Harvard Forest Data Archive HF206-03

Data File:

Name = hf206-03-HK-understory.csv
Description = Hemlock understory
Rows = 298101 Columns = 84
MD5 checksum = 1a5e94b5e38cdeb4e1b07168d4963a65

Variables:

year = year
datetime = date and time (EST)
dec_date = decimal day, with hour of day converted to a fraction of
   a day (nominalDay)
doy = day of year (nominalDay)
dec_hour = decimal hour (nominalHour)
par1_ave = understory photosynthetically active radiation 1,
   measured by the HK2
 datalogger (micromolePerMeterSquaredPerSecond)
par2_ave = understory photosynthetically active radiation 2,
   measured by the HK2
 datalogger (micromolePerMeterSquaredPerSecond)
par3_ave = understory photosynthetically active radiation 3,
   measured by the HK2
 datalogger (micromolePerMeterSquaredPerSecond)
tsoil1_ave = understory soil temperature 1, measured at 10cm depth
   by the HK2
 datalogger (celsius)
tsoil2_ave = understory soil temperature 2, measured at 10cm depth
   by the HK2
 datalogger (celsius)
tsoil3_ave = understory soil temperature 3, measured at 10cm depth
   by the HK2
 datalogger (celsius)
tsoil4_ave = understory soil temperature 4, measured at 10cm depth
   by the HK2
 datalogger (celsius)
tair1_us_1m_ave = understory air temperature 1, measured at 1m by
   the HK2
 datalogger (celsius)
tair1_us_20cm_ave = understory air temperature 1, measured at 20cm
   by the HK2
 datalogger (celsius)
tair2_us_1m_ave = understory air temperature 2, measured at 1m by
   the HK2
 datalogger (celsius)
tair2_us_20cm_ave = understory air temperature 2, measured at 20cm
   by the HK2
 datalogger (celsius)
swc1_ave = soil water content 1, measured by the HK2
 datalogger
   (dimensionless)
swc2_ave = soil water content 2, measured by the HK2
 datalogger
   (dimensionless)
par4_ave = understory photosynthetically active radiation 4,
   measured by the HK3
 datalogger (micromolePerMeterSquaredPerSecond)
par5_ave = understory photosynthetically active radiation 5,
   measured by the HK3
 datalogger (micromolePerMeterSquaredPerSecond)
par6_ave = understory photosynthetically active radiation 6,
   measured by the HK3
 datalogger (micromolePerMeterSquaredPerSecond)
tsoil5_ave = understory soil temperature 5, measured at 10cm depth
   by the HK3
 datalogger (celsius)

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tsoil6_ave = understory soil temperature 6, measured at 10cm depth
   by the HK3
 datalogger (celsius)
tsoil7_ave = understory soil temperature 7, measured at 10cm depth
   by the HK3
 datalogger (celsius)
tsoil8_ave = understory soil temperature 8, measured at 10cm depth
   by the HK3
 datalogger (celsius)
tair3_us_1m_ave = understory air temperature 3, measured at 1m by
   the HK3
 datalogger (celsius)
tair3_us_20cm_ave = understory air temperature 3, measured at 20cm
   by the HK3
 datalogger (celsius)
tair4_us_1m_ave = understory air temperature 4, measured at 1m by
   the HK3
 datalogger (celsius)
tair4_us_20cm_ave = understory air temperature 4, measured at 20cm
   by the HK3
 datalogger (celsius)
swc3_ave = soil water content 3, measured by the HK3
 datalogger
   (dimensionless)
swc4_ave = soil water content 4, measured by the HK3
 datalogger
   (dimensionless)
par1_max = maximum understory photosynthetically active radiation 1,
   measured by
 the HK2 datalogger (micromolePerMeterSquaredPerSecond)
par2_max = maximum understory photosynthetically active radiation 2,
   measured by
 the HK2 datalogger (micromolePerMeterSquaredPerSecond)
par3_max = maximum understory photosynthetically active radiation 3,
   measured by
 the HK2 datalogger (micromolePerMeterSquaredPerSecond)
tsoil1_max = maximum understory soil temperature 1, measured at 10cm
   depth by the
 HK2 datalogger (celsius)
tsoil2_max = maximum understory soil temperature 2, measured at 10cm
   depth by the
 HK2 datalogger (celsius)
tsoil3_max = maximum understory soil temperature 3, measured at 10cm
   depth by the
 HK2 datalogger (celsius)
tsoil4_max = maximum understory soil temperature 4, measured at 10cm
   depth by the
 HK2 datalogger (celsius)
tair1_us_1m_max = maximum understory air temperature 1, measured at
   1m by the HK2
 datalogger (celsius)
tair1_us_20cm_max = maximum understory air temperature 1, measured
   at 20cm by the HK2
 datalogger (celsius)
tair2_us_1m_max = maximum understory air temperature 2, measured at
   1m by the HK2
 datalogger (celsius)
tair2_us_20cm_max = maximum understory air temperature 2, measured
   at 20cm by the HK2
 datalogger (celsius)
swc1_max = maximum soil water content 1, measured by the HK2

