

1 Nitrogen measurements

Carbon (C) and Nitrogen (N) weight percents were calculated using an Elemental CHN Analyzer model CDC 440HA with an atropine standard. Approximately 8 to 16 milligrams of each sample were weighed out. At each site 10 measurements were made. The weight percent for N was calculated for each run and plotted in Figure 1.

Due to inconsistencies in the standards, a correction was applied to the samples. This correction presupposes that at least two standards with respective N weight percent of values of M_1 and M_2 were measured. There were η samples measured in between the two standards. Let M_T be defined as the true value of the N standard. Let S_0 be the initial standard ratio which is equal to:

$$S_0 = M_1/M_T$$

Let S_η be the second N standard ratio which is equal to :

$$S_\eta = M_2/M_T$$

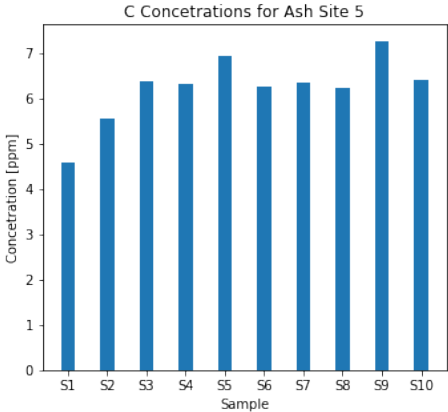
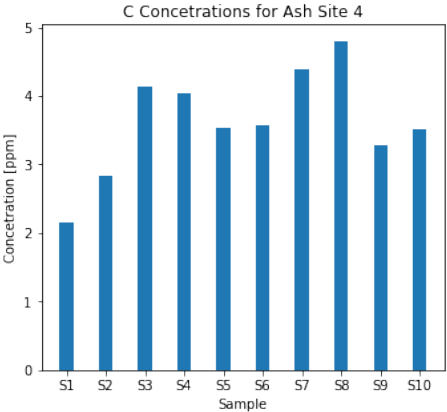
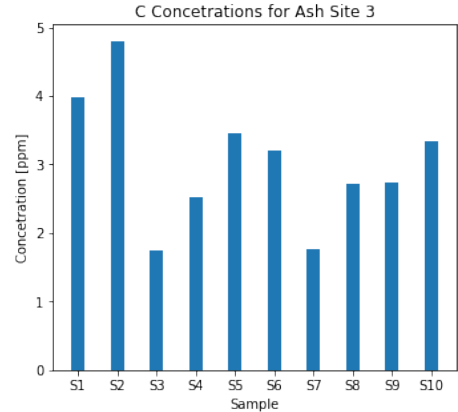
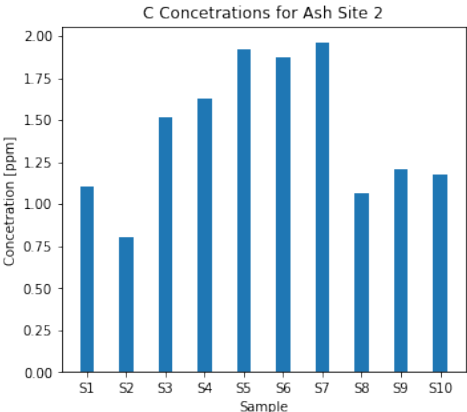
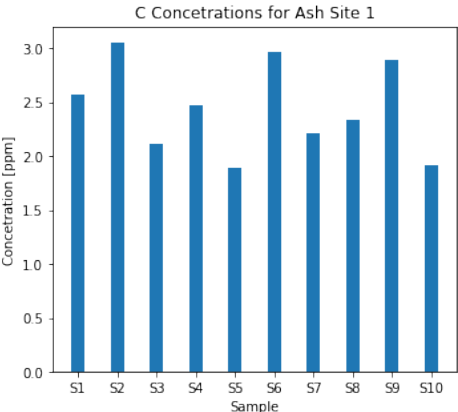
Let any standard ratio for any sample n , where $n \in [1, \eta - 1]$ be equal to :

$$S_n = S_{n-1} + \frac{S_\eta - S_0}{\eta}$$

Let the measured N value for any given sample be σ_n then the corrected N value is :

