GHG Soil Daily Analysis Report

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1 CO2 flux flags are classified as Missing, Negative (< 0), Very Low (< 100), Plausible (100 - 4000), and Extremely High (> 4000), with units in **mg C m-2 day-1. 8

2 N2O flux flags are classified as Missing, Negative (< 0), Below Detection (< 0.01), Plausible (0.01 - 5), and Extremely High (> 5), with units in **mg N m-2 day-1. 8

0.1 1. Load and Process Data

```
## Number of rows in final_data: 101
```

0.2 2.Checking Valid & Invalid

```
## Rows after filtering missing and -9999 values: 100
```

Table 1: Summary of Invalid or Missing Rows

Row Type	Count	Percentage (%)
Valid Row	100	100

[a] 'Has -9999 Only' indicates rows with placeholder values (-9999), but no other missing data.

Table 2: Monthly Summary of Rows with -9999 in Specific Columns

MonthYear	TotalRows	RowsWith_One_Column	RowsWith_Multiple_Columns	RowsWith_All_Columns
2025-04	100	0	0	0

0.3 3. Sensor Failures

0.4 4. Time Gap Categorization & Flagging

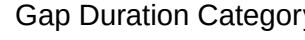
```
## [1] DateTime     TimeDiff_min GapCategory  TimeGapFlag
## <0 rows> (or 0-length row.names)
```

0.5 5. Summary & Visualization

```
## [1] "Skewness of TimeDiff_min: NaN"
```

Figure 1: Distribution of Time Gap Durations

Filtered to gaps > 2 hour across sampling period

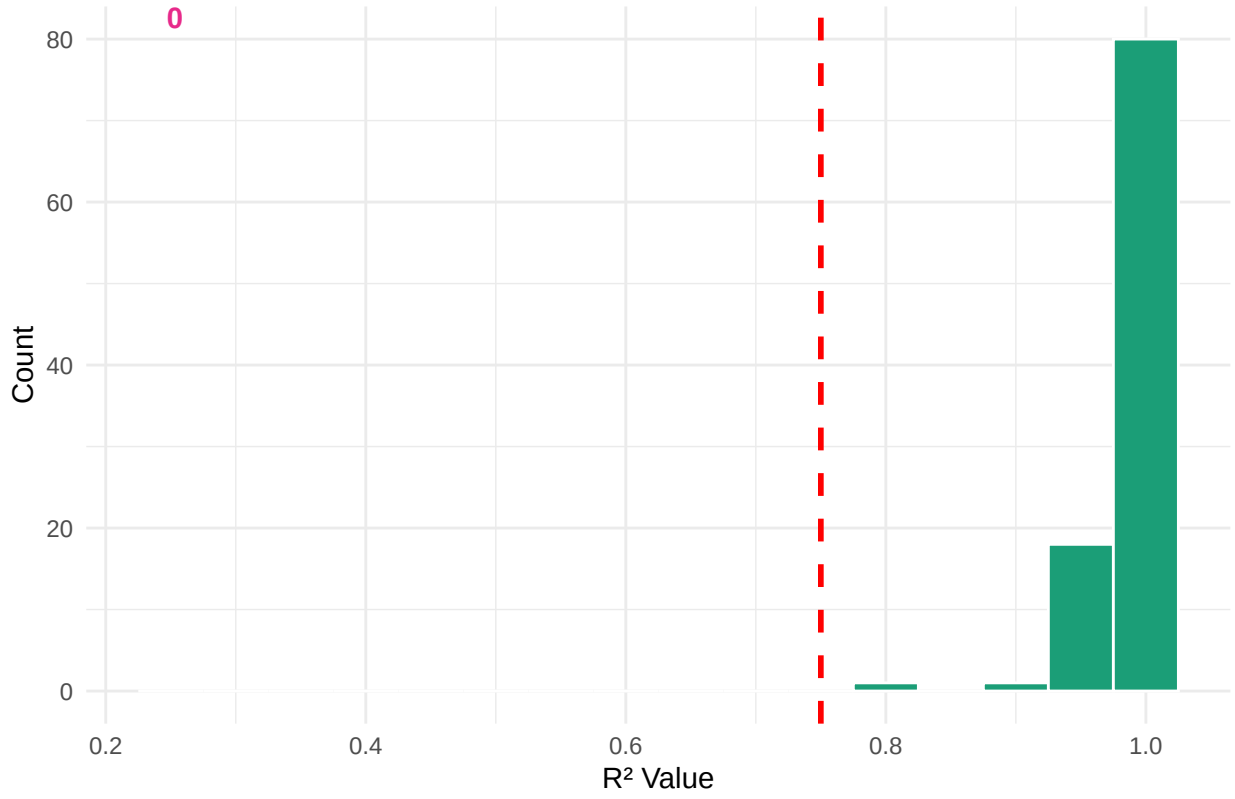


0.6 6. R2 Analysis

Table 3: Summary of R^2 Values for CO2 Flux (FCO2)

