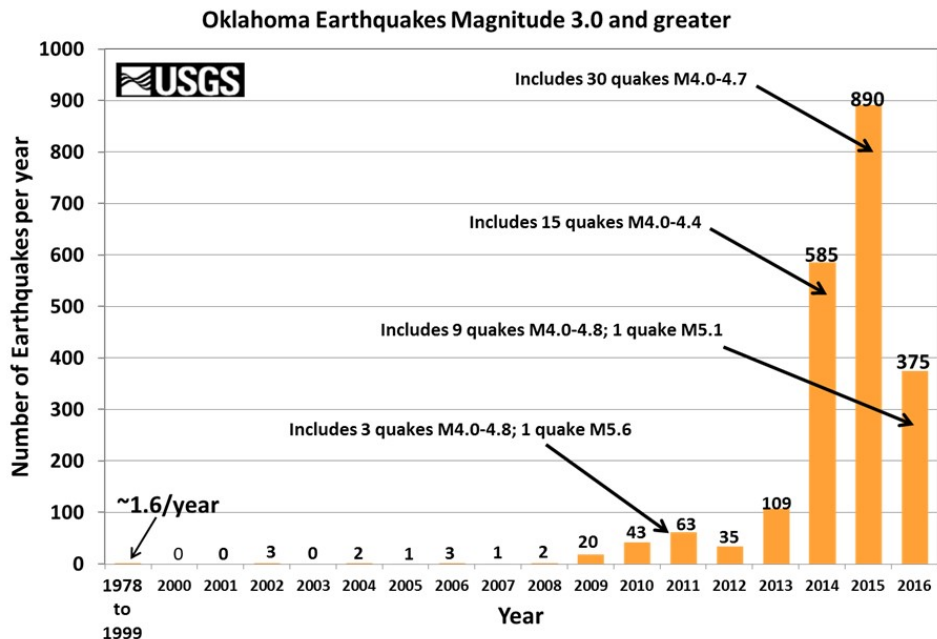


Instructions: Do the reading, then go through the questions, think about them, referring back to the reading when necessary, and write short answers (ranging between 1-2 sentences and couple paragraphs) for each. (If you feel you addressed one question in an answer to another, feel free just to refer to that.) Turn in your answers on the day the reading is due. You may discuss these questions with others but all answers should be written in your words (though you may use occasional quotes).

To be turned in:

1. What are your overall thoughts?
2. Analyze the statement: *If you have hundreds of people trying to make forecasts, and there are hundreds of earthquakes per year, inevitably someone is going to get one right.*
3. Write equations that express the graphs in Figures 5-3A and 5-3B (say what your variables represent).
4. How can you resolve Figure 5-2 with the statement that *Tehran is [not] “due” for an earthquake if it hasn’t experienced one recently.*
5. If the probability of a major earthquake in San Francisco is $1/35$ in any year, what is the probability of a major earthquake in the next 10 years? 20 years? 35 years? 50 years? 100 years?
6. Why is overfitting bad, and do you have any ideas how to detect it?
7. Do the graphs below provide evidence for or against, or neither, to the hypothesis that fracking causes earthquakes? Explain.

From www.usgs.gov:

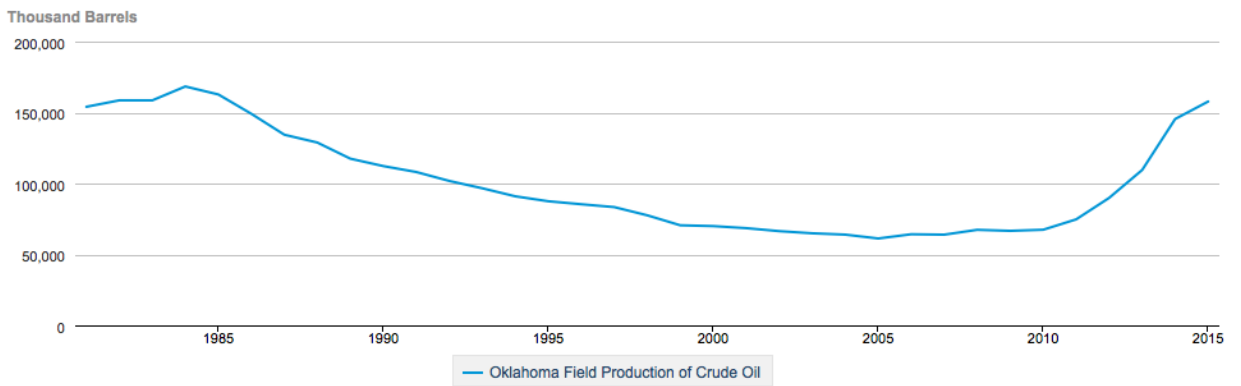


Source: USGS-NEIC ComCat & Oklahoma Geological Survey; Preliminary as of June 22, 2016

From www.eia.gov:

Oklahoma Field Production of Crude Oil

[DOWNLOAD](#)



Source: U.S. Energy Information Administration

This series is available through the EIA open data API and can be downloaded to Excel or embedded as an interactive chart or map on your website.

Oklahoma Field Production of Crude Oil (Thousand Barrels)										
Decade	Year-0	Year-1	Year-2	Year-3	Year-4	Year-5	Year-6	Year-7	Year-8	Year-9
1980's		154,056	158,621	158,604	168,385	162,739	149,105	134,378	128,874	117,493
1990's	112,273	108,094	101,807	96,625	90,973	87,490	85,379	83,364	77,578	70,556
2000's	69,976	68,531	66,421	64,916	63,977	61,262	64,236	63,951	67,357	66,637
2010's	67,418	74,735	89,863	109,566	145,454	157,770				