# Info Log – February 2014

## Flash floods: a force to be reckoned with

There have been several near miss incidents in Ash Ghyll (near Garrigill in the north Pennine area), pictured below. However, they can occur in many ghylls and gorges and are predominantly to do with the speed with which the water level rises.

The pictures below show typical low and high levels of water in Ash Ghyll, but the video clip reference shows how extreme water levels can get after heavy prolonged rain. Water levels can rise to extreme within a very short space of time.

Picture A above and B below taken by Kevin Danforth

See also the video clip on
http://youtu.be/yYQB4STEW1I

This was taken on June 28th 2012 by Pete Button and shows the extreme flow which can occur.

**Background to the June 2012 floods.**

The South Tyne covers an area of 800 sq km, which consists of steep Pennine moorland developed on Middle and Upper carboniferous Limestone and Millstone Grit, where land use is predominantly grassland and upland heath. The river South Tyne has a very responsive and flashy regime.

In 2012, the summer months of April to mid June experienced well above average rainfall. This reduced the soil moisture deficit and by 21 June, soils within the South Tyne catchment were virtually saturated. With only modest storage available within the catchment, there was little room to cope with the intensity of the rain brought northwards by the frontal system which had already produced a record flood event in Calderdale on 22 June 2012.

During April and May 2012, monthly rainfall totals were notably higher then the long term average (LTA) in the South Tyne catchment. For Garrigill (close to Ash Ghyll) these were:
April 157mm (182% LTA),
May 123.80mm (142% LTA)
and
June 103.40mm (124% LTA).

This three monthly total for Garrigill was the wettest on record by over 60mm.

Due to the above average rainfall during April and May, soils were wet for the time of year and in some places were still saturated. River levels at Alston and other sites in the South Tyne respond and recover quickly to any rainfall. However, because the catchment was already very wet and there were frequent isolated showers, by the 20th

June, flows were being maintained at around twice the average, with Alston recording the highest percentage of the LTA at 215%.

**Outcomes for gorge scrambling groups**

The near misses happened to groups who use the ghyll regularly and have used it for many years. The loss of corporate memory could be a factor here. One practical method of attempting to address this is to include relevant photographs and videos, before and during such events, which then form part of the induction of new employees. "*Whilst it hasn't happened for several years this is what Ash Ghyll **CAN** look like. Make sure you check the weather forecast!*"

Follow the weather forecasts in the days leading up to a visit and check with the Environment Agency's river levels for the Tyne for an indication of past and future water levels and check the trend to see if it could be rising.

Understand the catchment area and that the surrounding boggy ground when saturated can lead to faster run off after further prolonged rain and isolated heavy showers.

Monitor water levels carefully when in the gorge and get to know all suitable emergency exit points.