

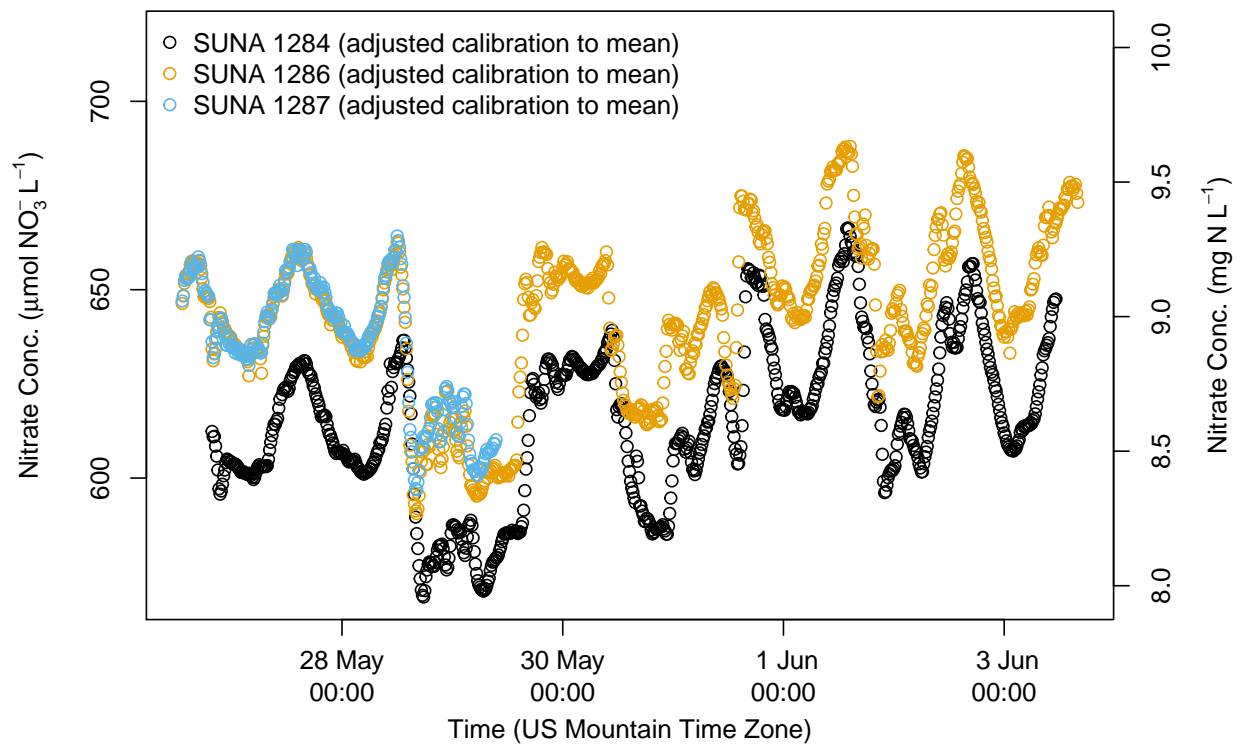
Lagrangian nitrate JRWLouseRR 20200526

Rob Payn

24 June 2020

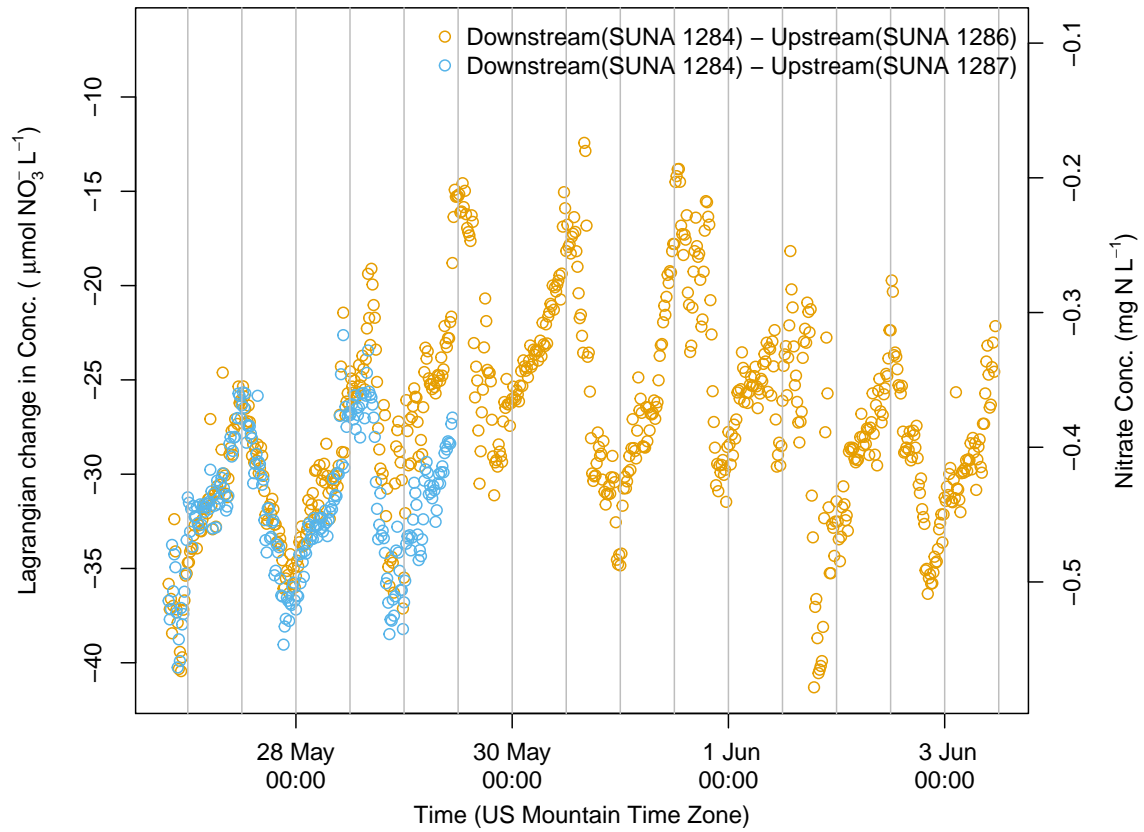
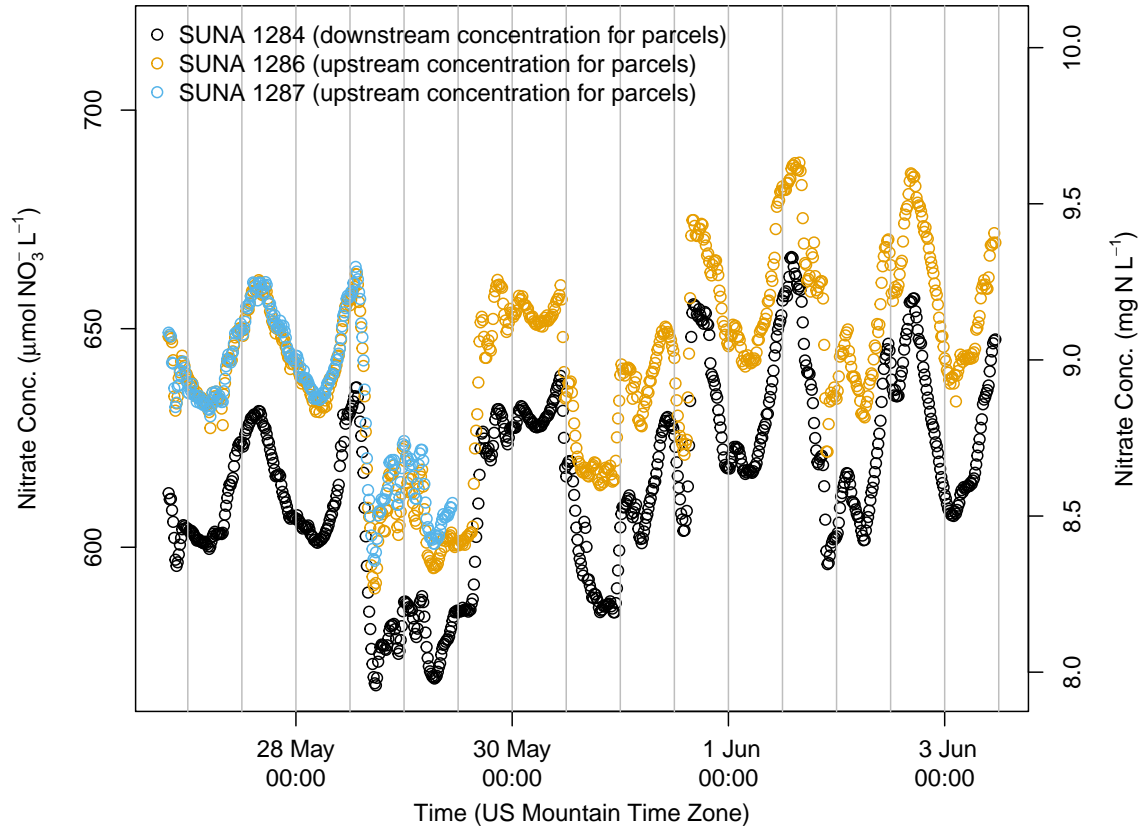
1. Load and visualize data

The analysis starts with the data that was corrected to the mean based on a linear regression of data collection during a calibration period (all sensors at the same location). Data were copied from the sUNA synthesis data product into the “01_input” directory for this data product.