   datalogger (dimensionless)
swc2_max = maximum soil water content 2, measured by the HK2

   datalogger (dimensionless)
par4_max = maximum understory photosynthetically active radiation 4,
   measured by
 the HK3 datalogger (micromolePerMeterSquaredPerSecond)
par5_max = maximum understory photosynthetically active radiation 5,
   measured by
 the HK3 datalogger (micromolePerMeterSquaredPerSecond)
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par6_max = maximum understory photosynthetically active radiation 6,
   measured by
 the HK3 datalogger (micromolePerMeterSquaredPerSecond)
tsoil5_max = maximum understory soil temperature 5, measured at 10cm
   depth by the
 HK3 datalogger (celsius)
tsoil6_max = maximum understory soil temperature 6, measured at 10cm
   depth by the
 HK3 datalogger (celsius)
tsoil7_max = maximum understory soil temperature 7, measured at 10cm
   depth by the
 HK3 datalogger (celsius)
tsoil8_max = maximum understory soil temperature 8, measured at 10cm
   depth by the
 HK3 datalogger (celsius)
tair3_us_1m_max = maximum understory air temperature 3, measured at
   1m by the HK3
 datalogger (celsius)
tair3_us_20cm_max = maximum understory air temperature 3, measured
   at 20cm by the HK3
 datalogger (celsius)
tair4_us_1m_max = maximum understory air temperature 4, measured at
   1m by the HK3
 datalogger (celsius)
tair4_us_20cm_max = maximum understory air temperature 4, measured
   at 20cm by the HK3
 datalogger (celsius)
swc3_max = maximum soil water content 3, measured by the HK3

   datalogger (dimensionless)
swc4_max = maximum soil water content 4, measured by the HK3

   datalogger (dimensionless)
par1_min = minimum understory photosynthetically active radiation 1,
   measured by
 the HK2 datalogger (micromolePerMeterSquaredPerSecond)
par2_min = minimum understory photosynthetically active radiation 2,
   measured by
 the HK2 datalogger (micromolePerMeterSquaredPerSecond)
par3_min = minimum understory photosynthetically active radiation 3,
   measured by
 the HK2 datalogger (micromolePerMeterSquaredPerSecond)
tsoil1_min = minimum understory soil temperature 1, measured at 10cm
   depth by the
 HK2 datalogger (celsius)
tsoil2_min = minimum understory soil temperature 2, measured at 10cm
   depth by the
 HK2 datalogger (celsius)
tsoil3_min = minimum understory soil temperature 3, measured at 10cm
   depth by the
 HK2 datalogger (celsius)
tsoil4_min = minimum understory soil temperature 4, measured at 10cm
   depth by the
 HK2 datalogger (celsius)
tair1_us_1m_min = minimum understory air temperature 1, measured at
   1m by the HK2
 datalogger (celsius)
tair1_us_20cm_min = understory air temperature 1, measured at 20cm
   by the HK2
 datalogger (celsius)
tair2_us_1m_min = understory air temperature 2, measured at 1m by
    the HK2
 datalogger (celsius)
tair2_us_20cm_min = understory air temperature 2, measured at 20cm
   by the HK2
 datalogger (celsius)
swc1_min = minimum soil water content 1, measured by the HK2

   datalogger (dimensionless)
swc2_min = minimum soil water content 2, measured by the HK2