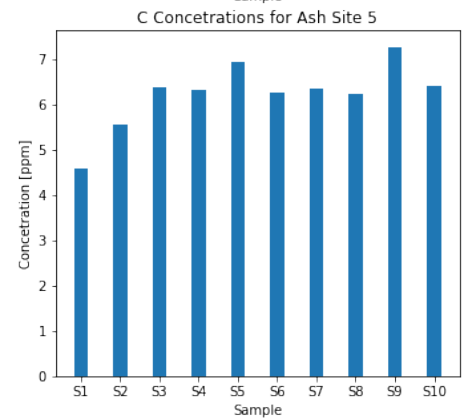
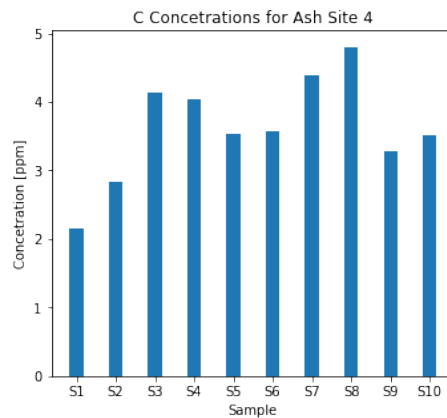
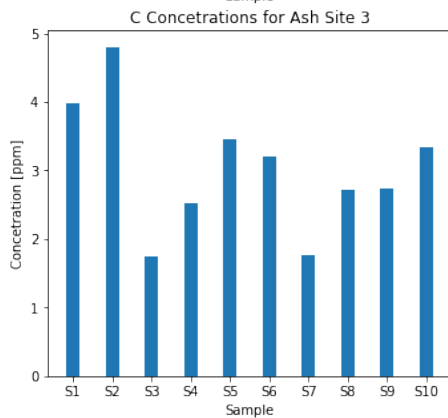
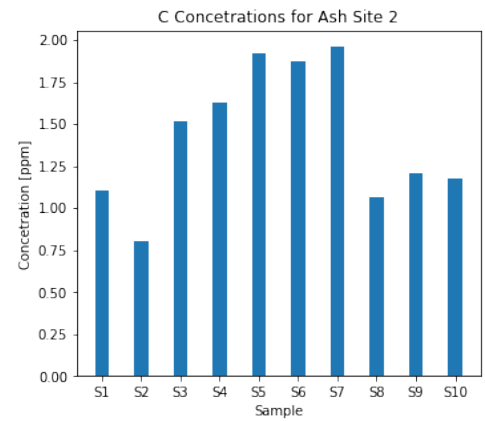
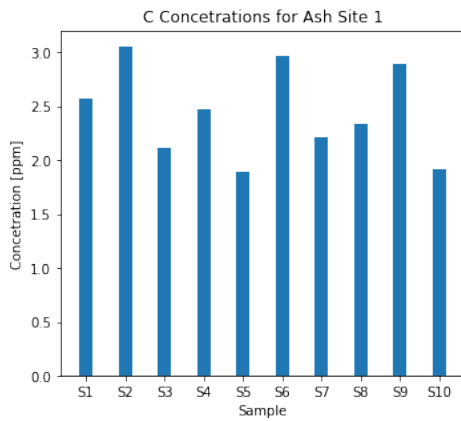
$$N_n = \sigma_n/S_n$$

Nitrogen Concentrations for Ash Samples



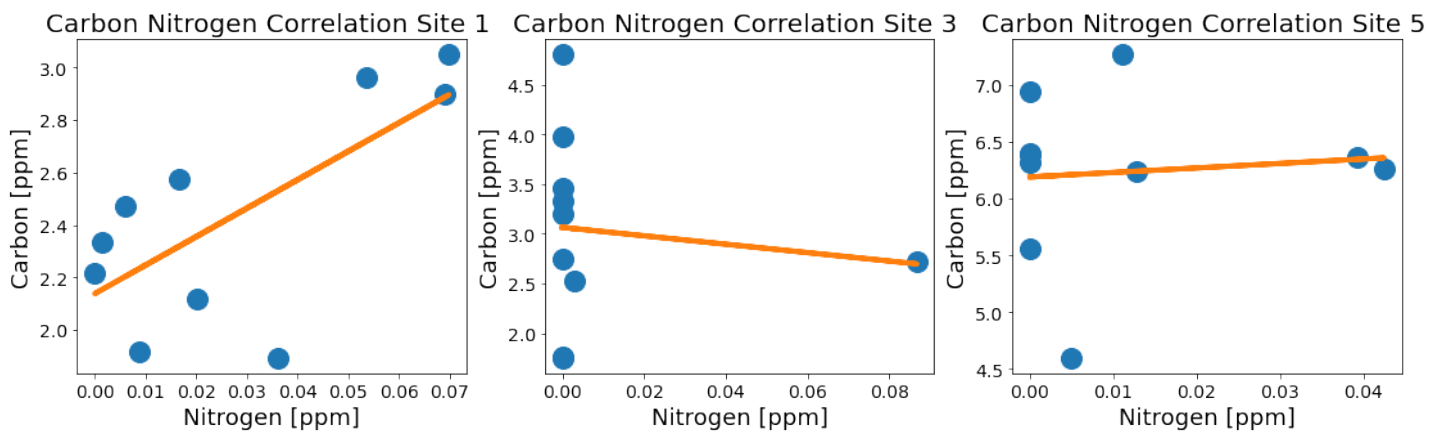
Nitrogen concentration measurements for ash at sites 1,2,3,4, and 5. Ten samples (s1,s2,s3,s4,s5,s6,s7,s8,s9,s10) were analyzed at each location.

