Figure 1. A typical mountainous area in Wenchuan County, Sichuan Province, China: (a) 3D map of the mountainous area of Wenchuan on 14 November 2021 from Google Earth; (b) Overview of Chutou Gully on 25 March 2020 from ZY03 satellite image; (c) Accumulation zone on 14 November 2021 from Google Earth.
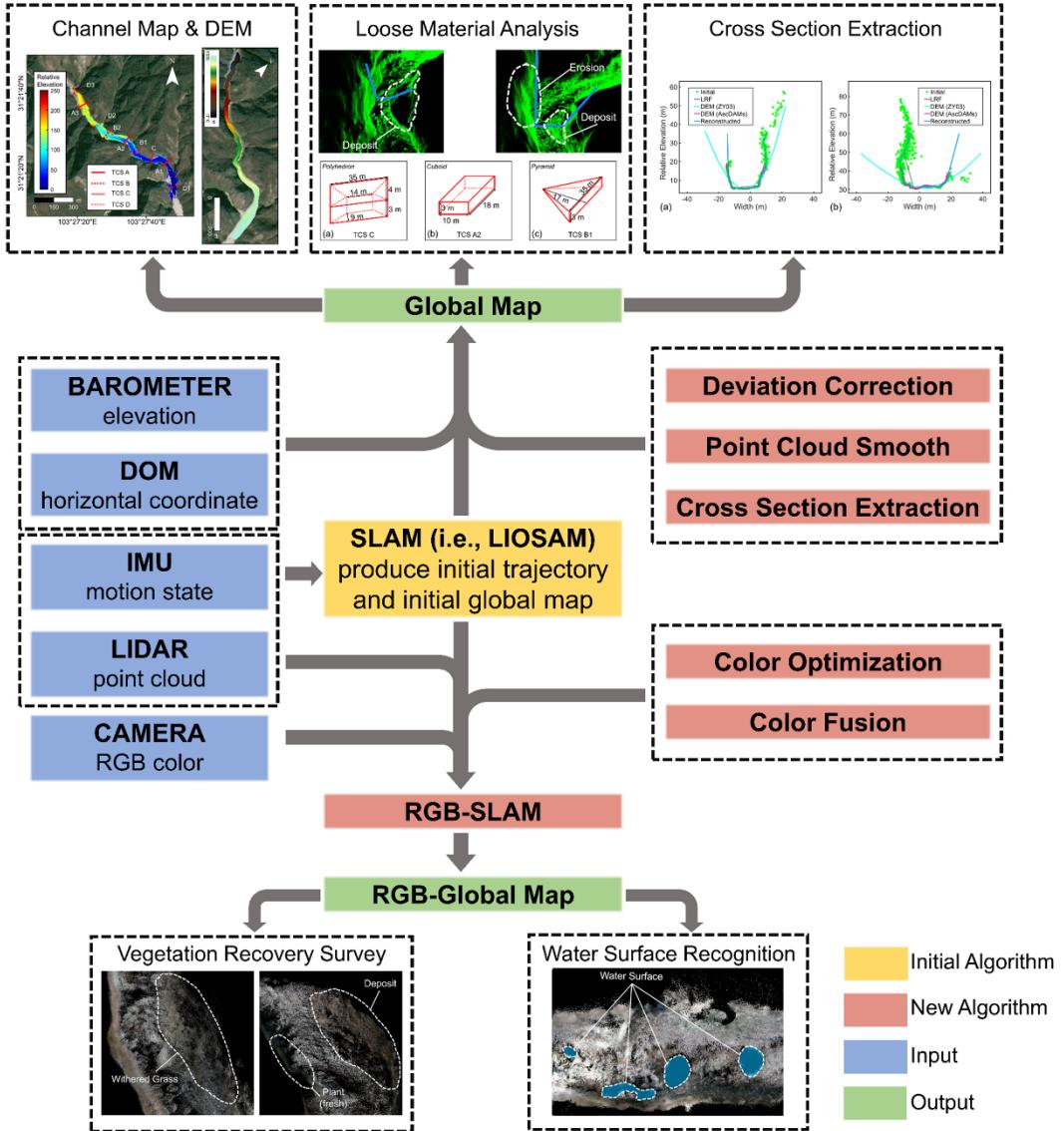
Figure 4. Algorithm flow scheme of AscDAMs. The initial SLAM algorithm calculates the initial maps utilizing IMU and LIADR. After optimizing the maps by deviation correction, point cloud smoothing, cross-section extraction, and map coloring, the channel global map with and without RGB-color can be obtained and employed in debris flow study.