Total Records	R^2 >= 0.75	R^2 < 0.75	Percentage >= 0.75	Percentage < 0.75
100	100	0	100	0

Figure 2: Distribution of R^2 Values for CO2 Flux



7. CV Analysis

Table 4: Summary of CO2 Flux CV Flags

CO2 Flux CV Flag	Count	Percentage
Acceptable	83	83
Issue	1	1
Plausible	16	16

Table 5: Summary of N2O Flux CV Flags

N2O Flux CV Flag	Count	Percentage
Acceptable	31	31
Issue	50	50
Plausible	19	19

Figure 3:Distribution of CO2 Flux CV Flags

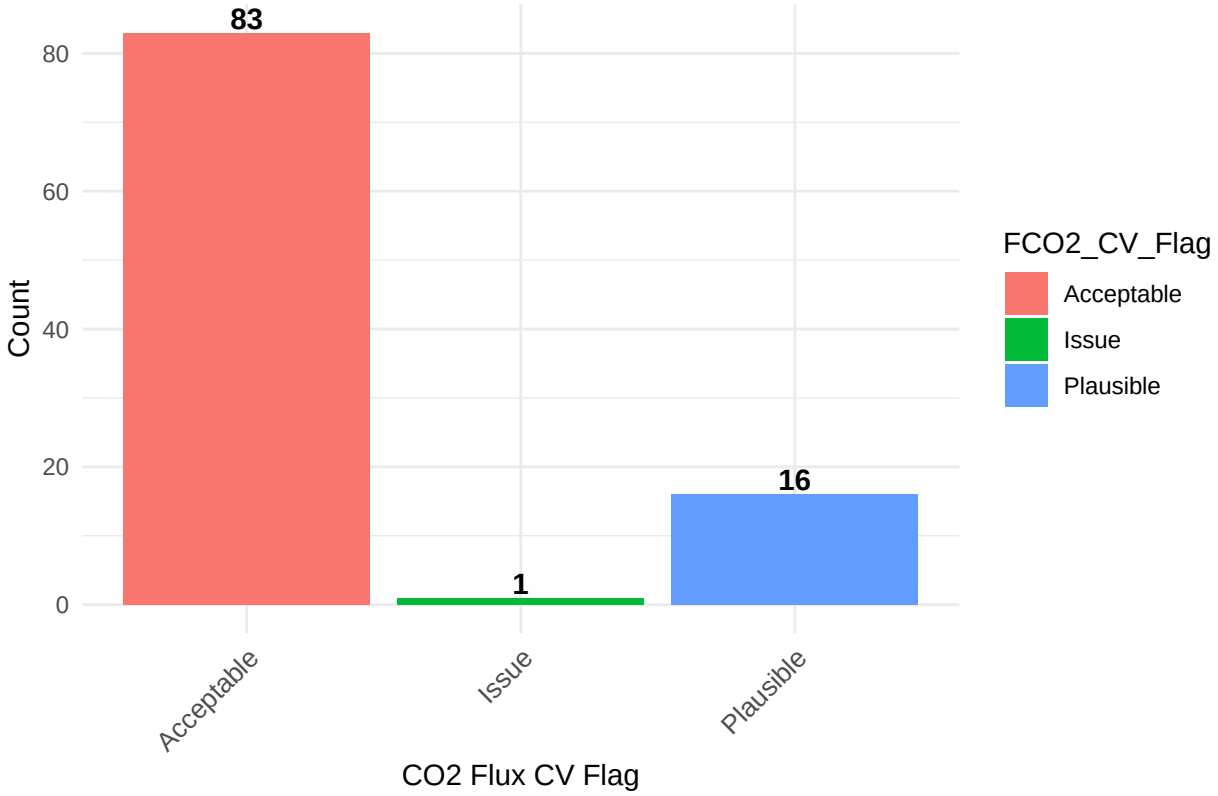


