

# **Evaluation of Shuttle Radar Topography Mission (SRTM) Data Digital Elevation Model Products for Resource Information Applications**

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## **Abstract:**

It has been five years since the Shuttle Radar Topography Mission (SRTM) produced a near-global high-resolution elevation dataset based on space-borne radar interferometric techniques. Despite the growing popularity of these datasets particularly the 3-arcsecond version due to their availability to the public by online download, no protocols have been suggested to assess SRTM products at the country or regional level. Our objective therefore is to develop and document the evaluation of the SRTM elevation datasets in the Philippines and identify their suitable applications. In this paper, attempts to compare available elevation datasets including but not limited to national benchmarks, geodetic control stations and topographic spot heights against the SRTM data will be presented. In addition, accuracy assessment of elevation discrepancies will be conducted with respect to different terrain conditions since it is postulated that terrain feature characteristics were not taken into account in production of the original SRTM elevation datasets. Based on the comparison of SRTM with known elevations, a calibration and georeferencing protocol is proposed which will enable the production of DEMs consistent with the national reference (horizontal and vertical) system of the Philippines. It will be shown that SRTM datasets have limited applications in mapping due to its low spatial resolution. Results indicate that there is a need to properly identify control points SRTM datasets since there are no natural or man-made features other than terrain-related objects (mountain peaks, stream junctions and ridges) are identifiable. Also, there is an apparent discrepancy in elevation between collected reference elevation in point, line and surface modes against the SRTM data. This study will then identify suitable levels and degrees to which SRTM datasets are more appropriate.