STRATEGIC SURVEY PLANNING AND ACQUISITION OF AERIAL LIDAR DATA IN THE TROPICAL ARCHIPELAGO IN THE PHILIPPINES

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Recovery from disaster

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The geographic and geological setting of the Philippines (in the Pacific Ring of Fire) make it prone to various hazards.

- Three of deadliest typhoons occurred the past years:
  - Dec 2011 – TS Washi – 1,268
  - Dec 2012 – TY Bopha – 1,901
  - Nov 2013 – TY Haiyan – 6,300

Disaster Risk Exposure and Assessment for Mitigation (DREAM) Program

to produce an up-to-date and detailed national elevation dataset suitable for *1:5,000* mapping, with *50cm* and *20cm* horizontal and vertical accuracies thru the use of light detection and ranging (LiDAR) technology

Pegasus Sensor

Operable flying ht	PRF	Scan Angle
5000m	500 kHz	75 degree

Gemini Sensor

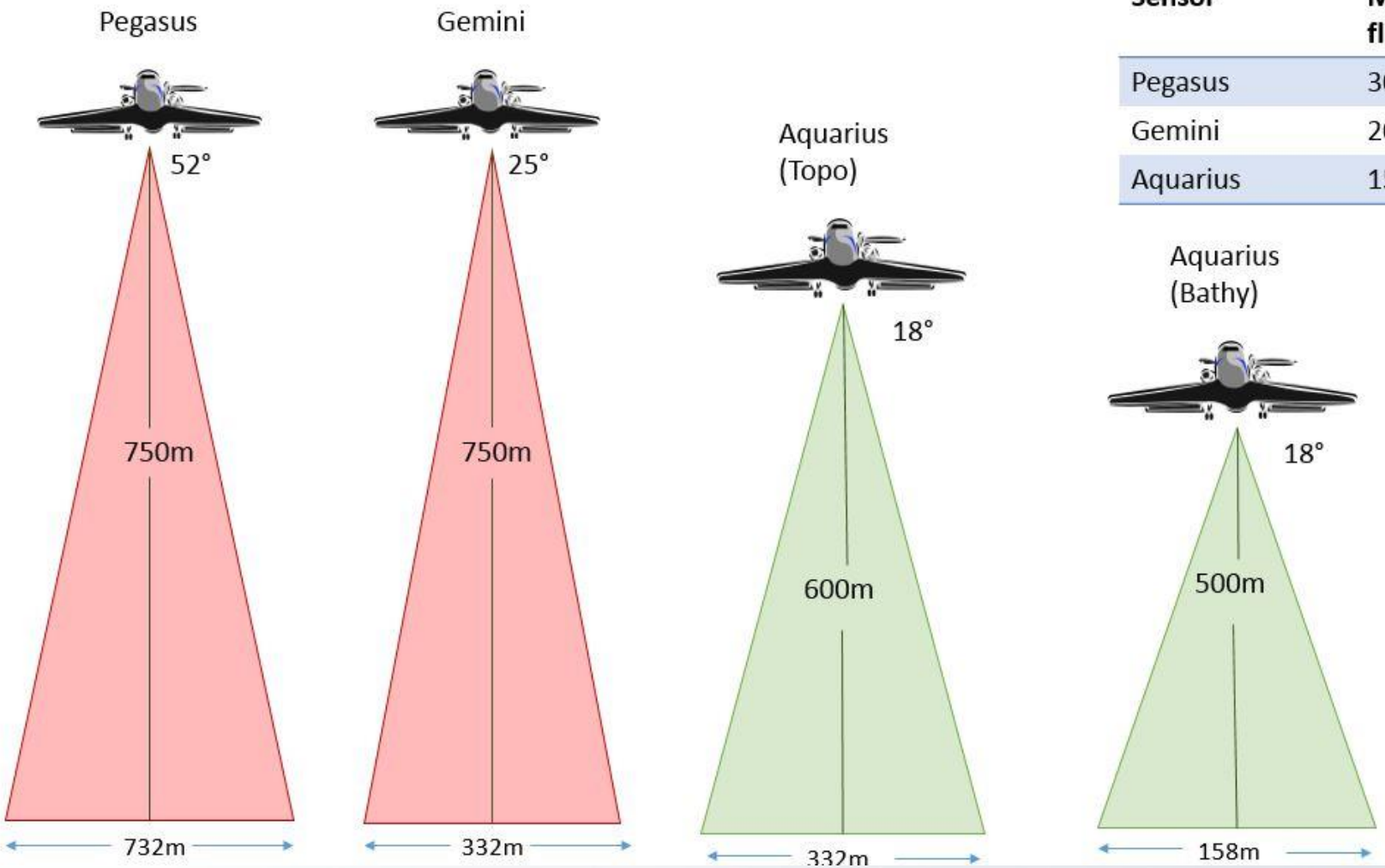
Operable flying ht	PRF	Scan Angle
4000m	167 kHz	50 degree

