

Reviewer's report on the revised manuscript by MacInnis et al. "Measurement report: The chemical composition and temporal variability of aerosol particles at Tuktoyaktuk, Canada during the Year of Polar Prediction Special Observing Period", Atmospheric Chemistry and Physics, Manuscript ID: acp-2021-262

In the revised manuscript, the authors have addresses most of my previous comments/concerns. The only significant change that I would suggest is to replace the plots in Figure S3 with continuous time series of meteorological observations (e.g., temperature, relative humidity, surface pressure, wind speed/direction) for the field study period, i.e., July 18 – Sept. 12, instead of during filter sampling periods only. The continuous time series is more useful for providing synoptic context and discerning different air masses influencing the measurements. It can also relate better to the continuous PM mass observations shown in Figure 5.

It is perhaps worth noticing that July 26 could be a good case when the site may be influenced by the Prudhoe Bay Oil Fields emissions, as the back-trajectories, particularly the low-level one, shown in Figure S1, circling around the oil field before arriving at the measurement site. The fact that the water-soluble ions are dominated by sulfate and nitrate may also corroborate this suggestion. Another case of possible interest may be August 27 – the 5-day back-trajectories suggest possible influence of biomass burning pollutants from northern Canada. Does the chemical mass analysis show any indication of biomass burning influence for this day?