

Burton Bradstock rock fall, Dorset

Last updated 15:00, 27/07/12



Surface geology 1:625 000

The blue pin marks the approximate [location](#) of the Burton Bradstock rock fall landslide.

[listen to 'Burton Bradstock Landslide' on Audioboo](#)

Dr Helen Reeves on BBC Radio Devon talking about the Burton Bradstock landslide, of 24 July 2012, and the BGS National Landslide Database.



On 25 July 2012, the BGS Landslide Response Team waiting for access to the beach to carry out a survey of the landslide.

On 24 July 2012, the BGS Landslide Response Team received reports of a large [rock fall](#) on the [Jurassic Coast](#) at Burton Bradstock in Dorset.

Tragically, 22-year-old Charlotte Blackman from Derbyshire was killed in the incident. The public have been advised to stay away from the cliffs.

It was reported that approximately 400 tons of rock fell in two rock-fall events approximately 20 minutes apart at around 12:30.

- [Have British cliffs become more prone to landslides? The Guardian, 25 July 2012](#)
- [Woman feared dead after cliff crashes down to coastal path. The Independent, 25 July 2012](#)
- [Couple cheat death by seconds as they watch 300 ton cliff landslide just feet away. The Daily Mail, 19 February 2012](#)

The BGS Landslide Response Team carried out a survey of the site, including a [LiDAR survey](#), on 25 July 2012. Data collected from this survey is logged in the [BGS National Landslide Database](#) NLD 18684/1.



3D image of failed cliff at Burton Bradstock generated from a [LiDAR](#), laser scanner, survey undertaken by BGS.

The Landslide



The BGS Landslide Response Team carry out a LiDAR survey of the Burton Bradstock rock fall landslide of 24 July 2012.

The failure was controlled and constrained by a combination of factors:

- Discontinuities
 - Joints and fractures within cliff run vertically and parallel to the cliff face enabling wedge-shaped sections of cliff to fall
- Coastal erosion and weathering
 - coastal erosion and weathering of the cliff face are a continual natural process
 - the sea is eroding the base of the cliff (undercutting), removing support for the rocks above
 - the processes of weathering weakens the cliff, making it more susceptible to failure
- Recent wet weather has added more water into the cliff from above such that grain support is weakened in the Bridport Sand Formation (see Geology below) thereby increasing the likelihood of a landslide occurring.

The rock fall deposit was 30 m long, 20 m wide and 10 m high, which ran out over a gravel beach.



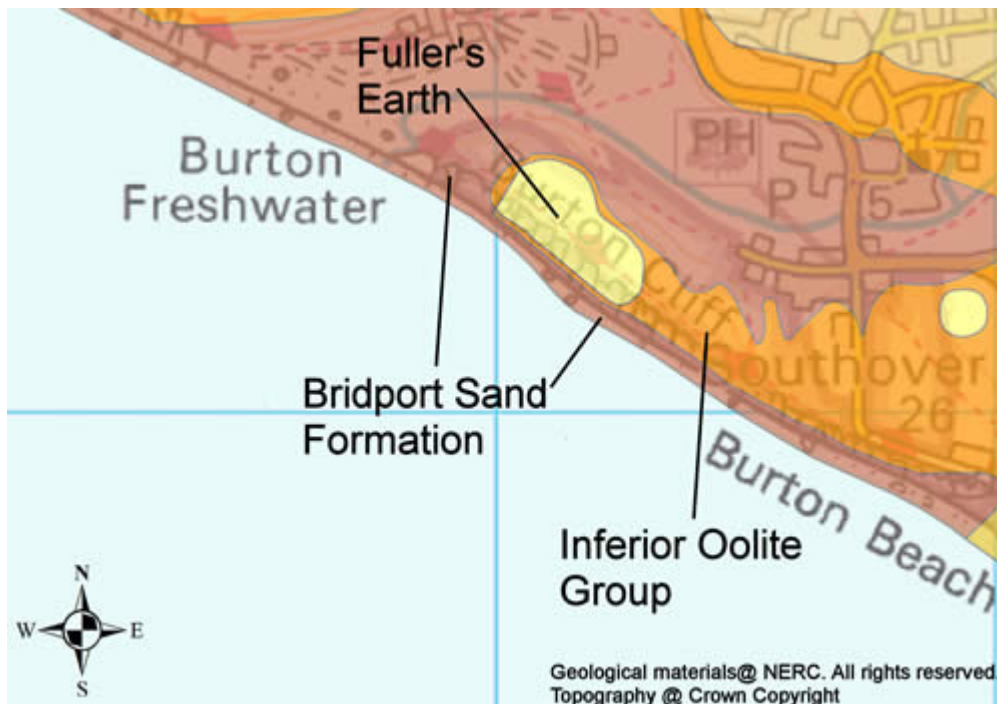
The Burton Bradstock rock fall landslide of 24 July 2012.

Geology



The Bridport Sand Formation at Burton Bradstock showing stronger and weaker beds. BGS Photo [P005794](#) taken in 1972.

The geology of the cliffs at Burton Bradstock comprise the [Bridport Sand Formation](#), overlain by the [Inferior Oolite Group](#), overlain by [Fuller's Earth](#).



Geology of Burton Bradstock area.

