



## **A First Assessment and Comparison of Recently Available ASTER GDEM Version 2 for Himalaya Region**

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### **Abstract**

DEM has wide applications in various areas like disaster management, hydrology and water management, geomorphology and in urban development. Valuable information about a terrain can be inferred by exploiting a DEM in proper way. Study of DEM becomes very useful for studying mountainous terrain such as Himalaya which is otherwise hard to access due to harsh weather and inaccessibility. DEM can be generated by aerial photos, stereo images from satellites and Toposheet. SRTM and ASTER GDEM are DEM which generated from satellite images and covers maximum parts of the earth. Shuttle Radar Topography Mission (SRTM) is a good quality DEM created in 2000 covering the globe between 60<sup>0</sup> N and 58<sup>0</sup> S with 3 arc second (90m) resolution. SRTM is available freely for research. ASTER GDEM is recently released global DEM created using ASTER scenes and made available to the world since June 2009 for carrying out research. ASTER GDEM covers land surfaces between 83°N and 83°S with estimated accuracies of 20 meters vertical data and 30 meters for horizontal data. So ASTER GDEM supposed to be more sophisticated. A second version of ASTER GDEM version 2 (ASTER GDEM V2) has been released in October 2011 which is the improved version of ASTER GDEM version 1. The improvements in the GDEM2 result from acquiring 260,000 additional scenes to improve coverage, a smaller correlation kernel to yield higher spatial resolution, and improved water masking. The present study aims at comparing the ASTER GDEM with the SRTM and ASTER DEM and evaluating its relative characteristics for undulating surface and glaciers of Chandra-Bhaga sub-basin situated in Lahual-Spiti district of Himachal Pradesh, Indian Himalaya. Once the characteristics of ASTER GDEM are evaluated for Himalayan terrain it can be used for various studies involving rugged terrain of Himalaya.

*Keywords:* DEM, ASTER GDEM v1, ASTER GDEM v2, SRTM