

# Description of Supplementary Table 1 for: Optimising global landscape evolution models with $^{10}\text{Be}$

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**OCTOPUS Id:** Record ID from the OCTOPUS v2 Database, for basins used in this study

**OCTOPUS reference ID:** Reference information provided from the OCTOPUS v2 Database.

**Centroid LON:** Centroid WGS84 coordinate of given OCTOPUS v2 basin geometry

**Centroid LAT:** Centroid WGS84 coordinate of given OCTOPUS v2 basin geometry

**Area:** Area (in WGS84 degrees) of given OCTOPUS v2 basin geometry

**MAP (mm/yr):** Mean annual precipitation (mm/yr) extracted from the WORLDCLIM BIOVARIABLES database (Hijmans et al., 2005).

**GLiM class:** Modal basin lithology from the GLiM database (Hartmann and Moosdorf, 2012)

**OCTOPUS gradient:** Mean basin gradient provided from the OCTOPUS v2 database, which uses the surface fitting method described here: (<https://pro.arcgis.com/en/pro-app/2.8/tool-reference/spatial-analyst/how-slope-works.htm>)

**90m DEM avg. gradient:** Average gradient calculated from the Hydrosheds SRTM (Lehner et al., 2008), created by averaging D8 slopes within the basin.

**30m DEM avg. gradient:** Average gradient calculated from the 30m global SRTM (Farr et al., 2007), created by averaging D8 slopes within the basin. Due to computational limitations these were only calculated on basins <1 sq. degree in area.

**OCTOPUS 10BE Erates (mm/yr) (nearby basins averaged):** Basin averaged  $^{10}\text{Be}$  erosion rates provided by the OCTOPUS v2 database. In some cases, the average of nearby basins used, and thus the rate will differ from the official OCTOPUS database rates.

**Rates averaged?:** Were the rates re-calculated by averaging nearby basins within 10 km, and differing by less than 5% in drainage area (see main text for details).

**90m Erates, bestfit advection:** Erosion rates ( mm/yr) calculated from the best-fit advection-only modelled run on the 90m DEMs.

**30m Erates, bestfit advection:** Erosion rates ( mm/yr) calculated from the best-fit advection-only model run on the 30m DEMs.

**90m Erates, bestfit diffusion:** Erosion rates ( mm/yr) calculated from the best-fit advection-only model run on the 90m DEMs.

**30m Erates, bestfit diffusion:** Erosion rates ( mm/yr) calculated from the best-fit diffusion-only model run on the 30m DEMs.

**90m Erates, bestfit adv+diff:** Erosion rates ( mm/yr) calculated from the best-fit advection-diffusion model run on the 90m DEMs.