Harvard Forest Data Archive HF421-07

Data File:

Name = hf421-07-photosynthesis-aci.csv
Description = A/Ci curves
Rows = 299 Columns = 46
MD5 checksum = d945ecd2ccd738c0069c9cabdc5b7963

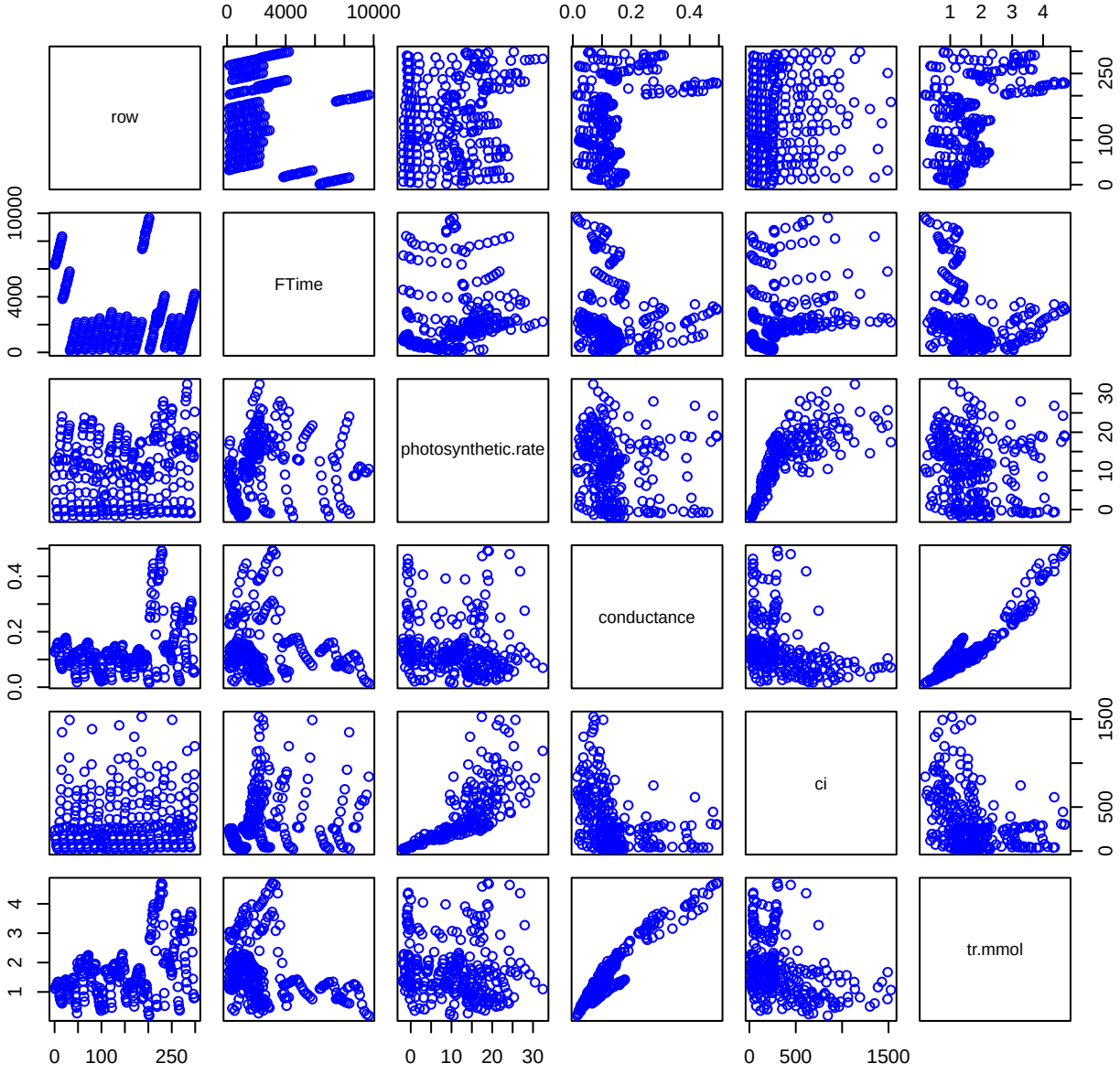
Variables:

