

MAS212 Class Discussion: Fracking in Lancashire

Background: In August 2019, hydraulic fracturing (fracking) operations were undertaken at the Preston New Road site in Lancashire. Hydraulic fracturing involves the high-pressure injection of fluid at a depth of ~ 1.8 km, and typically generates *seismic events*. The majority of such seismic events are rather weak, with a Local Magnitude (ML) below 0.5 ML.

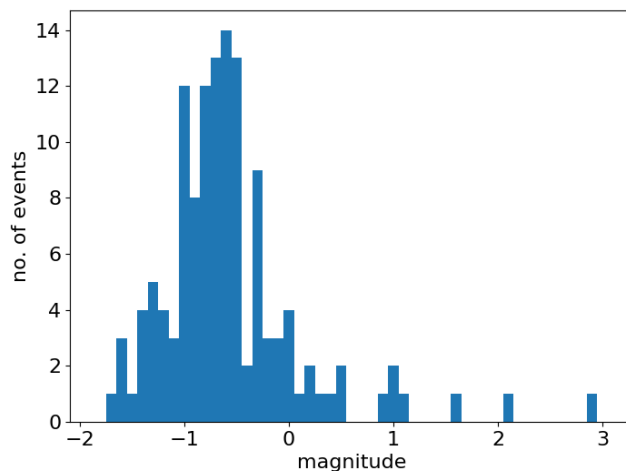
At 08:30am on 26th August, a 2.9 ML tremor was recorded by the British Geological Survey (BGS). This event was reportedly felt by some residents of Blackpool, 4 miles from the site, as a loud tremor lasting for 10–15 seconds. Fracking was subsequently suspended at the site.

Task (hypothetical): The Oil and Gas Authority have commissioned you to study seismic data from the fracking operations. Your analysis will inform their decision on whether fracking should resume.

- Seismic events in the last 50 days are recorded by the British Geological Survey (BGS) http://www.earthquakes.bgs.ac.uk/induced/recent_uk_events.html

2019/08/26	07:30:47.0	53.787	-2.964	2	2.9	6	BLACKPOOL,LANCASHIRE	HYDROFRAC EVENT
2019/08/26	03:39:22.8	53.785	-2.961	2	-1.3		BLACKPOOL,LANCASHIRE	HYDROFRAC EVENT

Use the BGS data to produce a plot like the one below, showing the no. of events by magnitude over the period 15/08/19 to 02/09/19.



Class discussion:

1. In small groups (4–6 people), discuss: (1) what this plot shows, and (2) how *you* could make this plot from the BGS data using Python.
2. Write pseudocode for **5 steps** in going from a table on an HTML page to the plot shown above.

Extension: Write some Python code to make this plot. (I will give a solution next week.)

There is no right/wrong answer here. The point of this exercise is to get you thinking about how to split a larger task into smaller steps. Write your steps below:

1.

2.

3.

4.

5.