Quantifying Cooking

James Allan
- Lanz et al. 2007
• Allan et al. 2010
ClearfLo CMB comparison

- Yin et al. 2015
Collection efficiency

• If $\text{CE}_{\text{COA}} = 1$, this would explain almost all of the discrepancy

• A reasonable assumption, given that we think COA is principally liquid-phase oils

• Experiments at PSI presented on Monday would suggest this
Implications

- In the case of ClearfLo winter, it would seem that PMF ‘worked’
  - R values great against CMB
  - Intercepts not perfect
    - CMB seems to be measuring a few hundred ng high
  - Assuming CE=1 for COA, slopes good for all factors except BBOA
    - CE? RIE? Rotation? Problems with CMB?
  - The success of PMF is dataset-specific; more comparisons are needed!

- When we report COA, should we be halving the mass concentration?

- More generally, when we report PMF outputs, should we be applying CE/RIE after factorisation?
Further Implications

• If we’re going to be changing the PMF concentrations according to changes in CE or RIE, then we should think about correcting the total mass concentration (Org) we report

• This would mean doing something to a very well-established data product, introducing the potential for errors

• My suggestion would be to adopt the ‘level’ paradigm to data provision, as is used by the EO community

• Opinions?