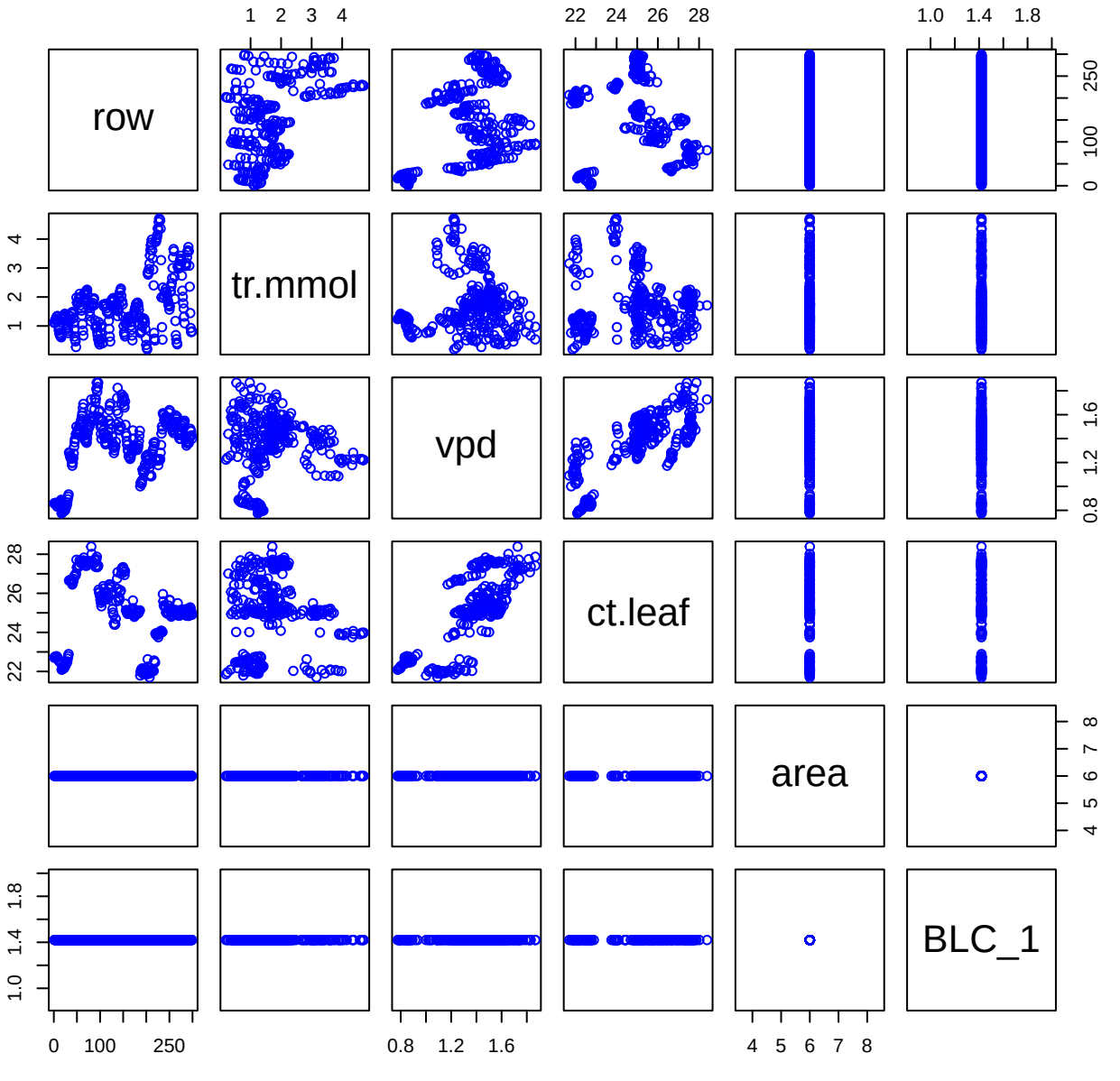
FTime = flow time (second)
photosynthetic.rate = measurement of photosynthetic rate
   (micromolePerMeterSquaredPerSecond)
conductance = conductance to H2O (molePerMeterSquaredPerSecond)
ci = intercellular CO2 concentration
   (micromolePerMeterSquaredPerSecond)
tr.mmol = transpiration rate (millimolePerMeterSquaredPerSecond)
vpd = vapour pressure deficit based on leaf temperature (kilopascal)
ct.leaf = temperature of leaf thermocouple (celsius)
area = in-chamber leaf area on which the measurement was performed
   (centimeterSquared)
BLC_1 = one-side boundary layer conductance
   (molePerMeterSquaredPerSecond)
StmRat = stomatal ratio estimate (dimensionless)
BLCond = total boundary layer conductance
   (molePerMeterSquaredPerSecond)
t.air = air temperature (celsius)
t.leaf = leaf temperature (celsius)
t.bulk = bulk temperature (celsius)
co2.r = CO2 concentration in the reference cell (micromolePerMole)
co2.s = CO2 concentration in the sample cell (micromolePerMole)
h2o.r = H2O concentration in the reference cell (micromolePerMole)
h2o.s = H2O concentration in the sample cell (micromolePerMole)
rh.r = relative humidity in the reference cell (dimensionless)
rh.s = relative humidity in the sample cell (dimensionless)
flow = flow rate (millimolePerSecond)
par.i = photosynthetically active radiation inside the chamber
   (micromolePerMeterSquaredPerSecond)
par.o = photosynthetically active radiation outside the chamber
   (micromolePerMeterSquaredPerSecond)
press = atmospheric pressure photosynthetically active radiation
   inside the chamber (kilopascal)
CsMch = sample CO2 offset (micromolePerMole)
HsMch = sample H2O offset (millimolePerSecond)
StableF = flag whether the feed flow is stable (dimensionless)
BLCslope = slope of the boundary layer conductance of the leaf
   (dimensionless)
BLCoffst = offset of the boundary layer conductance of the leaf
   (micromolePerMeterSquaredPerSecond)
t.air.k = air temperature (kelvin)

t.wall.k = wall temperature (kelvin)
rad = flag whether radians are used for trigonometrics functions
   (dimensionless)
Tl.Ta = difference in leaf and air temperature (celsius)
CndTotal = total conductance (micromolePerMeterSquaredPerSecond)
vp_kPa = vapour pressure (kilopascal)
vpd.a = vapour pressure deficit based on air temperature
   (kilopascal)
CndCO2 = CO2 conductance (micromolePerMeterSquaredPerSecond)
ci.Pa = intercellular CO2 concentration (micromolePerMole)
Ci.Ca = ratio of intercellular over ambient CO2 concentration
   (micromolePerMole)

