

Manuscript Title: **Effects of transition metal ions on the optical properties of humic-like substances revealing structural preference**

Manuscript ID: **egosphere-2023-2632**

Review Comments: This manuscript gives insights into light absorbing properties of HULIS with different transition metals at various acidity. The manuscript provides better understanding on light absorption properties of aerosols. The manuscript will be acceptable after addressing below comments. Below provided here some suggestions that improve the readability and presentation of scientific content in the manuscript.

1. Why only four transition metals were considered for the study? Since the objective is to have better understanding of atmospheric processes of transition metals with HULIS. So, why Fe^{+3} was not considered in this study? As Fe^{+3} is involved in the Fenton's reaction and it is one of major reaction known to take place in atmosphere. Then for health risk, Why Cr^{+6} was not considered?
2. The authors give details of the sample collected. Since it is written that samples were collected in winter and summer month. But, did the sample collected covers the whole variation of the seasons or this is only few days sample collection? Please provide details.
3. Firstly, what is the HULIS spectral reproducibility? Add few sentences on uncertainty in the measurements.
4. In the current research, 200-500 nm used to calculate AAE values. Will it make a difference if you choose a high wavelength range to calculate AAE vales? Different groups used different wavelength ranges used to calculate AAE values. Please add the wavelength range used in different studies in the main manuscript.
5. The authors have concluded that Cu^{2+} will have strong influence on HULIS optical properties. But they have not exactly concluded the light absorption properties of HULIS in presence of Cu^{2+} under different acidic conditions. Please elaborate on this.