Carbon Concentrations for Ash Samples



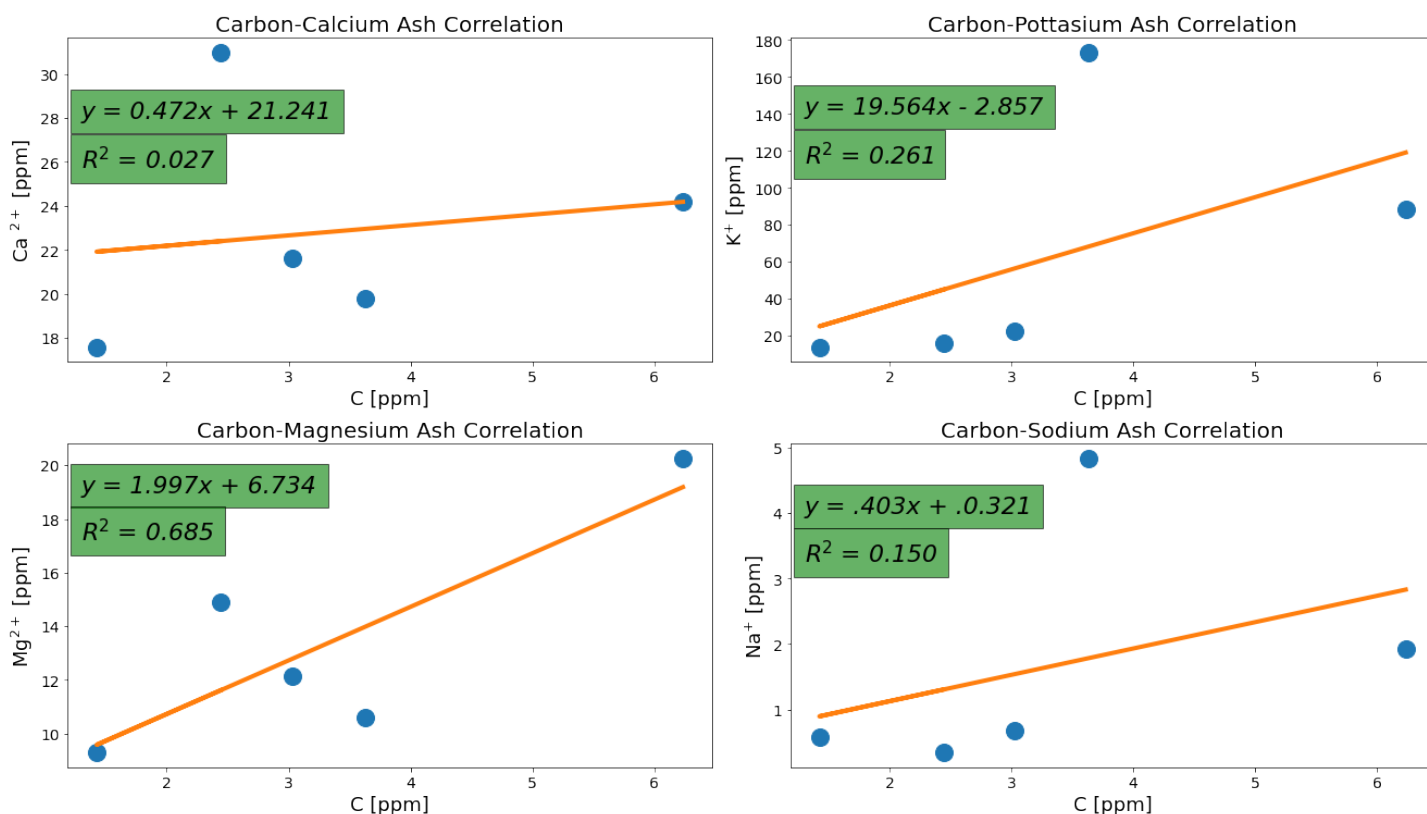
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Carbon and Nitrogen Correlation



Carbon and nitrogen correlations
for sites 1,3, and 5

Carbon and Major Cation Correlation



Carbon and nitrogen ash weight percents were calculated using an Elemental CHN Analyzer model CDC 440HA with an atropine standard. Specifications regarding the procedure can be found in the Nitrogen Supplemental section of this document (Pg 1). The nitrogen measurements were notable due to the large number of zero concentration samples compared to the carbon samples. The carbon and nitrogen samples were not strongly correlated at sites 1, 3, and 5. The carbon measurements were also compared to the major cations ash samples. The nitrogen measurements were not compared with the major cations due to zero-inflation in the nitrogen dataset. None of the major cations were highly correlated with carbon.