Aquarius Sensor

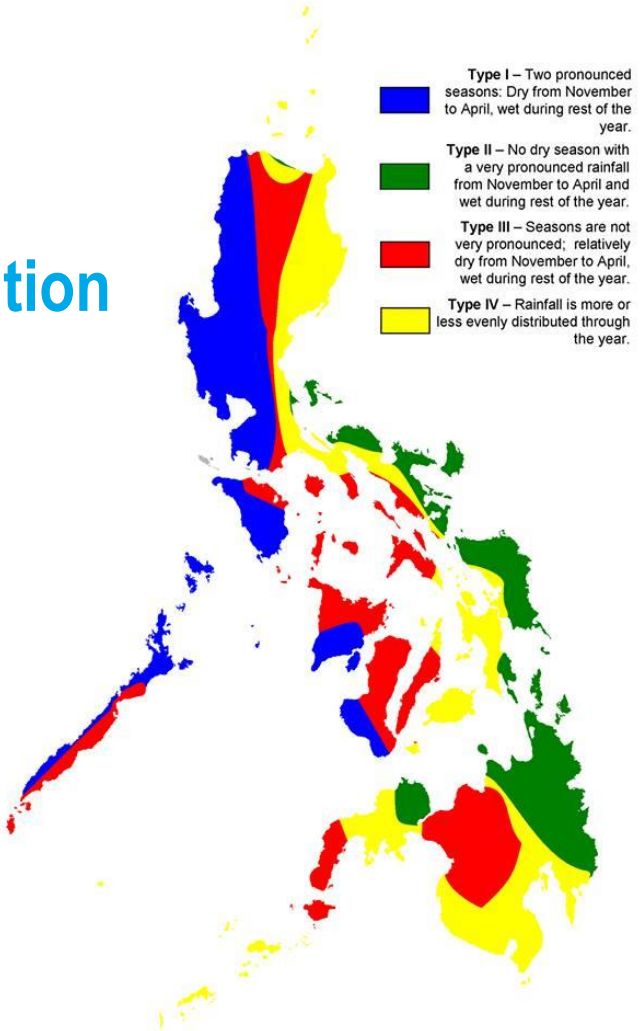
Type	Operable flying ht	PRF	Scan Angle
Topographic Mode	600	70 kHz	50
Bathymetric Mode	500	70 kHz	50

