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A global compilation of glacial ^{10}Be and ^{26}Al exposure ages

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Cosmogenic dating has enabled direct dating of glacial landforms and deposits, greatly improving our understanding of past glaciations in terms of timing as well as glacial erosion and preservation. Over the last 25 years a large (and growing) number of publications have reported cosmogenic exposure ages from glacial landforms around the world. Here a global compilation of glacial ^{10}Be and ^{26}Al exposure ages will be presented aiming at an analysis and quantification of cosmogenic dating uncertainties. The dataset consists of $>$9300 ^{10}Be exposure ages and $>$1400 ^{26}Al exposure ages with full input data (location, elevation, sample type, sample thickness, concentration, standardization etc.). All exposure ages have been recalculated with updated reference production rates and organized in discrete glacial landform groups enabling evaluation of exposure age scatter due to prior and incomplete exposure. Exposure age scatter is common and increase significantly for glacial landforms older than the global last glacial maximum, making precise cosmogenic dating of older glaciations difficult. The data will be used to evaluate exposure dating of different sample types (boulder vs bedrock surfaces) and sample selection based on boulder size. Exposure ages from the paleo-ice sheets will be compared with mountain glacier exposure ages, aiming at picking out the good (well-clustered) exposure ages. The full dataset will eventually be posted online and continuously updated with published exposure age data.