

Strategic Survey Planning and Acquisition of Aerial LiDAR Data in the Tropical Archipelago of the Philippines

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SUMMARY

The scarcity of topographic and land cover data in the Philippines had, for decades, limited the national and local government units, planners, and stakeholders from effectively addressing issues such as disaster risk, environmental degradation, and climate change. Within the last five years, a number of devastating floods and thousands of lost lives have emphasized the need for detailed, up-to-date, spatial and topographic data, particularly in river basins. Airborne LiDAR surveying presented a solution in fulfilling this need.

LiDAR technology has been widely utilized in many continental countries to obtain high accuracy surface data of extensive and arduous terrains including watersheds in river basins. However, the tropical climate and archipelagic nature of the Philippines have posed challenges and limitations in the mode of LiDAR data acquisition. Cloud cover and weather patterns in the islands are more pronounced and fast changing compared to the continental topographies. Conservative planners recommend that acquisition only be made during the summer period.

Optimal utility of LiDAR technology in the Philippines entails intensive survey planning and strategic acquisition methods to overcome the challenges and limiting factors in a tropical and archipelagic geography. This paper presents how these challenges were met to achieve continuous LiDAR data acquisition in the Philippines for disaster risk assessment and mitigation and management.