The cliffs at Burton Bradstock mostly comprise the [Bridport Sand Formation](#), a grey, brownish (weathering to a yellow colour), micaceous silt and fine-grained sandstone with stronger sandstone beds occurring irregularly throughout the succession, typically every metre or so. These stronger sandstone beds are more resistant to weathering so protrude from the cliff face as in the photograph (above right).

The Bridport Sand Formation is approximately 180 million years old and is at its thickest in the Burton Bradstock area, forming the 40-metre-high cliffs seen at the coast. It is a weak to moderately strong sandstone that becomes weaker when wet. Most of the landslide deposit was composed of the Bridport Sand Formation with blocks up to 2 m³ in the landslide debris.

Above this is a three-metre bed of limestone from the [Inferior Oolite Group](#) that forms a cap at the top of the cliff. This is a stronger material than the Bridport Sand Formation and, consequently, blocks 2 m x 2 m x 0.5 m were seen in the landslide debris.

Above this is a bed of [Fuller's Earth](#), a calcareous mudstone forming shallow mudflows cascading down parts of the cliff.



Eroding piles of rock debris along the base of the Jurassic sandstone cliffs at Burton Bradstock are telling signs of continual erosion by landslides. Taken 25 July 2012.



The yellow sandstone cliffs between Freshwater Bay and Hive Beach that are shaped by erosion processes, including landslides. Taken 25 July 2012.



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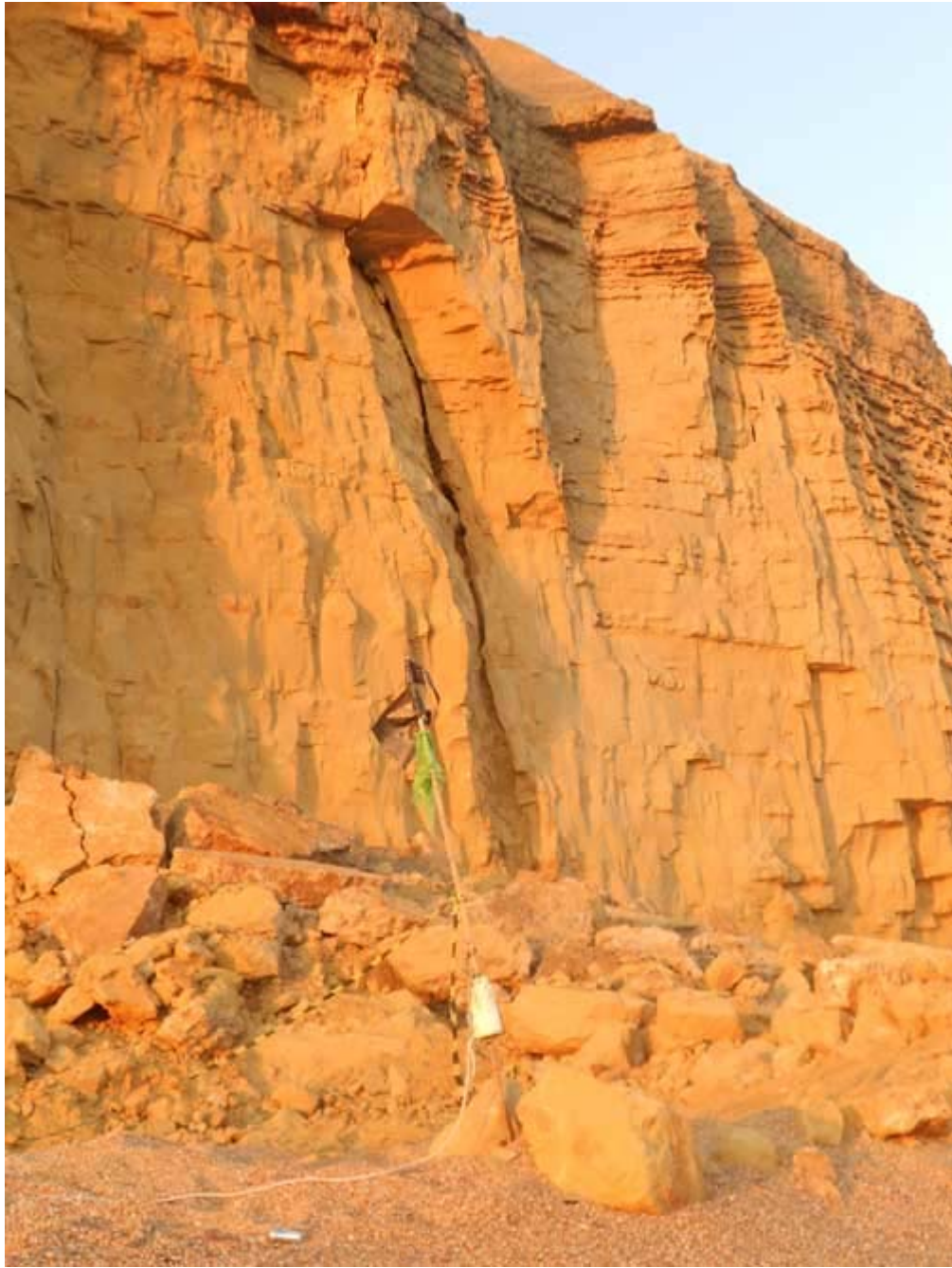


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