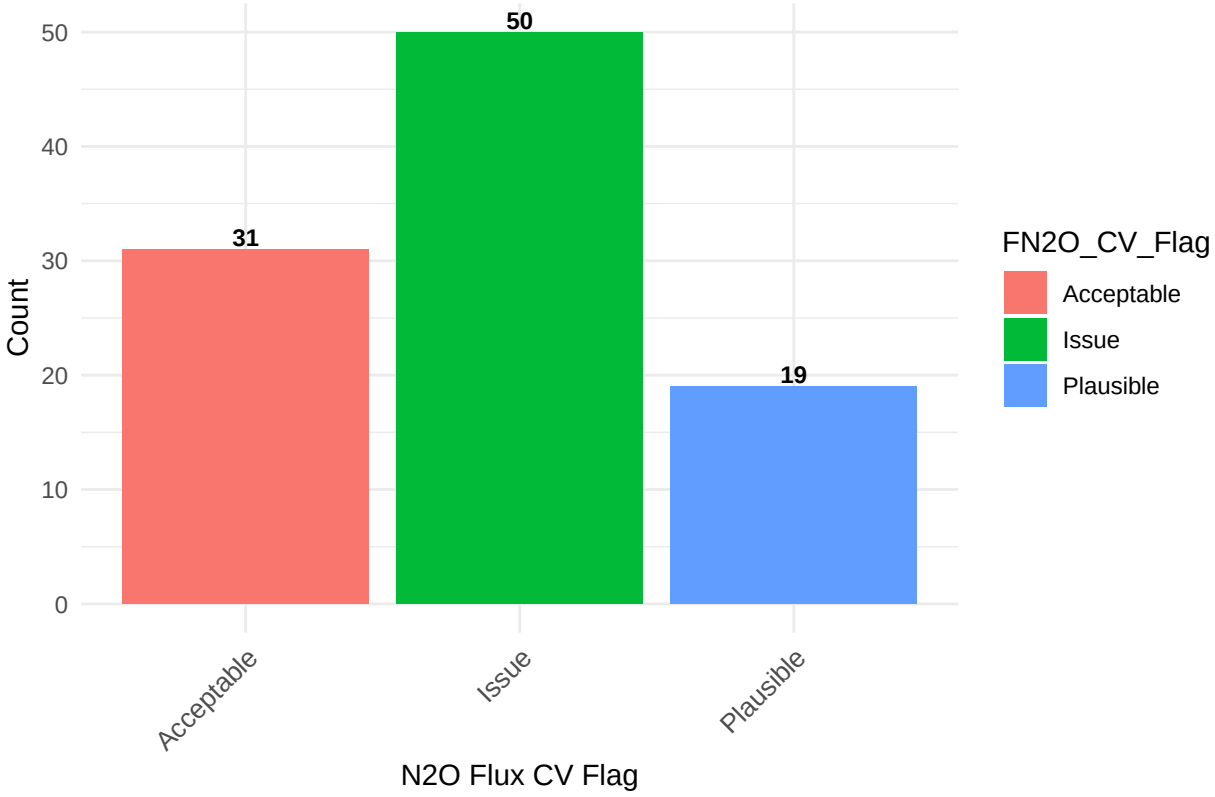
Table 6: Summary of CO2 Flux Flags

CO Flux Flag	Count	Percentage
Very Low (<100)	100	100

Table 7: Summary of N2O Flux Flags

NO Flux Flag	Count	Percentage
Below Detection (<0.01)	22	22
Negative	36	36
Plausible	42	42

Figure 4:Distribution of N2O Flux CV Flags



CO2 and N2O flux CVs are classified as follows: **Ideal** (< 0.5), **Acceptable** ($0.5 - 2$), **Plausible** ($2 - 3$), and **Issue** (> 3), based on the level of variability in the measurements.