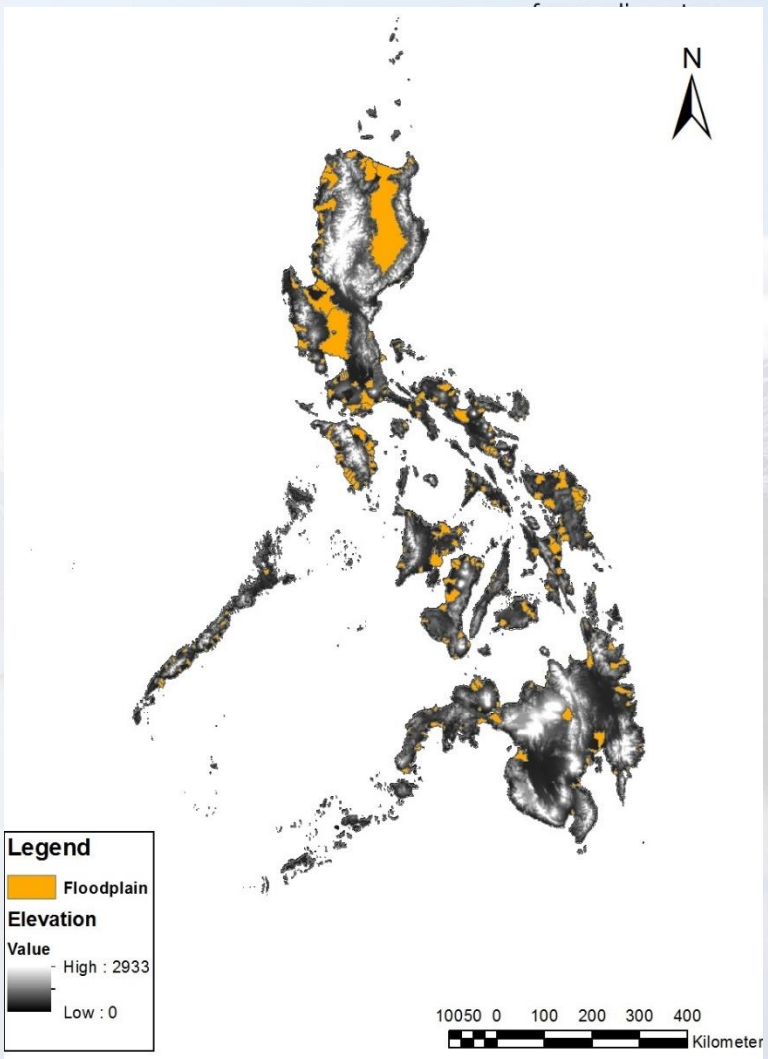
Recovery

Sensor	Max Area per flight
Pegasus	300 sq km
Gemini	200 sq km
Aquarius	150 sq km



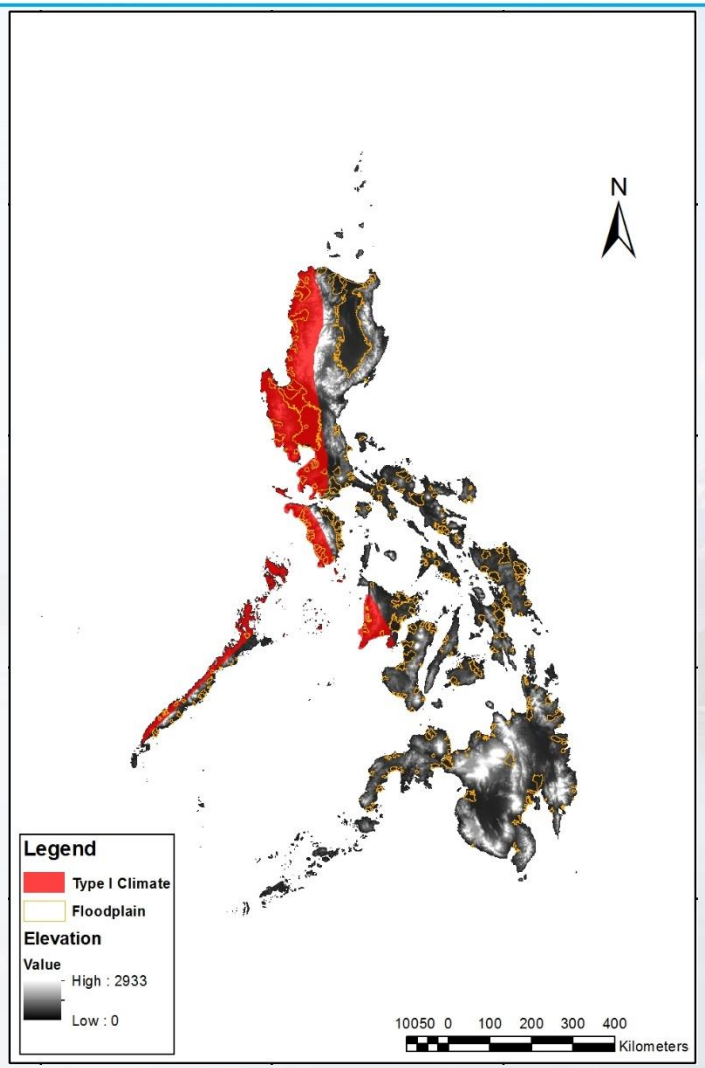
Climate and Weather Condition