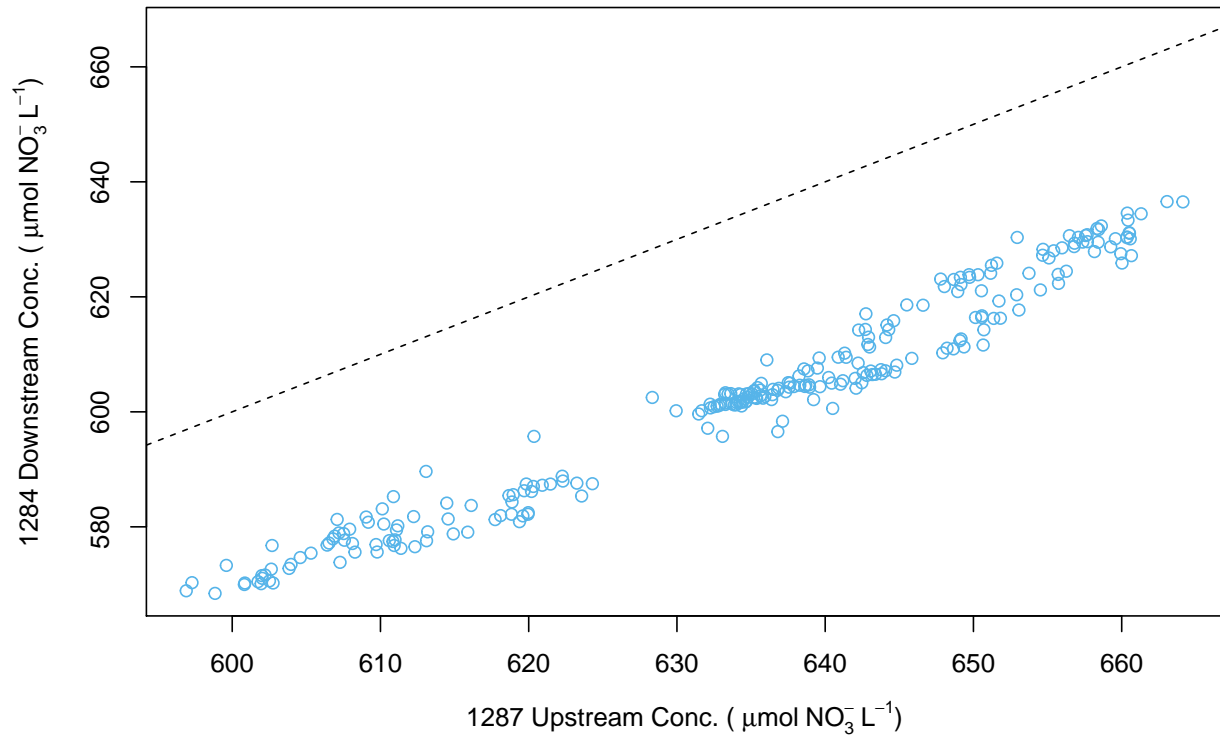
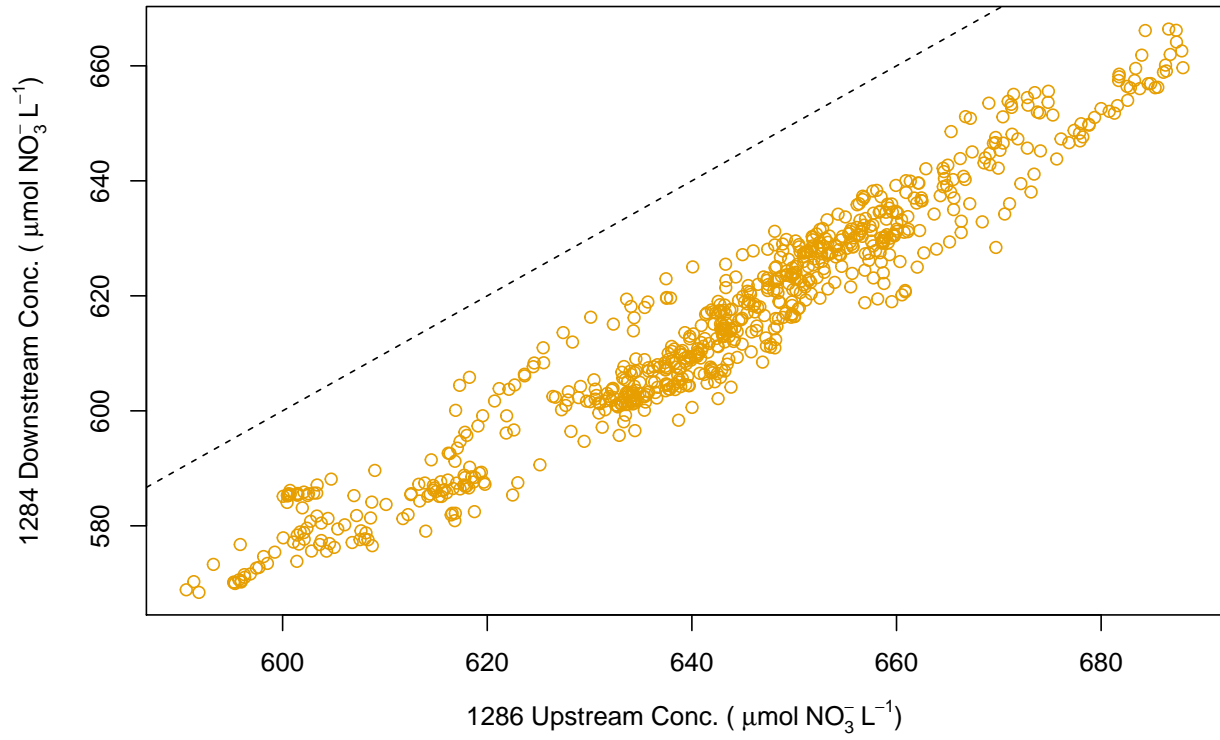


