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

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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

<table>
<thead>
<tr>
<th>Operable flying ht</th>
<th>PRF</th>
<th>Scan Angle</th>
</tr>
</thead>
<tbody>
<tr>
<td>5000m</td>
<td>500 kHz</td>
<td>75 degree</td>
</tr>
</tbody>
</table>

### Gemini Sensor

<table>
<thead>
<tr>
<th>Operable flying ht</th>
<th>PRF</th>
<th>Scan Angle</th>
</tr>
</thead>
<tbody>
<tr>
<td>4000m</td>
<td>167 kHz</td>
<td>50 degree</td>
</tr>
</tbody>
</table>

### Aquarius Sensor

<table>
<thead>
<tr>
<th>Type</th>
<th>Operable flying ht</th>
<th>PRF</th>
<th>Scan Angle</th>
</tr>
</thead>
<tbody>
<tr>
<td>Topographic Mode</td>
<td>600</td>
<td>70 kHz</td>
<td>50</td>
</tr>
<tr>
<td>Bathymetric Mode</td>
<td>500</td>
<td>70 kHz</td>
<td>50</td>
</tr>
</tbody>
</table>
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
Accomplishments

- 2013-2016 – 136,234,000 square 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