   datalogger (dimensionless)
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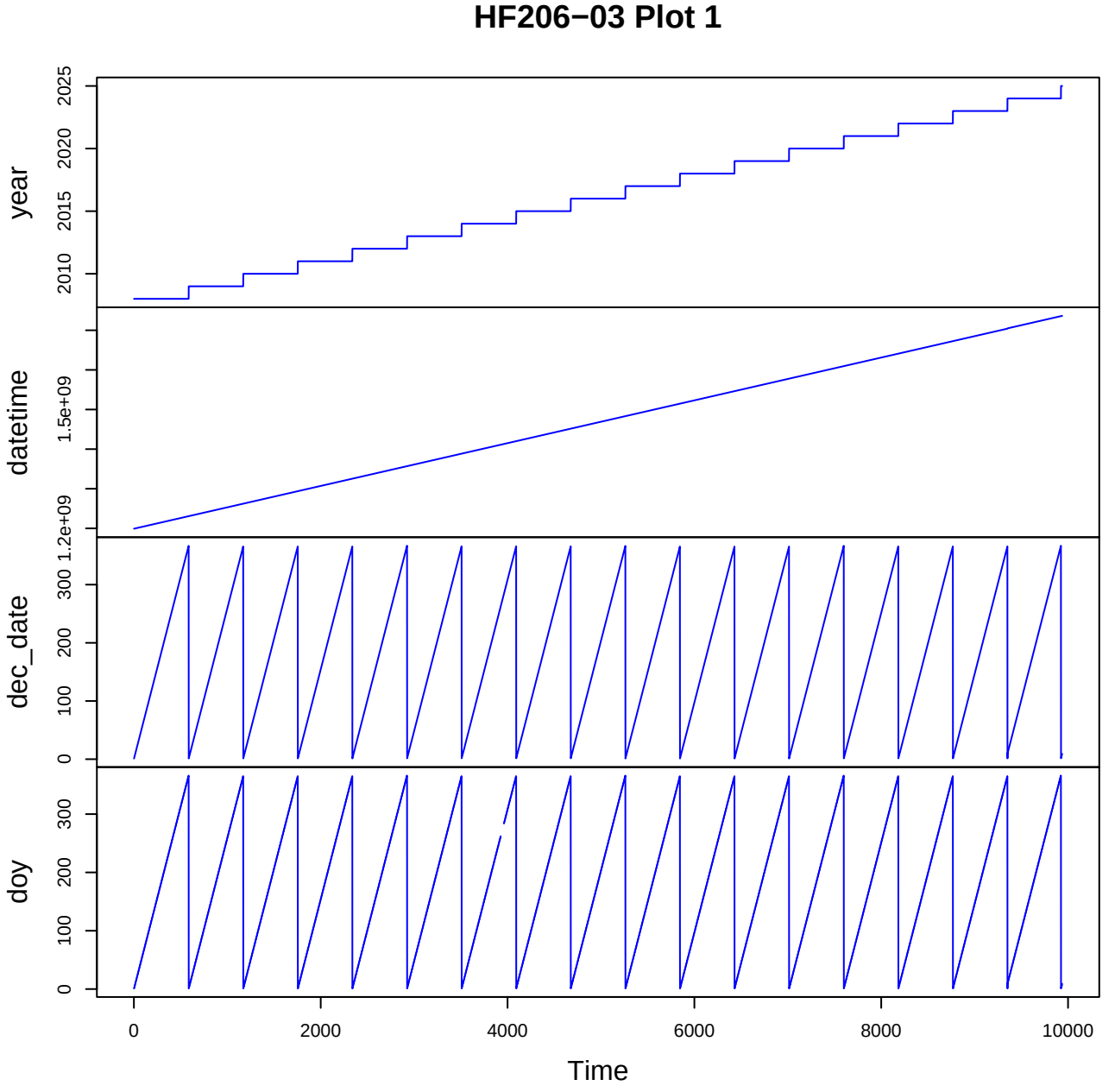
par4_min = minimum understory photosynthetically active radiation 4, measured by
 the HK3 datalogger (micromolePerMeterSquaredPerSecond)
par5_min = minimum understory photosynthetically active radiation 5, measured by
 the HK3 datalogger (micromolePerMeterSquaredPerSecond)
par6_min = minimum understory photosynthetically active radiation 6, measured by
 the HK3 datalogger (micromolePerMeterSquaredPerSecond)
tsoil5_min = minimum understory soil temperature 5, measured at 10cm depth by the
 HK3 datalogger (celsius)
tsoil6_min = minimum understory soil temperature 6, measured at 10cm depth by the
 HK3 datalogger (celsius)
tsoil7_min = minimum understory soil temperature 7, measured at 10cm depth by the
 HK3 datalogger (celsius)
tsoil8_min = minimum understory soil temperature 8, measured at 10cm depth by the
 HK3 datalogger (celsius)
tair3_us_1m_min = minimum understory air temperature 3, measured at 1m by the HK3
 datalogger (celsius)
tair3_us_20cm_min = minimum understory air temperature 3, measured at 20cm by the HK3
 datalogger (celsius)
tair4_us_1m_min = minimum understory air temperature 4, measured at 1m by the HK3
 datalogger (celsius)
tair4_us_20cm_min = minimum understory air temperature 4, measured at 20cm by the HK3
 datalogger (celsius)
swc3_min = minimum soil water content 3, measured by the HK3