2. Derive data for Lagrangian parcels (factor corrected data)

A Lagrangian analysis requires the upstream data to be adjusted to times that account for the travel time of the reach (in this case 75.5 minutes). The upstream concentrations for the parcels of stream water passing at the time of downstream SUNA 1284 measurements were temporally interpolated from the SUNA 1286 and 1287 measurements, based on subtracting the transport time from the downstream SUNA 1284 measurement times. The first 14 data points were removed from the SUNA 1284 data to avoid any extrapolation. Then, the difference between the downstream and upstream concentrations for each parcel were calculated and plotted vs. the arrival time of the parcel at the downstream end of the reach.

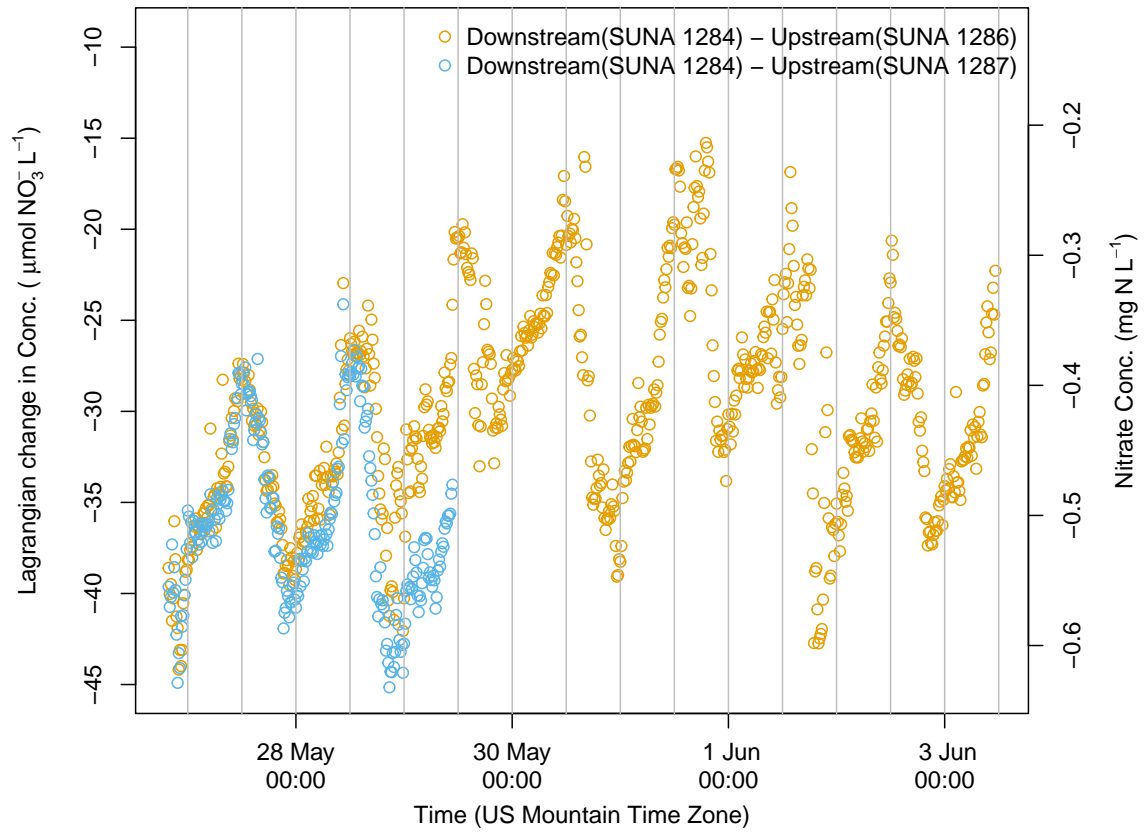
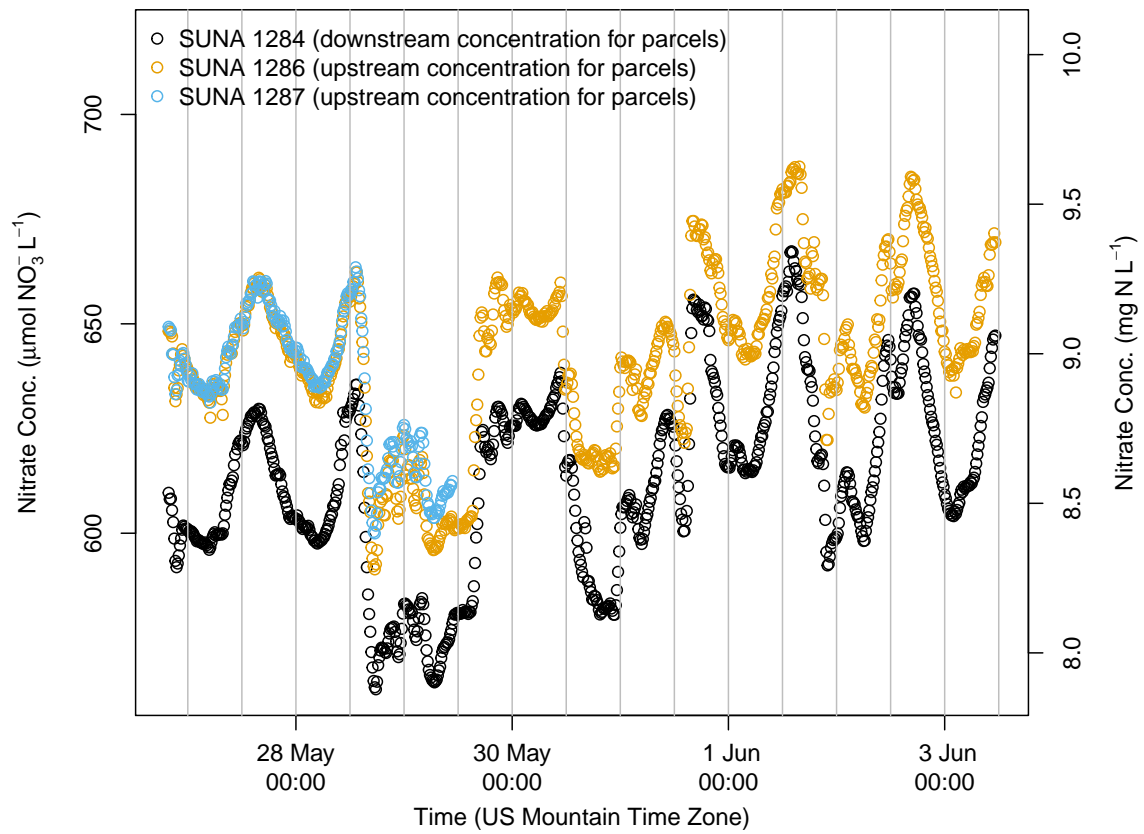


Examine the correlation between the upstream and downstream concentrations for each parcel.