Climate and Weather Condition

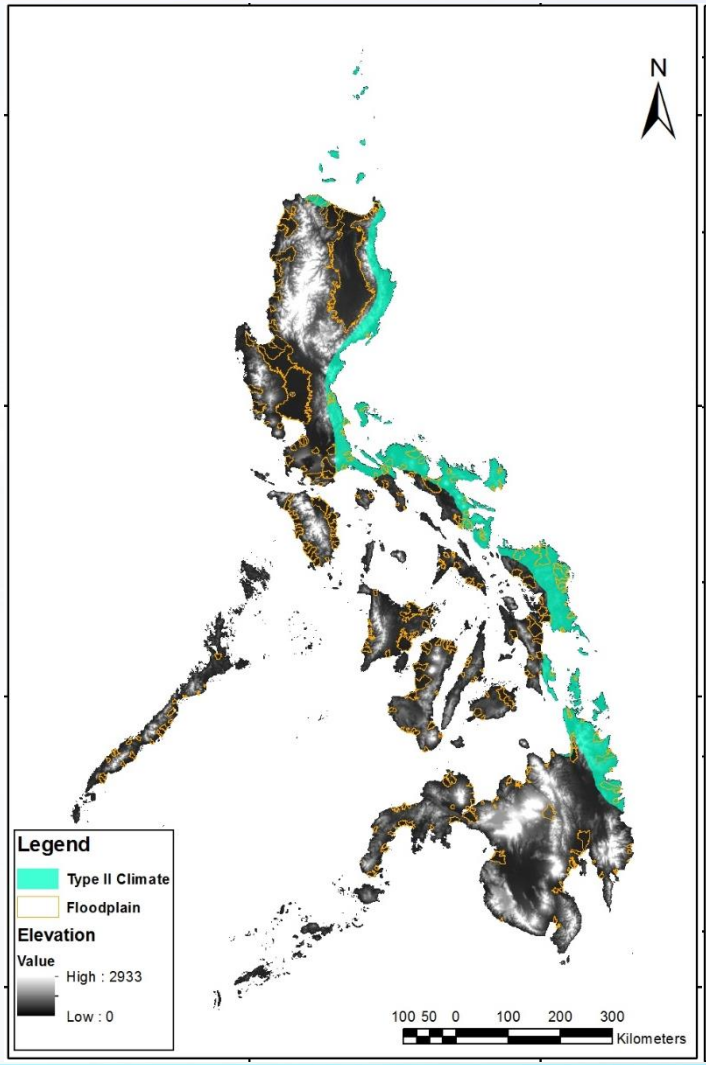
Type I - Dry season from November to April and wet season for the rest of the year with maximum rain from June to September.