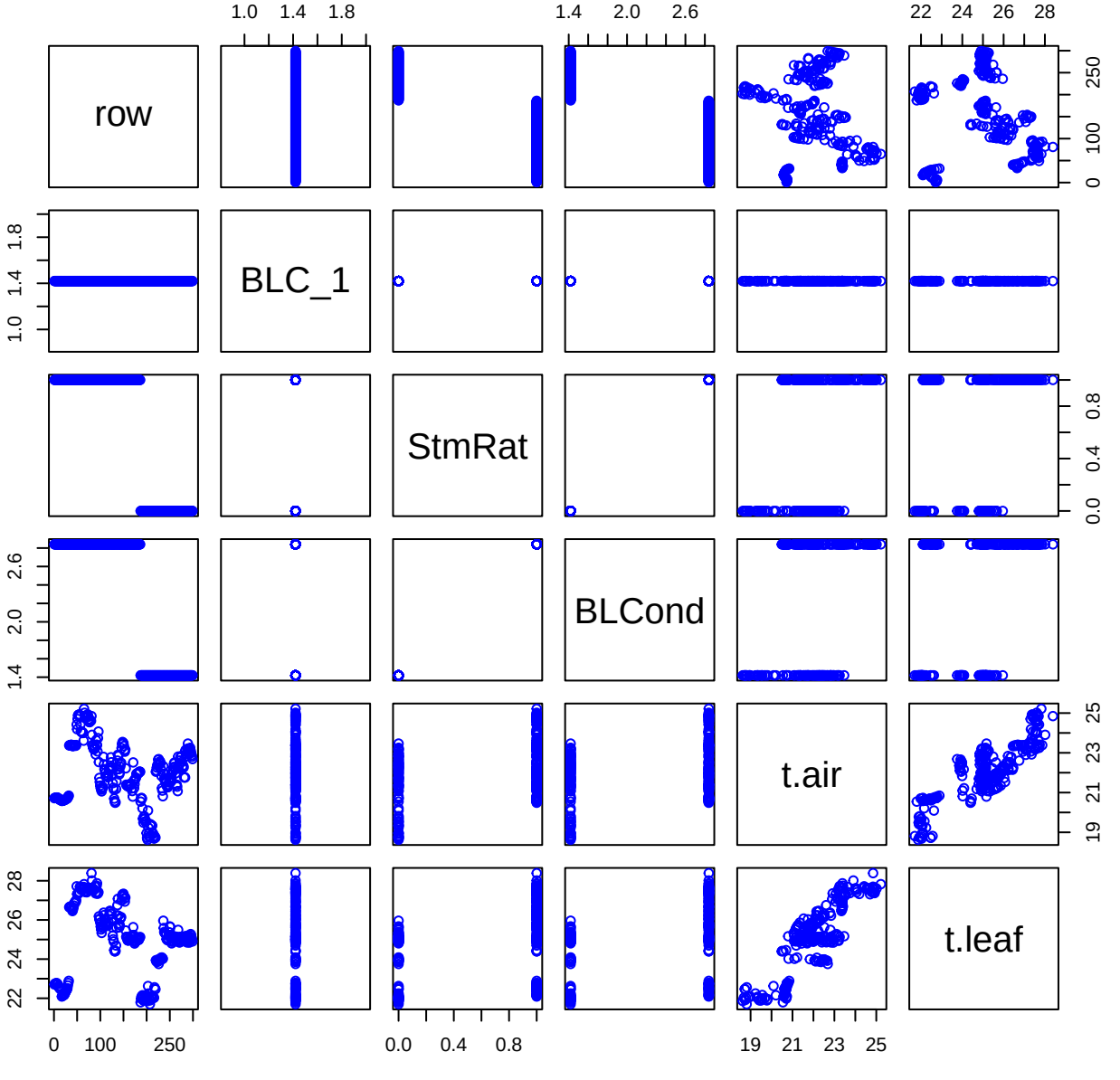
Variable	Min	Median	Mean	Max	NAs
FTime	139.000	1681.000	2359.982	9665.500	0
photosynthet	−1.868	10.800	10.436	32.406	0
conductance	0.015	0.117	0.139	0.493	0
ci	19.531	248.943	334.574	1526.146	0
tr.mmol	0.194	1.600	1.743	4.705	0
vpd	0.775	1.402	1.365	1.868	0
ct.leaf	21.699	25.133	25.082	28.388	0
area	6.000	6.000	6.000	6.000	0
BLC_1	1.420	1.420	1.420	1.420	0
StmRat	0.000	1.000	0.622	1.000	0
BLCond	1.420	2.840	2.303	2.840	0
t.air	18.626	21.994	22.025	25.217	0
t.leaf	21.699	25.133	25.082	28.388	0
t.bulk	16.923	20.546	20.634	24.043	0
co2.r	0.744	419.992	575.658	2001.246	0
co2.s	2.394	402.377	559.310	1984.005	0
h2o.r	9.050	16.730	16.489	21.827	0
h2o.s	13.304	18.852	19.013	23.796	0
rh.r	39.316	61.448	59.989	73.741	0
rh.s	59.599	69.256	69.202	79.652	0
flow	399.676	399.784	414.097	500.285	0
par.i	1498.603	1499.938	1499.960	1501.407	0
par.o	25.404	126.218	269.547	1865.623	0
press	96.350	97.225	97.113	97.558	0
CsMch	1.013	3.854	3.667	6.888	0
HsMch	−0.276	−0.206	−0.198	−0.088	0
StableF	0.000	1.000	0.764	1.000	0
BLCslope	−0.220	−0.220	−0.220	−0.220	0
BLCoffst	2.737	2.737	2.737	2.737	0
t.air.k	294.849	298.283	298.232	301.538	0
t.wall.k	291.776	295.144	295.175	298.367	0
rad	239.776	239.990	239.994	240.225	0
Tl.Ta	0.188	1.555	1.524	2.335	0
CndTotal	0.015	0.112	0.124	0.366	0
vp_kPa	1.293	1.837	1.846	2.302	0
vpd.a	0.655	1.114	1.081	1.522	0
CndCO2	0.009	0.070	0.079	0.237	0
ci.Pa	1.899	24.136	32.492	148.757	0
Ci.Ca	0.241	0.660	0.928	9.905	0

