Using SNR to aid in peak-cognizant signal processing to quantify environmental weathering of contaminants from the Deepwater Horizon spill

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What are dispersants?

- Sticky surfactant molecules that surround and stabilize oil droplets
- Move oil further down, away from wildlife on the surface
We have 6 sample dates of data

- Ranging from 2010 to 2015, GC-MS data for many ions
- Most from water, one from sediment
- We need to separate the peaks and figure out which ones are which

- Problems arise when peak profiles are messy, like this:
How the algorithm walks through peaks

- Peak 1 → Peak 2 → Peak 3

- Blue is peak, green is noise associated with the peak
What does decaying look like?
What happens next?

- Hopefully, these findings can help make informed decisions about when to use dispersants
- Take some of the load off of chemists’ shoulders when examining data from spills
Thank you

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