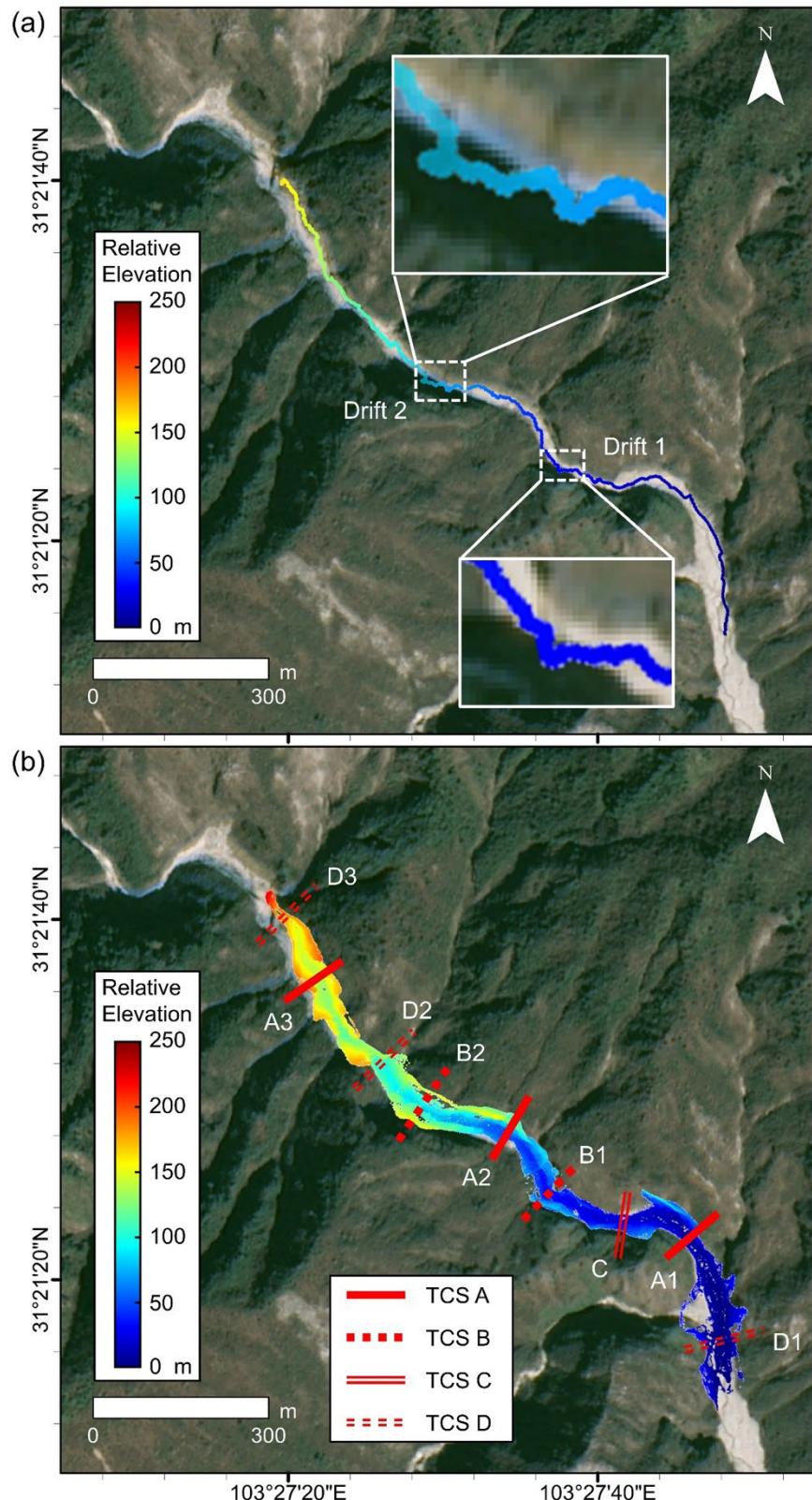
Figure 5. Overview of the AscDAMs map, projected on DOM of ZY03 satellite: (a) The trajectory and (b) the global map, TCS A~D are typical cross sections of the channel.
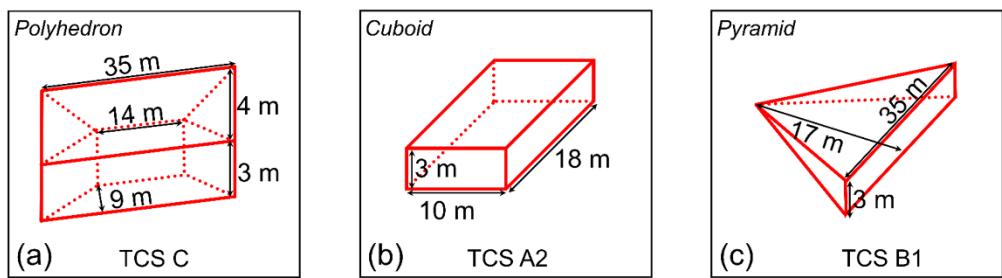
Figure 10. Deposit volume estimation in TCS C, TCS A2, and TSC B1, approximated as regular polyhedrons.