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Integrating and assessing Arctic glacier thickness data into Glacier Thickness Database (GlaThiDa) Version 3.0

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GlaThiDa is an internationally collected, standardized dataset of glacier thickness from in-situ and remotely sensed observations, based on data submissions, literature review, and airborne data from NASA's Operation IceBridge. GlaThiDa is a contribution to the working group on 'glacier ice thickness estimation' formed under the auspices of the International Association of Cryospheric Sciences (IACS). The database is hosted by the World Glacier Monitoring Service (WGMS). GlaThiDa is structured in three data tables of different levels of detail, which are linked together by a unique identifier for each glacier survey. The first table (T) is the overview table containing information on the location and area of the surveyed glacier, interpolated mean and maximum glacier-wide thickness and their reported uncertainties, the survey method and related information, as well as investigator names and source of the data. The second table (TT) includes mean and maximum ice thickness interpolated over surface elevation bands. The third table (TTT) contains the original point measurements, including spatial coordinates, surface elevation, and ice thickness. GlaThiDa was first released in 2014 (version 1.0) and first updated in 2016 (version 2.1). Version 3.0 was released in 2019. In addition to several technical improvements, nearly 3 600 ice-thickness surveys have been added, for a total of 5 181. Most of the new data are for Arctic glaciers, and some of these were collected for the H2020 INTAROS project. Moreover, GlaThiDa was assessed as a core component of the existing Arctic observing system in INTAROS Work Package 2.1 (an assessment of existing Arctic observational capacity and remaining gaps with respect to stakeholders needs). GlaThiDa has great potential as a reference dataset for calibrating and validating regional and global glacier volume estimates.