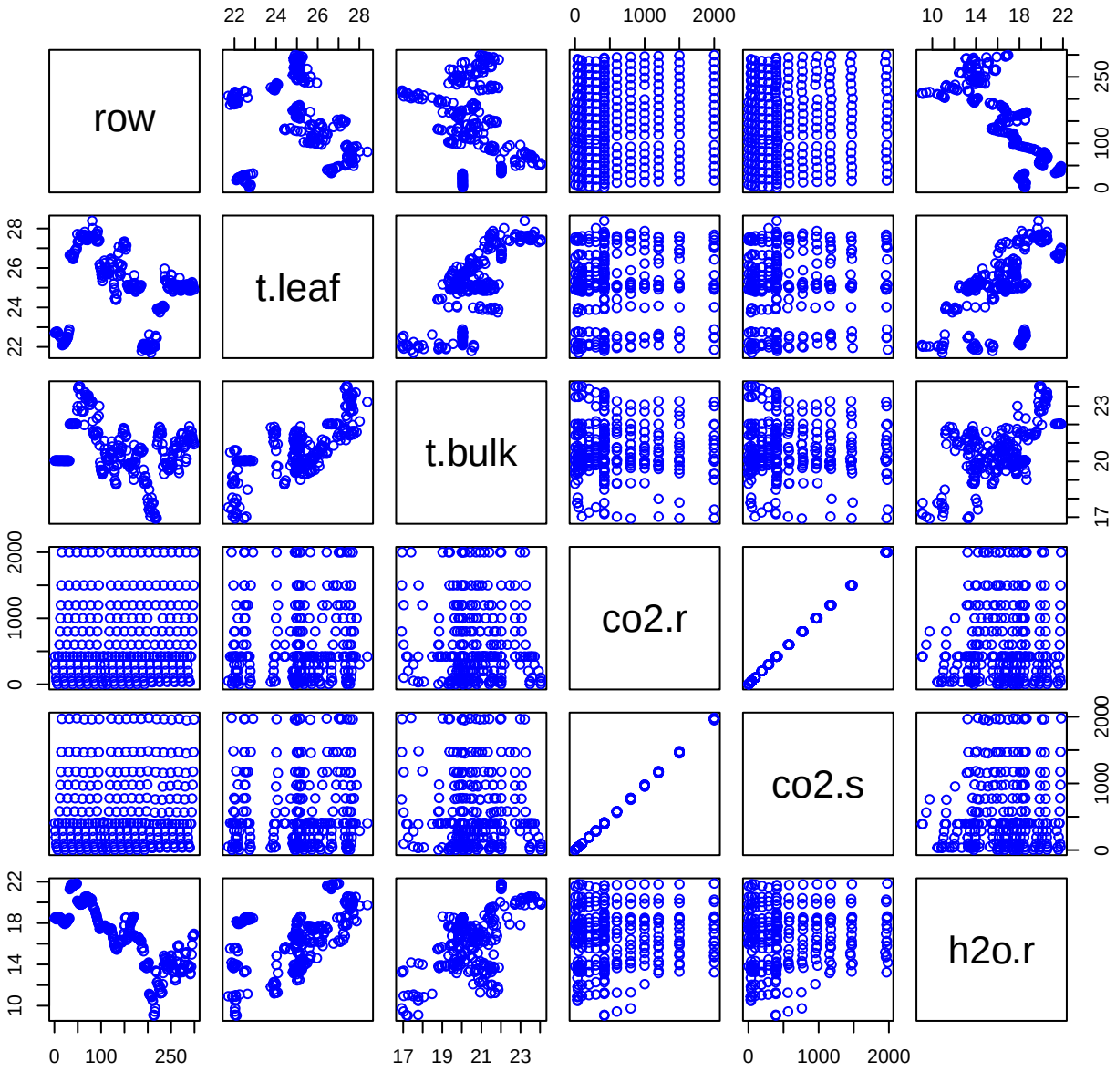
HF421−07 Plot 1



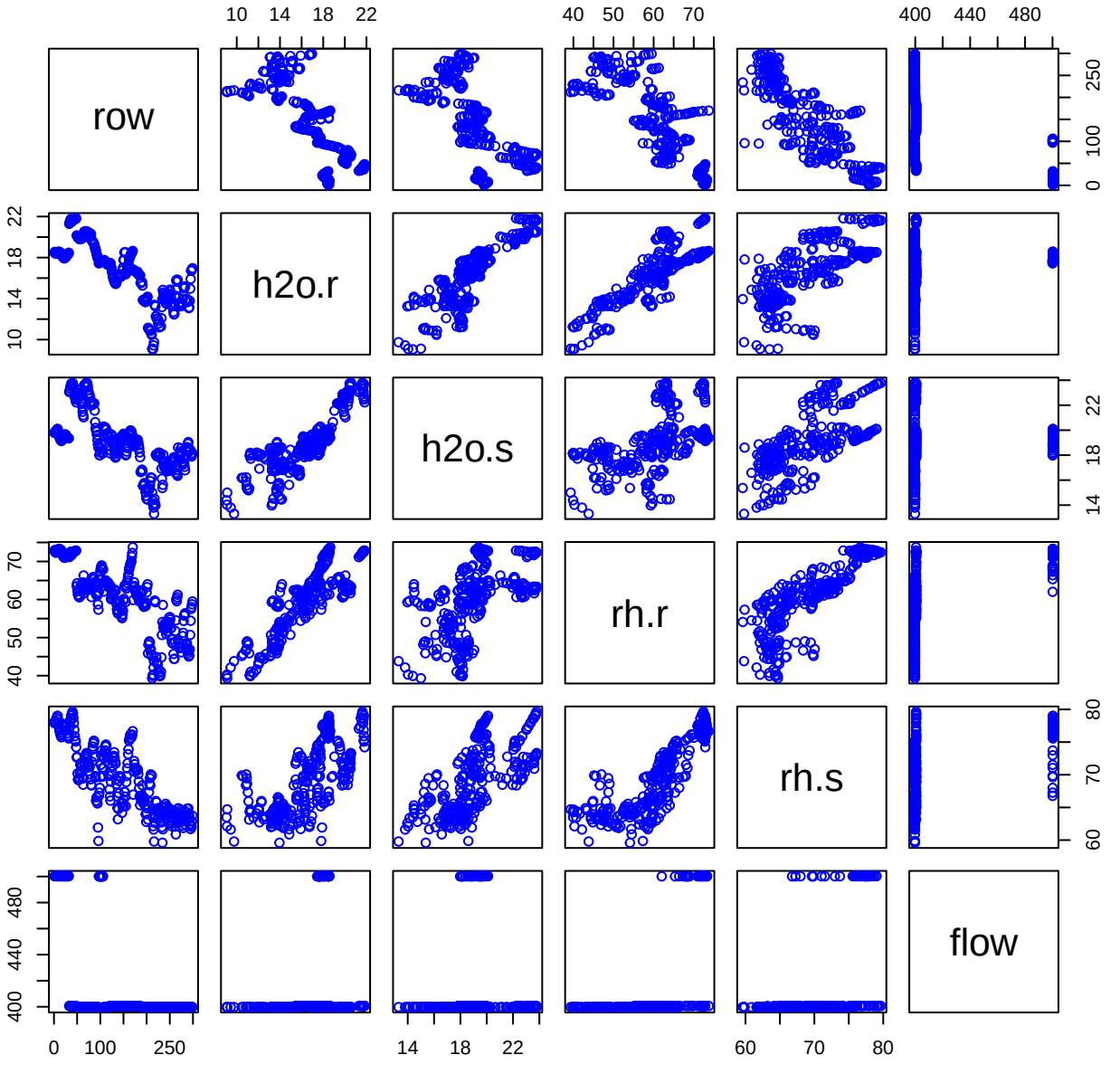

HF421−07 Plot 2
row
tr.mmol
vpd
ct.leaf
area
BLC_1
1 2 3 4
22 24 26 28
1.0 1.4 1.8
0 100 250
0.8 1.2 1.6
4 5 6 7 8

