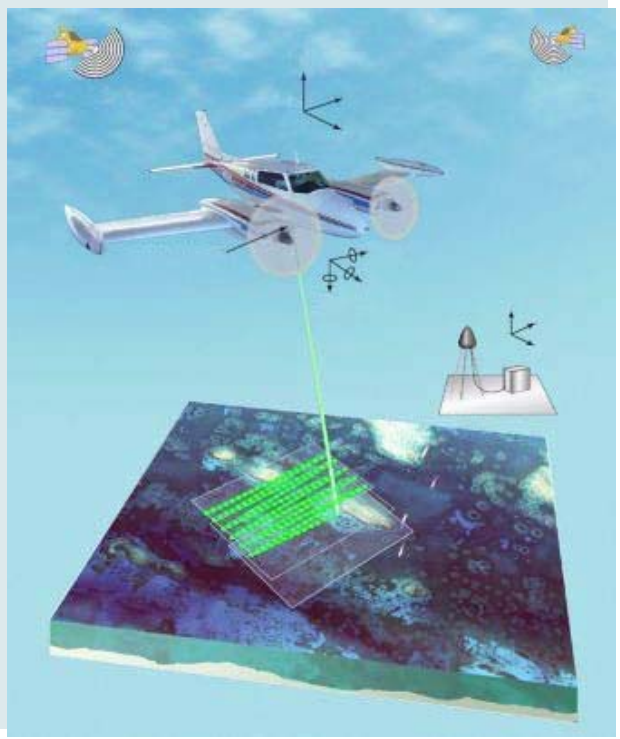
- **NAMRIA**



Ground Subsidence Study in Metro Manila Area

Current Users and applications

- **AEROMETREX and GEODATA**

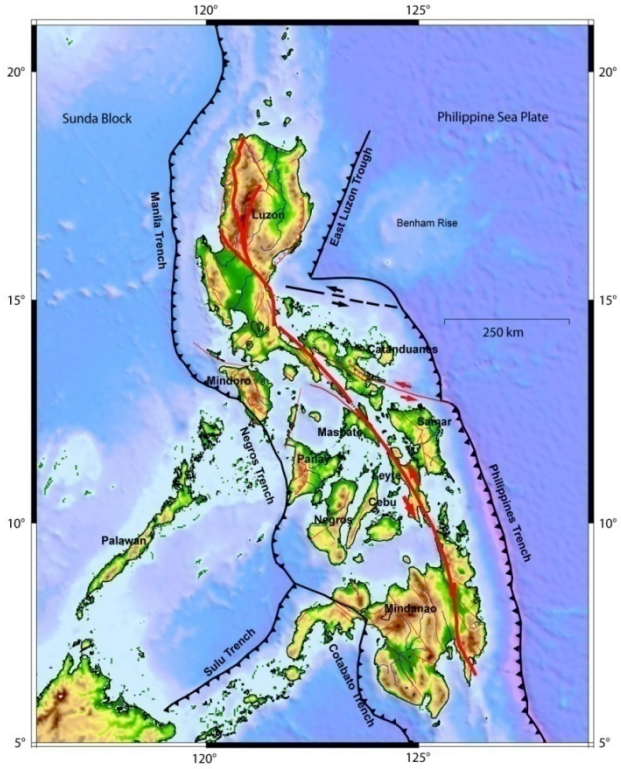


Calibration of aerial camera

GIS mapping

Current Users and applications

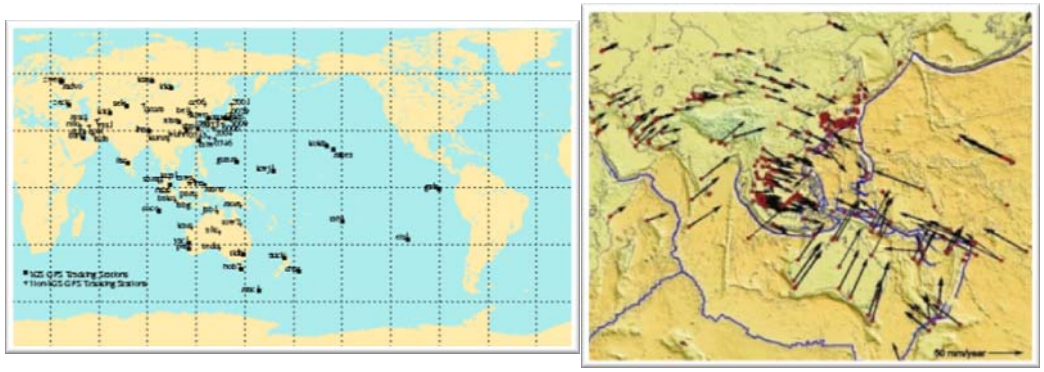
- **Vulcanology Institute**



Active Crustal Structures

International Cooperation

- **We have always joined the APRGP Campaigns and lately the APREF**



Asia and the Pacific Regional Geodesy Project
(Permanent Committee for GIS Infrastructure for Asia and the Pacific)

- *Establish station coordinates and velocities in an international reference frame*
- *Establish problems caused by tectonic movements*
- *Establish a regional horizontal and vertical datum and develop transformation parameters between each local system and the regional datum*

Asia-Pacific Reference Frame Project

Aims to create and maintain an accurate and densely realized geodetic framework, based on continuous observation and analysis of GNSS data

International Cooperation