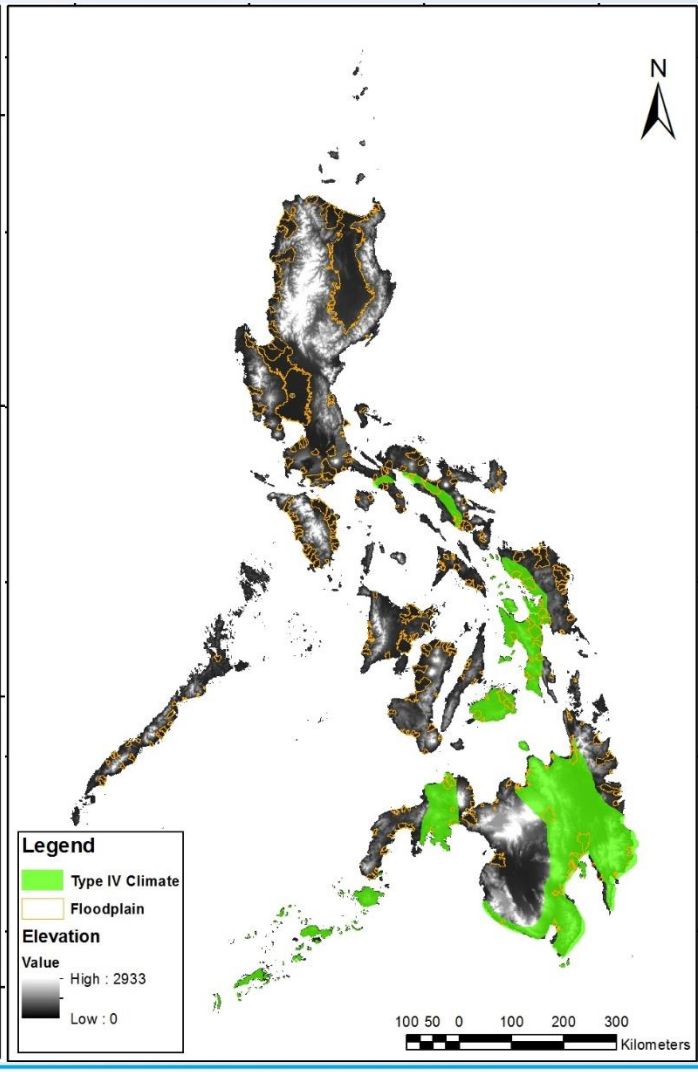


Climate and Weather Condition

Type II - No dry season with maximum rain from December to February and minimum rain from March to May

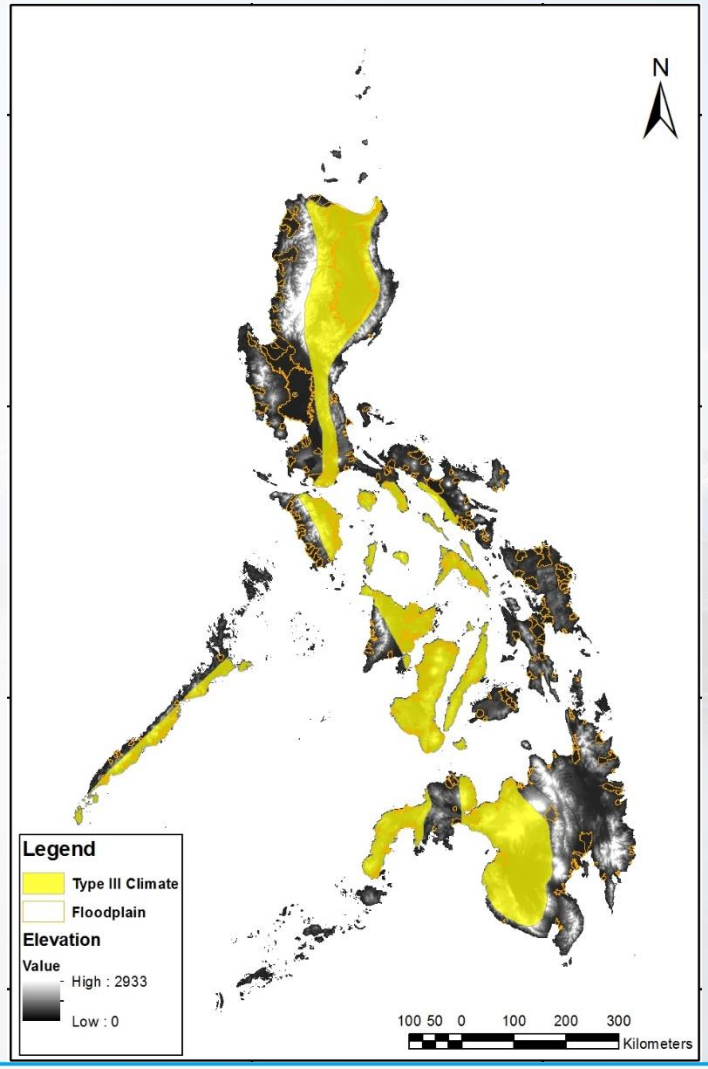
Type IV - Rainfall is more or less evenly distributed throughout the year