HF421−07 Plot 3

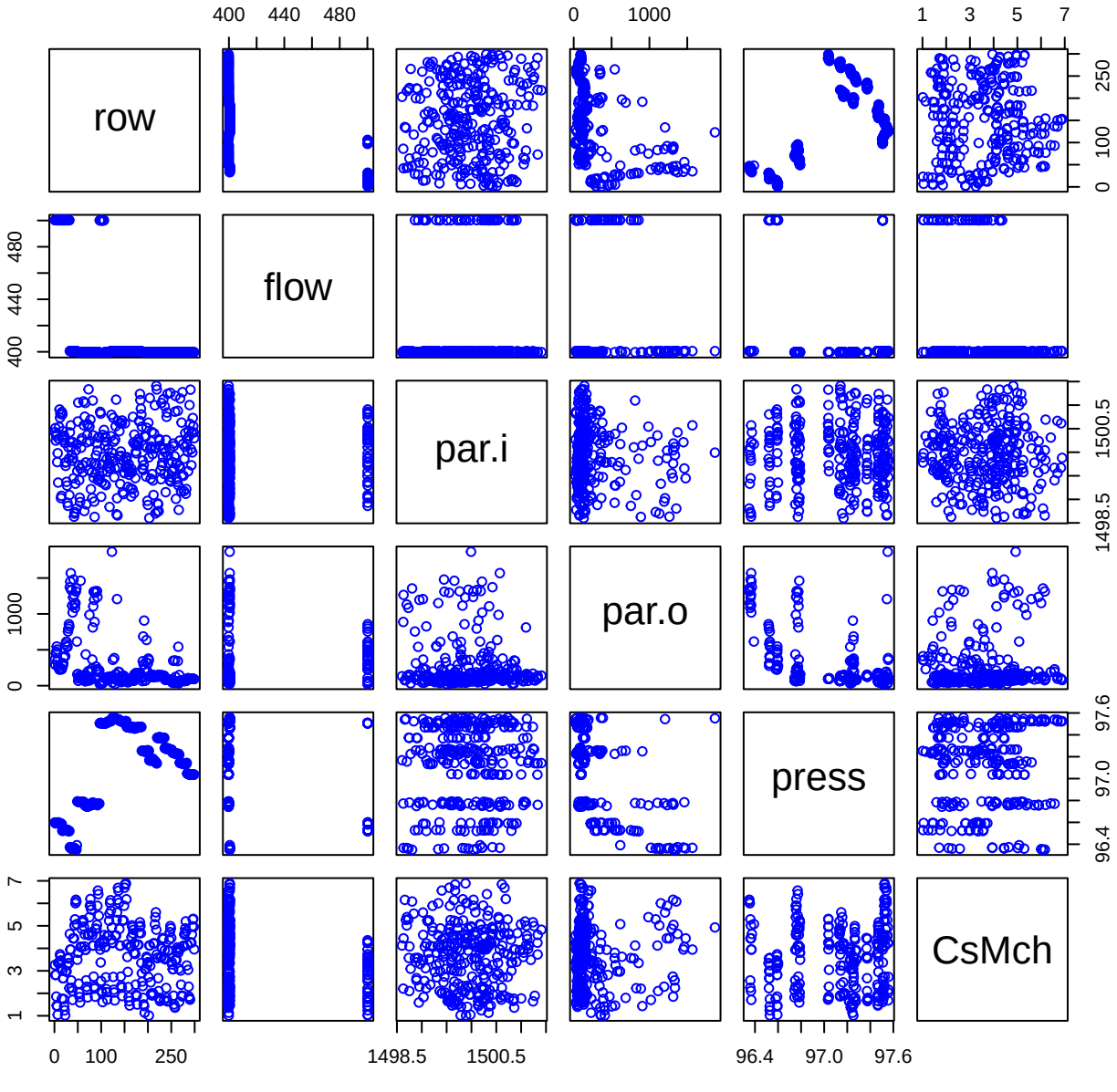


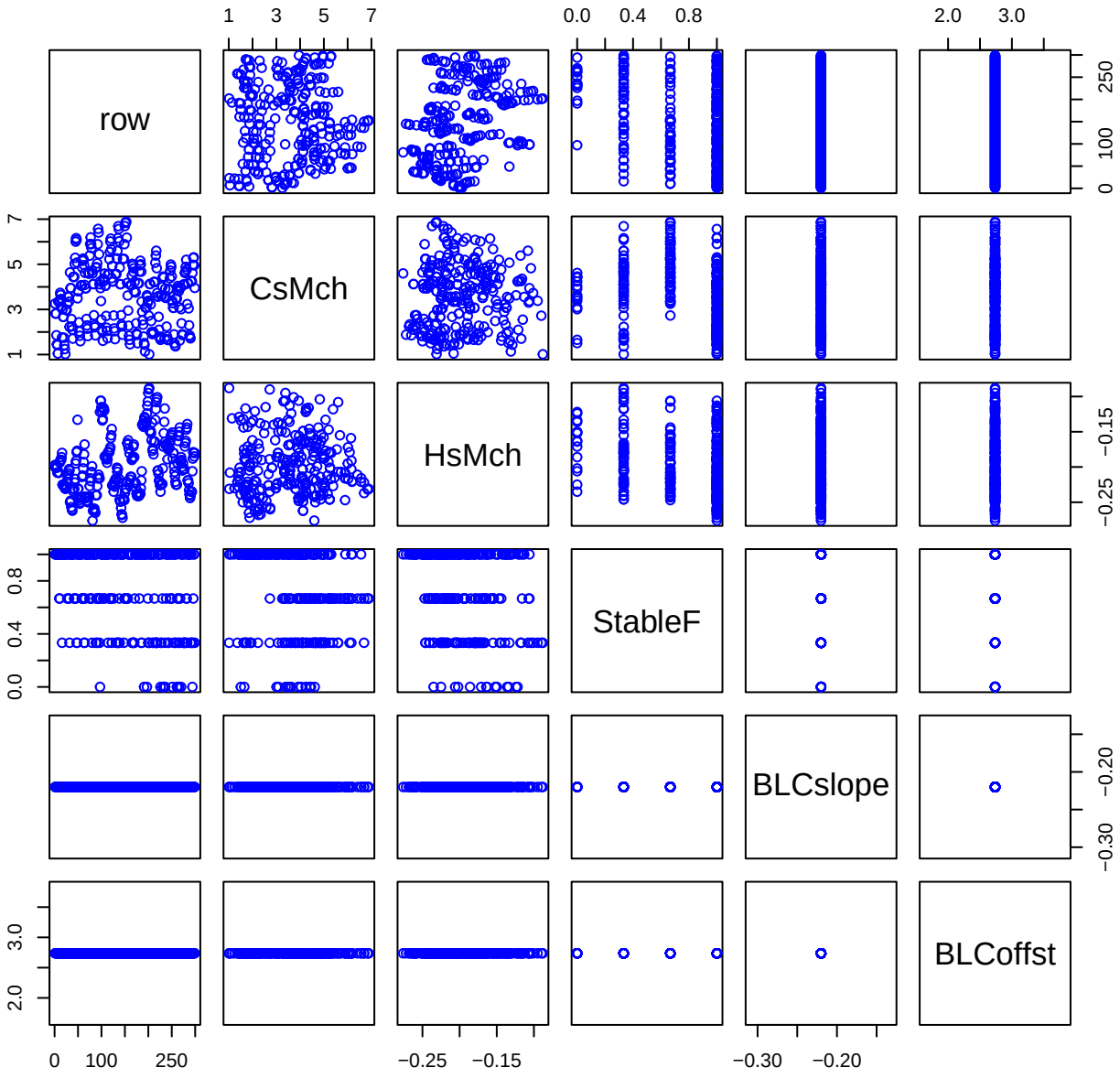

HF421−07 Plot 4
row
t.leaf
t.bulk
co2.r
co2.s
h2o.r

HF421−07 Plot 5

