**Working title keywords**

1. Large scale variation of doc/cdom: from lakes to oceans
2. Patterns
3. An ecosystem view of the doc/cdom relationship
4. Global patterns in the relationship of DOC and spectral CDOM absorbance

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**Important: we should keep the focus on the original question to keep the paper short.**

**Introduction**

1. DOC/CDOM plays many roles in aquatic ecosystems.
2. Numerous studies are presenting graphics or data about the famous DOC/acdom relationships.
3. However, there are at least two potential problems:
   1. Given that results are often study-specific, we are clearly missing the big picture since the results are rarely discussed from a broader perspective.
   2. People are using different wavelengths (300, 355, 254, …) to present acdom data, hence preventing literature comparisons.
4. The idea of this project is to use published data and to explore the relationships between DOC and acdom across a large gradient of ecosystems (from lakes to open ocean) in order to highlight potential drivers influencing such relationships. Additionally, we could use this opportunity to:
   1. Provide a “standard” value for the wavelength used to report acdom.
   2. Find patterns or drivers in CDOM/DOC relationship.
   3. Provide/advertise an open CDOM repository (database) where researchers could deposit their published data. Given that cdom is nowadays routinely measured in most ecological studies, this could provide a central point for further research on CDOM.

**Hypotheses:**

1. Significant relationship exists across the CDOM-DOC range, but that coupling is stronger in the high end (lakes & streams) and weaker in the low end (ocean)
2. Variation in this relationship can be explained by season, ecosystem type or other biogeochemical variables
3. CDOM-DOC relationship can be used to infer the amount of non-colored DOC

**Methods**

**Study sites and data collection**

1. DOC converted in uMol assuming 1uMol = 12g.
2. CDOM were converted to absorption coefficients per meter.

Only data containing minimally geographical coordinates, DOC, aCDOM, date of sampling were retained.

**Data inclusion criteria**

1. Published data (at the moment, maybe this will change)
2. DOC/cdom filtered <= 0.7 um
3. Not frozen
4. No acidification
5. Kept cold in dark
6. Adequate supplementary data (month, year, location)
7. Work with raw cdom data when possible (maybe contact authors that only published figures or summary tables)

**Extrapolation of a(λ)**

1. multiple wavelengths used ➔ need for a method to extrapolate to one wavelength used in the study (S2). The error introduced by this procedure should be quantified.
2. use available spectra to calculate possible error introduced by using a global coefficient to get from one wavelength to another (e.g. from 340 nm to 350 nm)

**What has been done:**

1. Interpolation at 1 nm for the complete spectra.
2. Data cleaning with the 4 criterion.