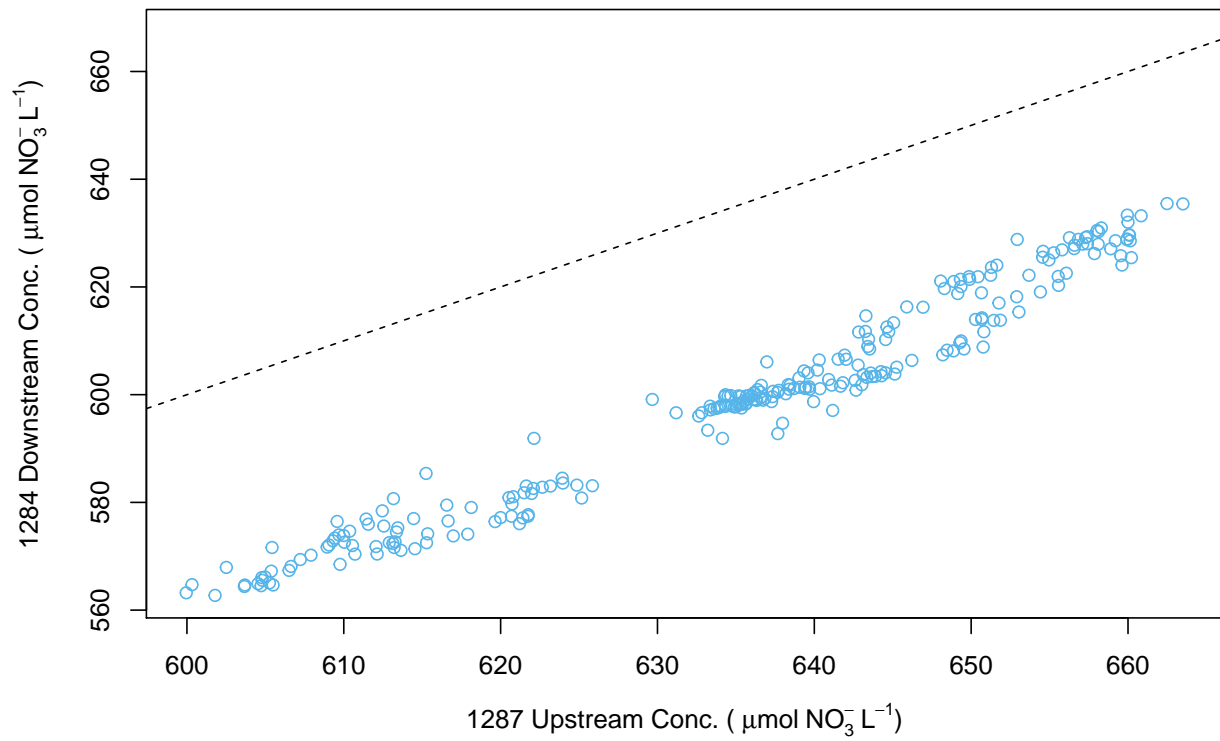
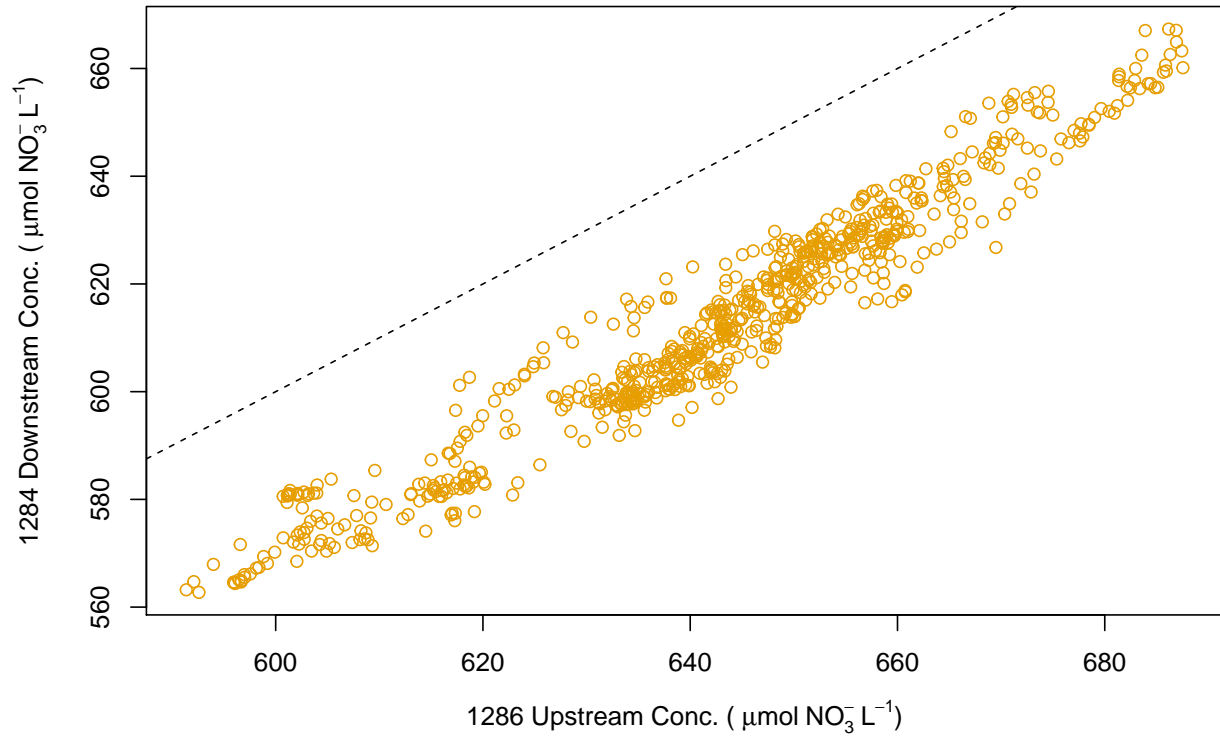