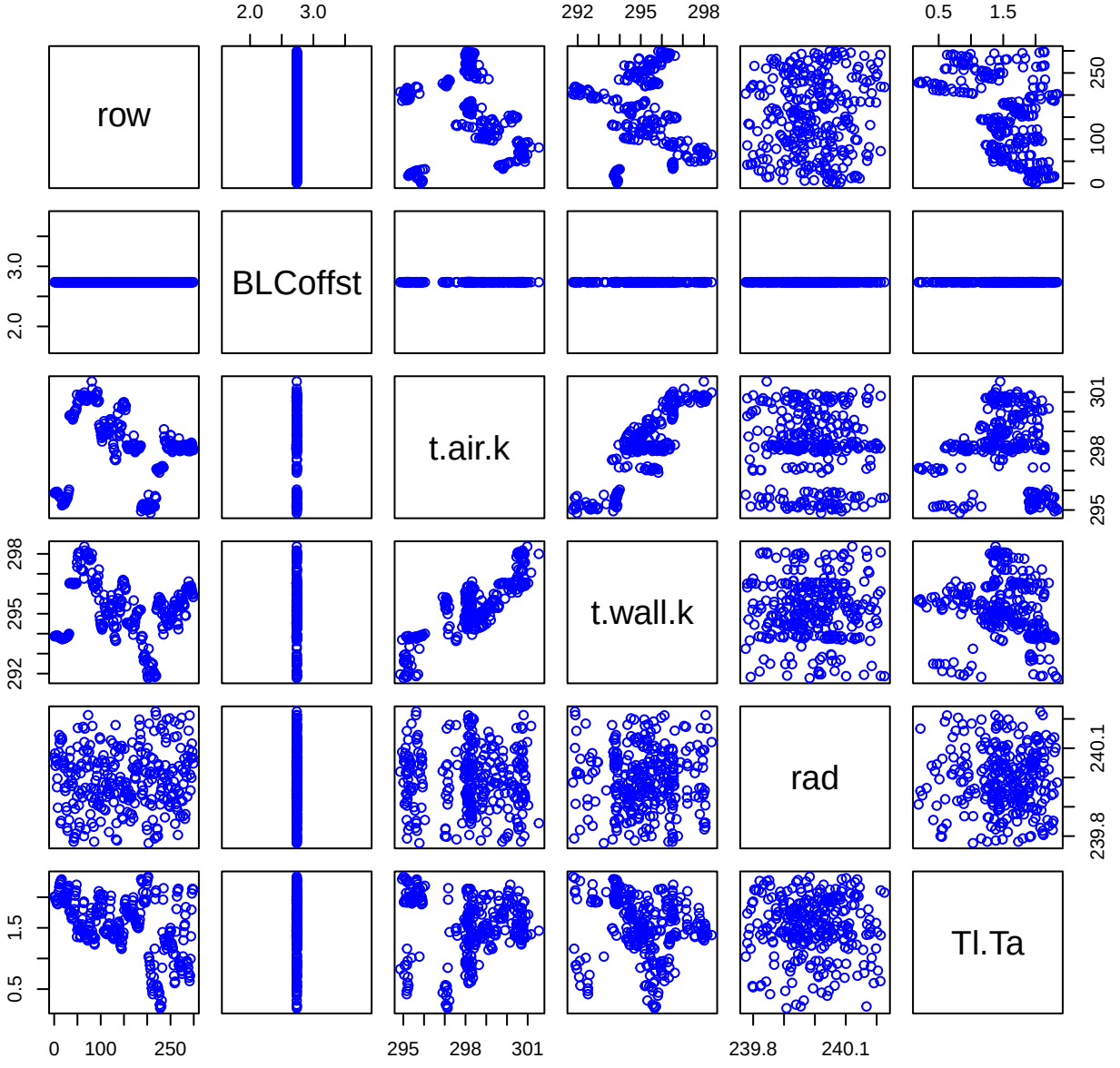


HF421−07 Plot 6

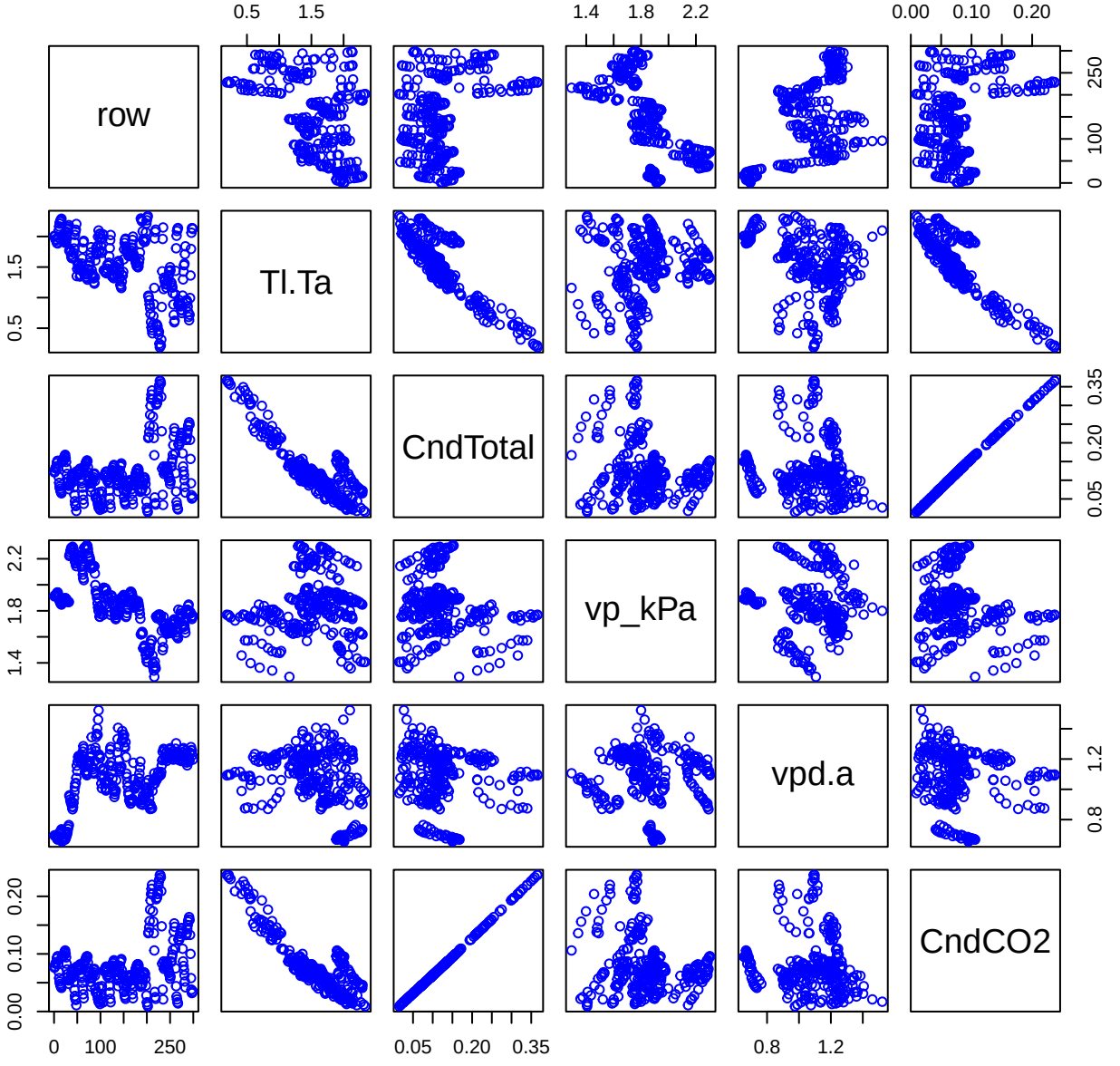


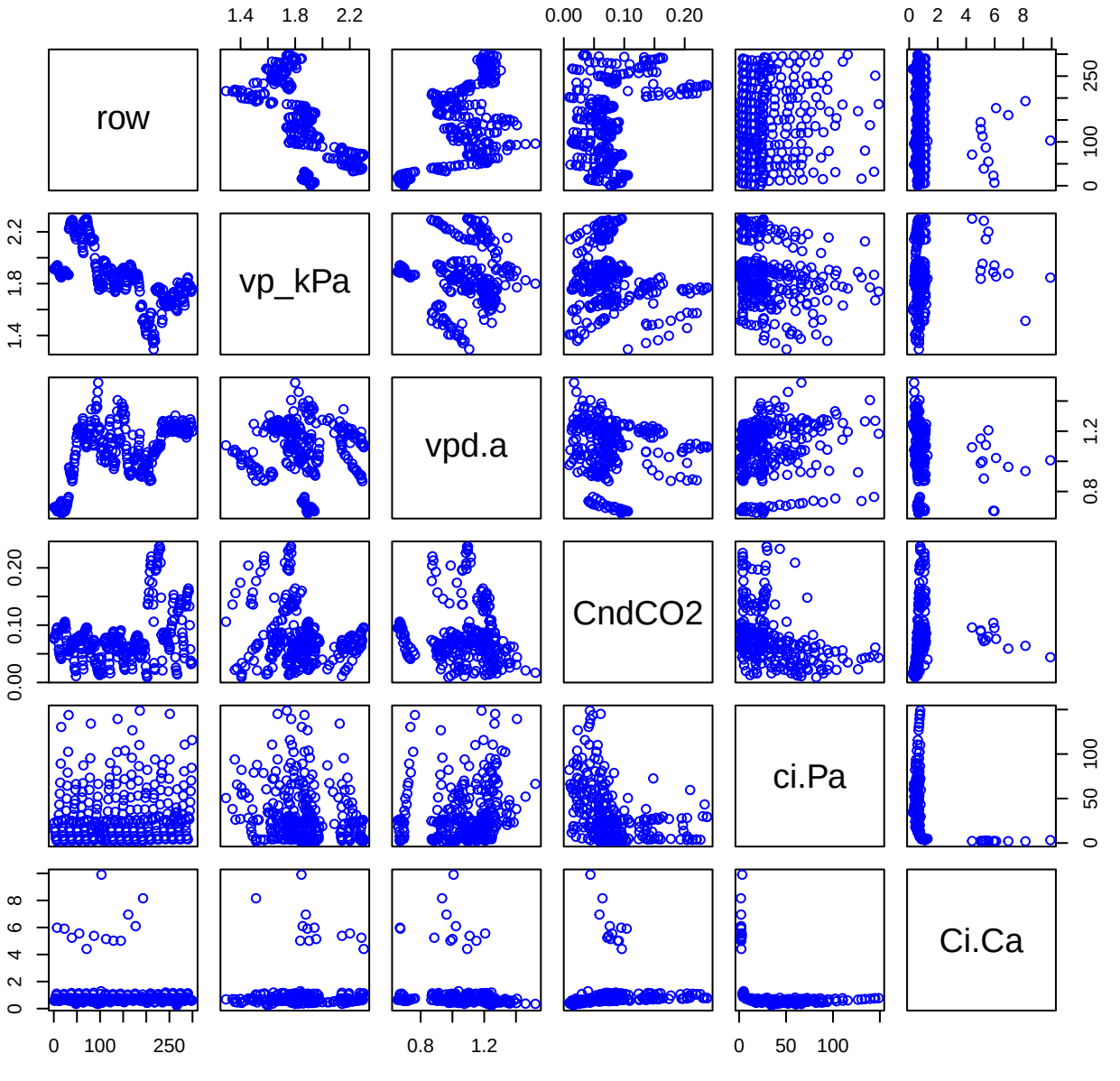

HF421−07 Plot 7
row
CsMch
HsMch
StableF
BLCslope
BLCoffst
1
3
5
7
0.0
0.4
0.8
2.0
3.0
0
100
250
−0.25
−0.15
−0.30
−0.20

HF421−07 Plot 8



HF421−07 Plot 9




HF421−07 Plot 10
row
vp_kPa
vpd.a
CndCO2
ci.Pa
Ci.Ca
1.4 1.8 2.2
0.00 0.10 0.20
0 2 4 6 8
0 100 250
1.4 1.8 2.2
0.8 1.2
0.00 0.10 0.20
0 50 100
0 2 4 6 8
0 100 250
0.8 1.2
0 50 100