

Supplementary Information

Digital Earth Australia – Data Loading Query

The query used to load Landsat data from Digital Earth Australia is presented below to allow better reproducibility of the results in this article:

```
query = {  
  'geopolygon': geom,  
  'time': ('2005-01-01', '2018-21-31'),  
  'measurements': ['nbart_nir', 'nbart_swir_2'],  
  'output_crs': 'EPSG:3577',  
  'resolution': (30, 30),  
  'group_by': 'solar_day'
```

NOTE: the variable 'geom' is the catchment shapefile projected in EPSG:3577 which is GDA94 Australian Albers.

For the present study, this query was used to load analysis ready data products:

- ga_ls5t_ard_3
- ga_ls7e_ard_3
- ga_ls8c_ard_3

With corrections applied to the Landsat 8 product as per the text in Section 2.4 in the main body of the article.

Supplementary Terrain Analysis Results

Table S1 shows the coefficient of determination (R^2) of the relationship between SWI and TWI against the erosion measurements for each year.

Table S1. R^2 calculated between the SWI and TWI against the erosion/deposition from every year.

Year	SWI	TWI
2006	0.0008	0.0243
2007	0.0001	0.0067
2008	0.0458	0.0128
2009	0.0063	0.0403
2010	n/a	n/a
2011	0.0028	0.0001
2012	0.0074	0.0008
2013	0.0124	0.0113
2014	n/a	n/a
2015	0.0008	0.0008
2016	0.0595	0.0004
2017	0.0385	0.0205
2018	0.0179	0.0015