3. Derive data for Lagrangian parcels (offset corrected data)

A Lagrangian analysis requires the upstream data to be adjusted to times that account for the travel time of the reach (in this case 75.5 minutes). The upstream concentrations for the parcels of stream water passing at the time of downstream SUNA 1284 measurements were temporally interpolated from the SUNA 1286 and 1287 measurements, based on subtracting the transport time from the downstream SUNA 1284 measurement times. The first 14 data points were removed from the SUNA 1284 data to avoid any extrapolation. Then, the difference between the downstream and upstream concentrations for each parcel were calculated and plotted vs. the arrival time of the parcel at the downstream end of the reach.

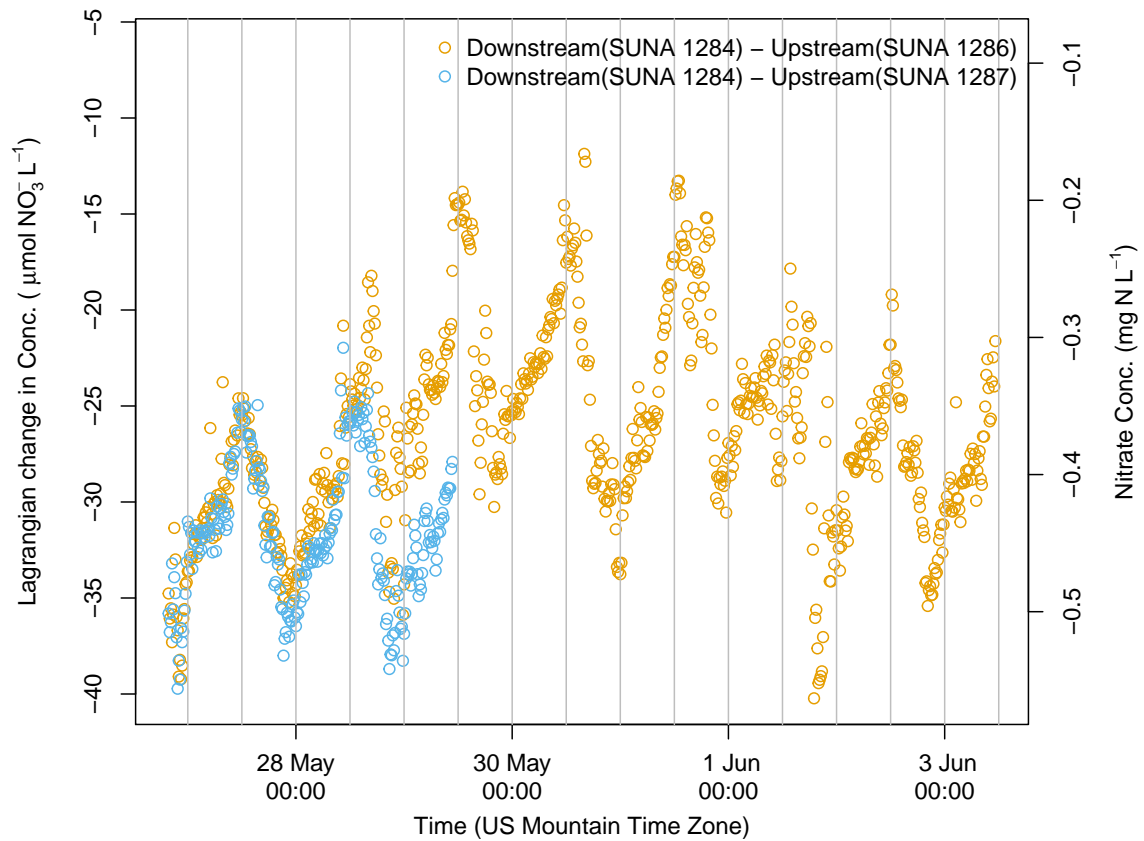
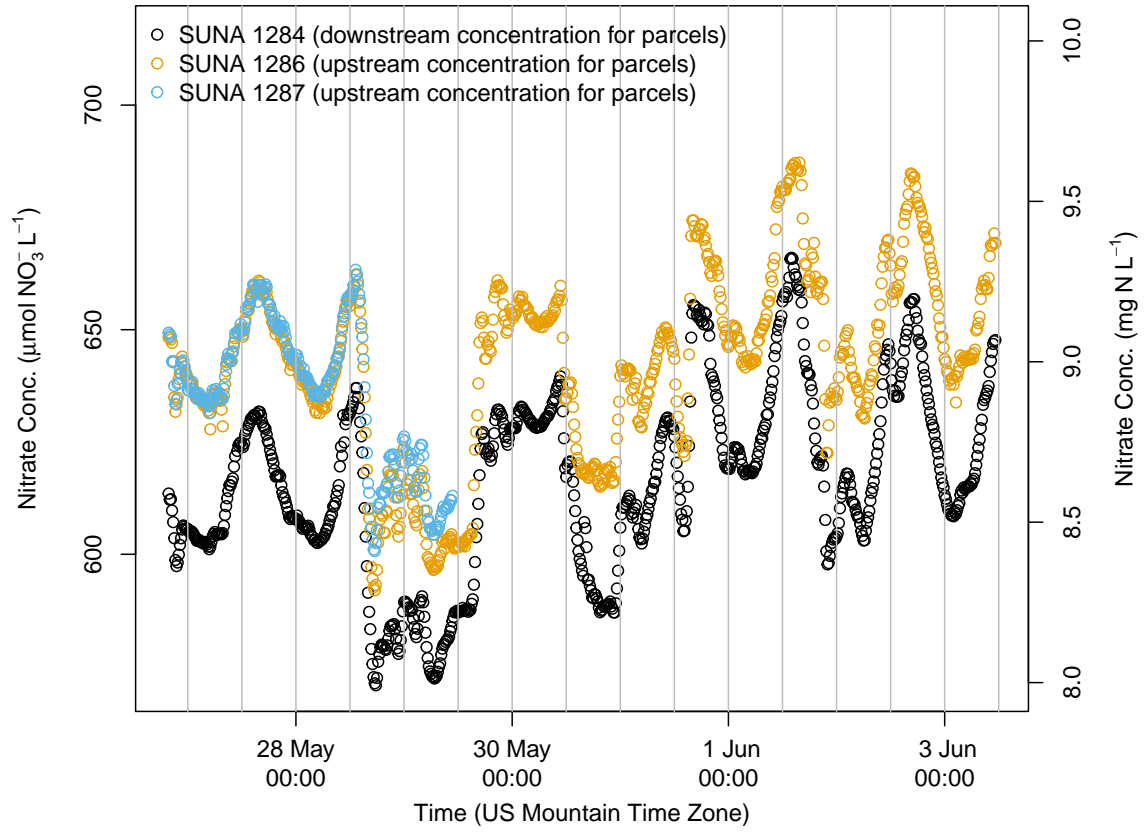


Examine the correlation between the upstream and downstream concentrations for each parcel.



4. Derive data for Lagrangian parcels (linear model corrected data)

A Lagrangian analysis requires the upstream data to be adjusted to times that account for the travel time of the reach (in this case 75.5 minutes). The upstream concentrations for the parcels of stream water passing at the time of downstream SUNA 1284 measurements were temporally interpolated from the SUNA 1286 and 1287 measurements, based on subtracting the transport time from the downstream SUNA 1284 measurement times. The first 14 data points were removed from the SUNA 1284 data to avoid any extrapolation. Then, the difference between the downstream and upstream concentrations for each parcel were calculated and plotted vs. the arrival time of the parcel at the downstream end of the reach.



Examine the correlation between the upstream and downstream concentrations for each parcel.