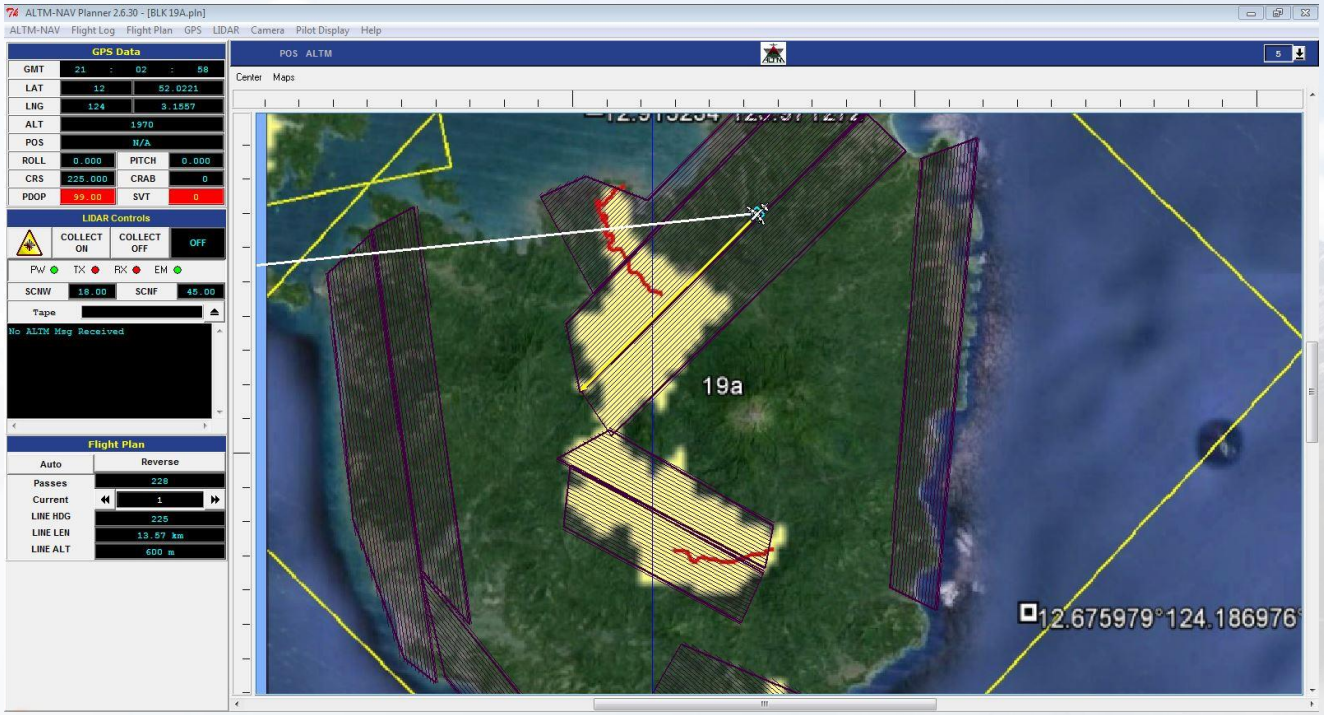
Climate and Weather Condition

Type III - No pronounced maximum rain with dry season either on the months of December to February or March to May