- **Asia-Pacific Reference Frame (APREF) Project**

NAMRIA has joined in the APREF Project in October 2010. Four of the PageNET stations (PTAG, PILC, PPPC, and PGEN) contributed data to the APREF.

- **Asia and the Pacific Regional Geodesy Project (APRGP)**

NAMRIA has always been participating in the APRGP Campaigns. Seven of the PageNet stations (PCAB,PFLO,PGEN,PTAC,PTAG,PTGY,PURD) has been contributing data to the APRGP.

- **International GNSS Service (IGS)**

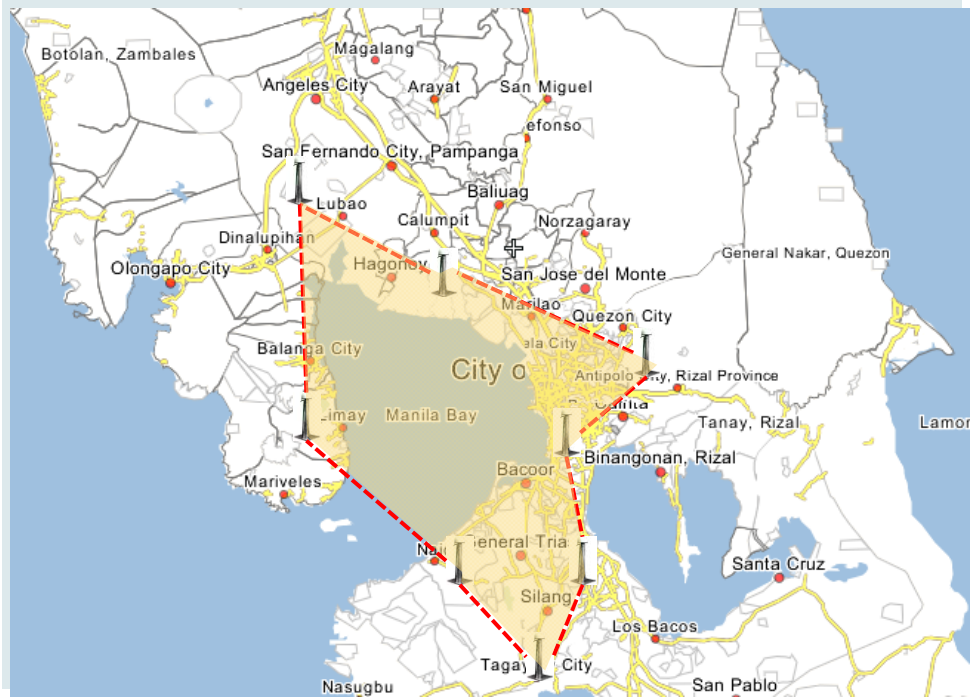
PageNet station PTAG has been inducted to the IGS network on April 2010.

- **Quasi-Zenith Satellite System (QZSS)**

NAMRIA agreed to host a site for the monitoring Network of QZSS of the Japan Aerospace Exploration Agency (JAXA). The proposed location is collocated with station PTAG in Manila.

Next Steps

- Densification of the network for complete network-RTK coverage in urban areas.
- Capacity building for NAMRIA personnel
- Promote the use of the PageNet in the country
- Continued cooperation with international and regional projects
- Research and development



THANK YOU