

**File name: Supplementary Data 1**

**Description:** Particle size distribution of surficial and buried Kalahari Sand

**File name: Supplementary Data 2**

**Description:** Al and Be cosmogenic nuclides data of surficial and buried Kalahari Sand

**File name: Supplementary Data 3**

**Description:** Samples field description and models results (burial age and eolian residence time)

**File name: Supplementary Data 4**

**Description:** Cosmolian input: geographical parameters, erosion rate at source rocks including fluvial transport, the dataset used for retention time during vertical displacement)

**File name: Supplementary Data 5**

**Description:** Cosmolian output: modeled time until convergence between analytical and simulated concentrations of  $^{26}\text{Al}$  and  $^{10}\text{Be}$ , the success rate of convergence to occur for each combination of parameters

**File name: Supplementary Data 6**

**Description:** Installation file for the Cosmolian program including an example spreadsheet.