# Chapter 3. Results from the long term Ndep measurements

Data in Griffin have been collected from October 2011 to May 2017. 198 precipitation depths, 233 v-notch flows, 1257 stemflow volumes and 1112 throughfall depths have been collected. 2937 NH4-N and 2943 NO3-N samples have been analysed via colorimetric analysis, including 2 blanks per each monthly batch.

## Corrections to the database

Outliers. The database has been analysed in R to detect possible outliers by using the Tuckey’s method. This procedure allows to highlight possible errors in data collection or copy in field or populating the database. No outliers were found in TF, SF, RF and cloudwater water volumes (2800 data in total).

When applied to the lab results by N species and N source, Tukey’s method alone shows a very high number of potential outliers, due to many reasons:

1. Dates with peaks of Ndep: high levels of Ndep are shown on March-April 2013 and April 2014 and confirmed by other sources (MAXVIENO); in these cases no data have been rejected
2. Data from several samplers of a N flux showed high values compared to the inputs, but this occured in months with low precipitation or relatively low N mass values
3. The variability between samples that can be the result of different variables (water volume, contaminants in the barrels).

A precautional approach aimed to minimise the number of rejected data was adopted and in the following table are shown the outliers accepted and removed from the database:

|  |  |  |
| --- | --- | --- |
| Date | Sample | N form |
| 19/10/2015 | T11T2 | NO3.N |
| 22/08/2013 | T11T2 | NH4.N |
| 21/04/2015 | T12T1 | NH4.N |
| 24/04/2014 | T12T1 | NH4.N |
| 24/07/2014 | T10S2 | NO3.N |
| 24/07/2014 | T10S2 | NH4.N |
| 20/06/2014 | T12S2 | NH4.N |
| 23/02/2015 | T10S1 | NH4.N |
| 28/07/2013 | T10S2 | NH4.N |
| 22/08/2013 | C10S1 | NH4.N |
| 23/02/2015 | T10S2 | NH4.N |
| 26/04/2012 | T10S2 | NH4.N |
| 17/06/2015 | C31D1 | NH4.N |
| 21/07/2015 | C31D1 | NH4.N |
| 03/10/2013 | C31D1 | NH4.N |
| 22/06/2016 | C31D1 | NH4.N |
| 25/07/2016 | C30D1 | NH4.N |

Regression and interpolation. The data from the rainfall gauges and the harp-wire cloudwater collector needed che?

## Precipitation

Create precipitation curves. With propagation error. Prop err explanation.

## Precipitation and throughfall volumes

## Stemflow

Explanation of how the “average tree” has been calculated. Segui lo script

Analysis by DBH^2

Methodology: gauged flow by bucket! Comparison?

Notes for later:

Mitchell work with 87-93 of CNU!

Results for the 5 years dataset: Descrizione del database ottenuto -> fieldwork and lab methodology, data quality (NAs), data treatment, outliers, regression and interpolation.