0.7 8. Flux Control

Figure 5: Distribution of CO2 Flux Flags

Flagging based on FCO2 flux values

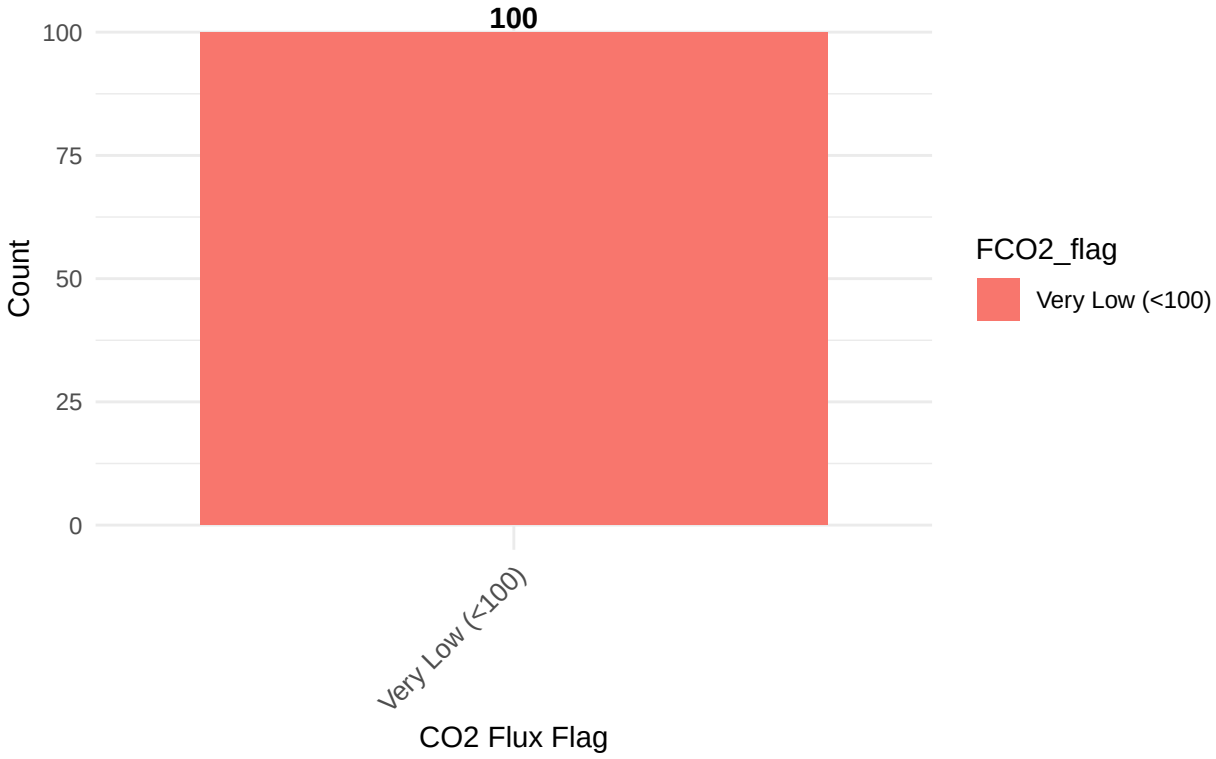
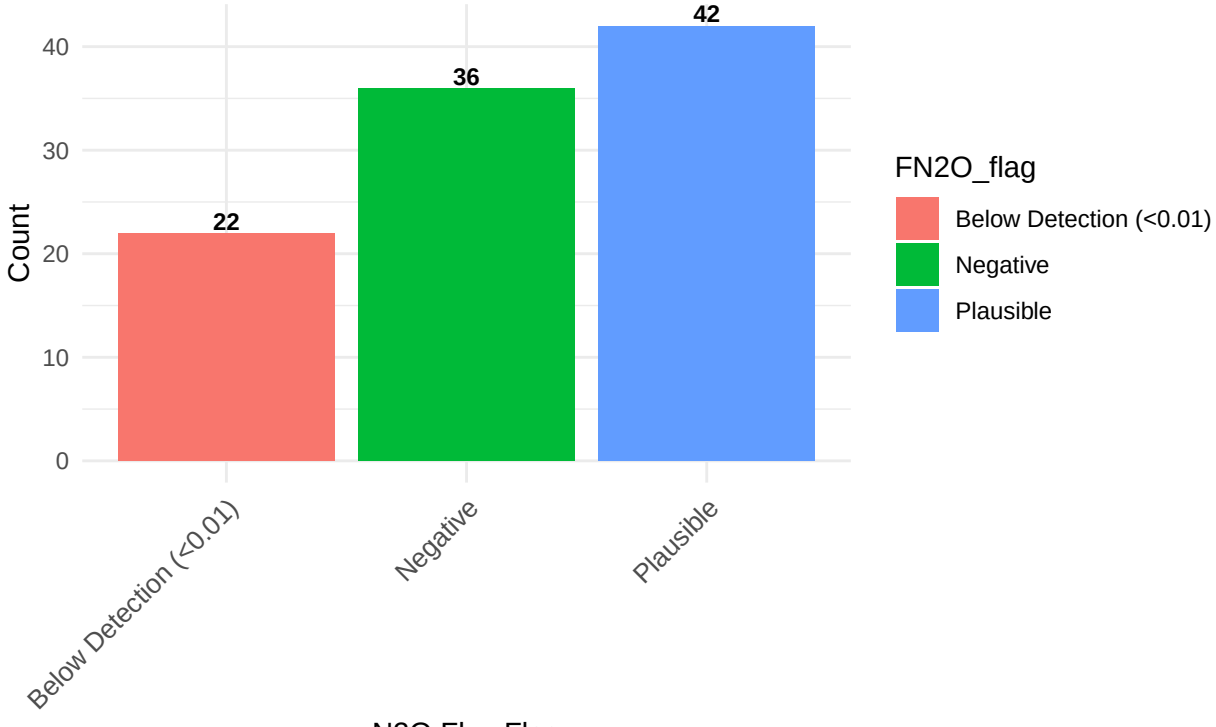


Figure 6: Distribution of N2O Flux Flags

Flagging based on FN2O flux values



1 **CO2 flux flags are classified as Missing, Negative (< 0), Very Low (< 100), Plausible (100 - 4000), and Extremely High (> 4000), with units in **mg C m-2 day-1.**

2 **N2O flux flags are classified as Missing, Negative (< 0), Below Detection (< 0.01), Plausible (0.01 - 5), and Extremely High (> 5), with units in **mg N m-2 day-1.**