Topography

- High terrain and low lying clouds
- Fast cloud build up



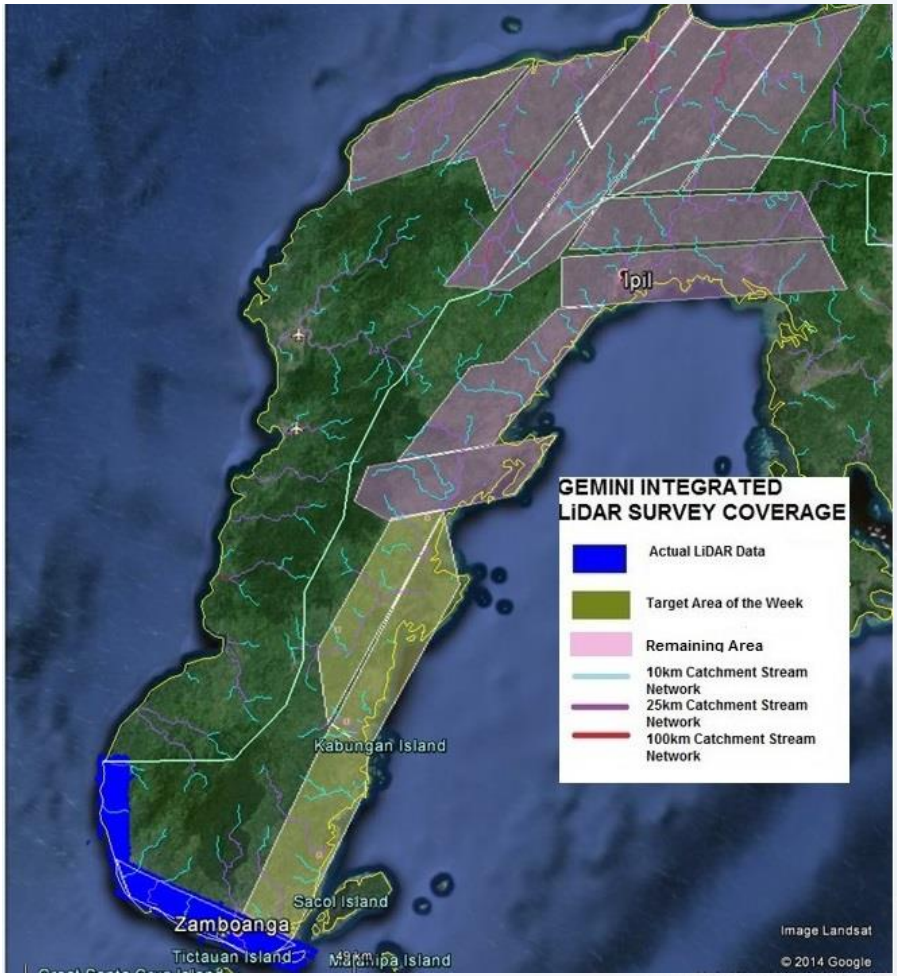
Topography

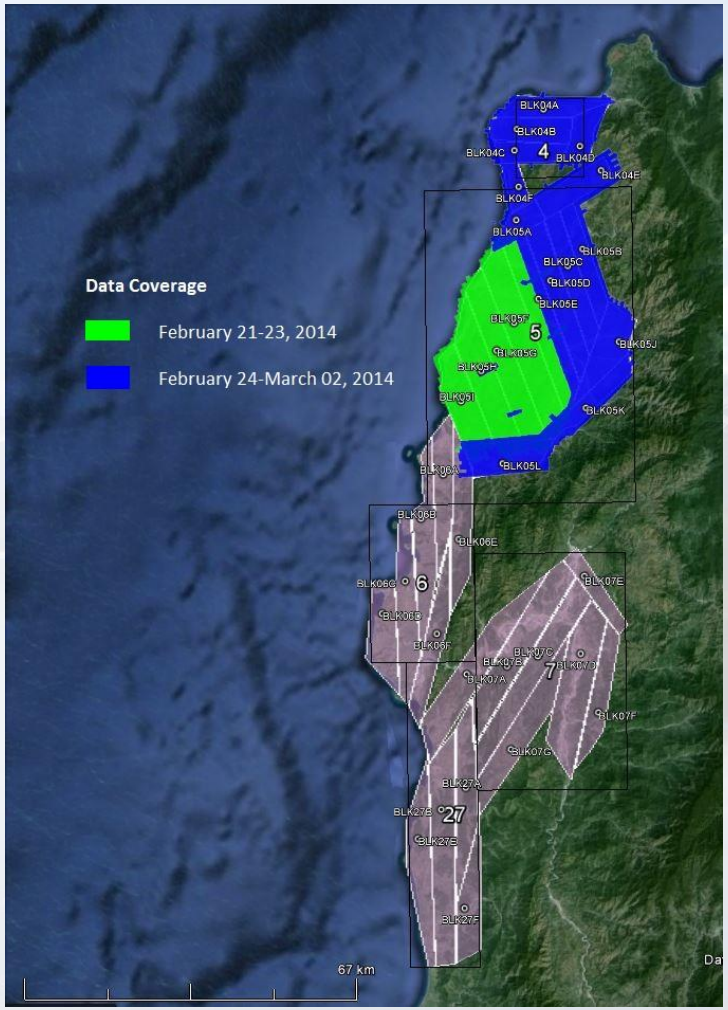
Topography

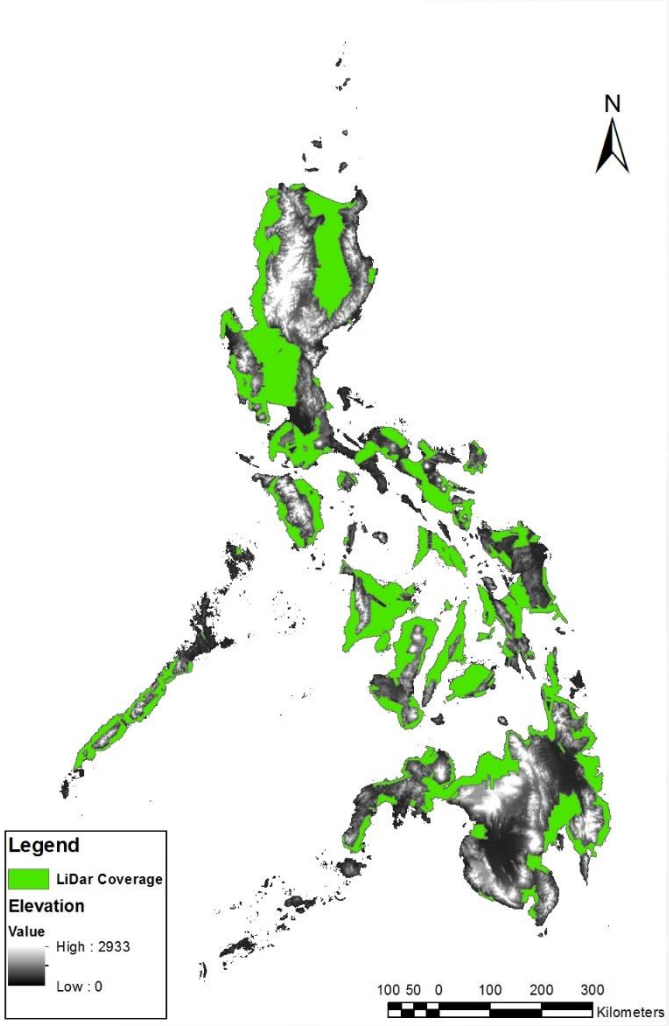
Topography

Recovery

from disaster







Accomplishments

- 2013-2016 – 136.234.00square kilometers or 300T of raw data

Gaps and recommendation

- Strict implementation of field work schedule to achieve optimal data acquisition
- Meticulous analysis of physical geography of the target areas prior to deployment
- Consideration of previous fieldwork experiences into planning future field work
- Theoretical considerations and actual survey experiences are crucial factors to the success of the data acquisition

Thank you for listening!

Acknowledgment

- Department of Science and Technology
- Nationwide Disaster Risk Exposure and Assessment for Mitigation (DREAM) Program