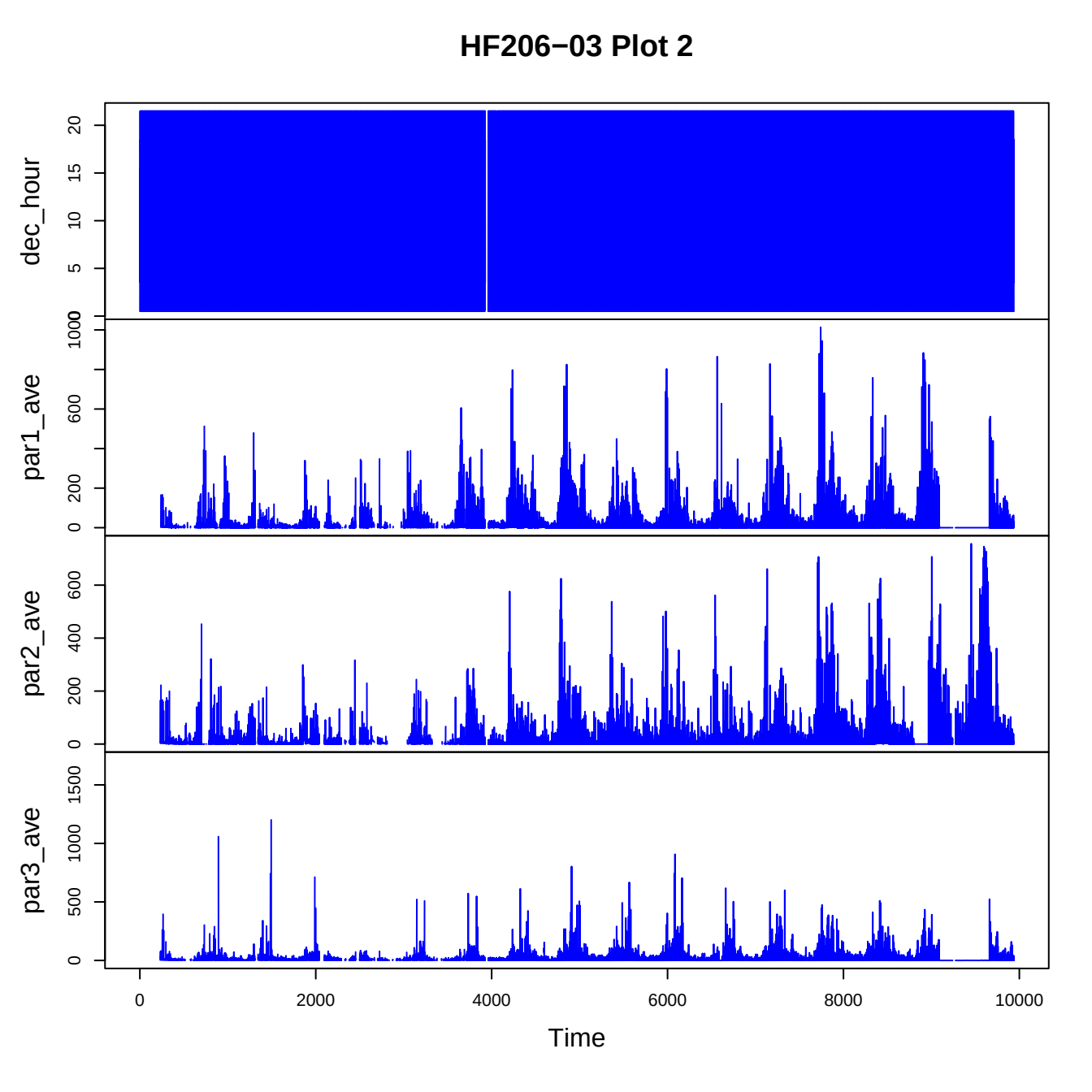
   datalogger (dimensionless)
swc4_min = minimum soil water content 4, measured by the HK3

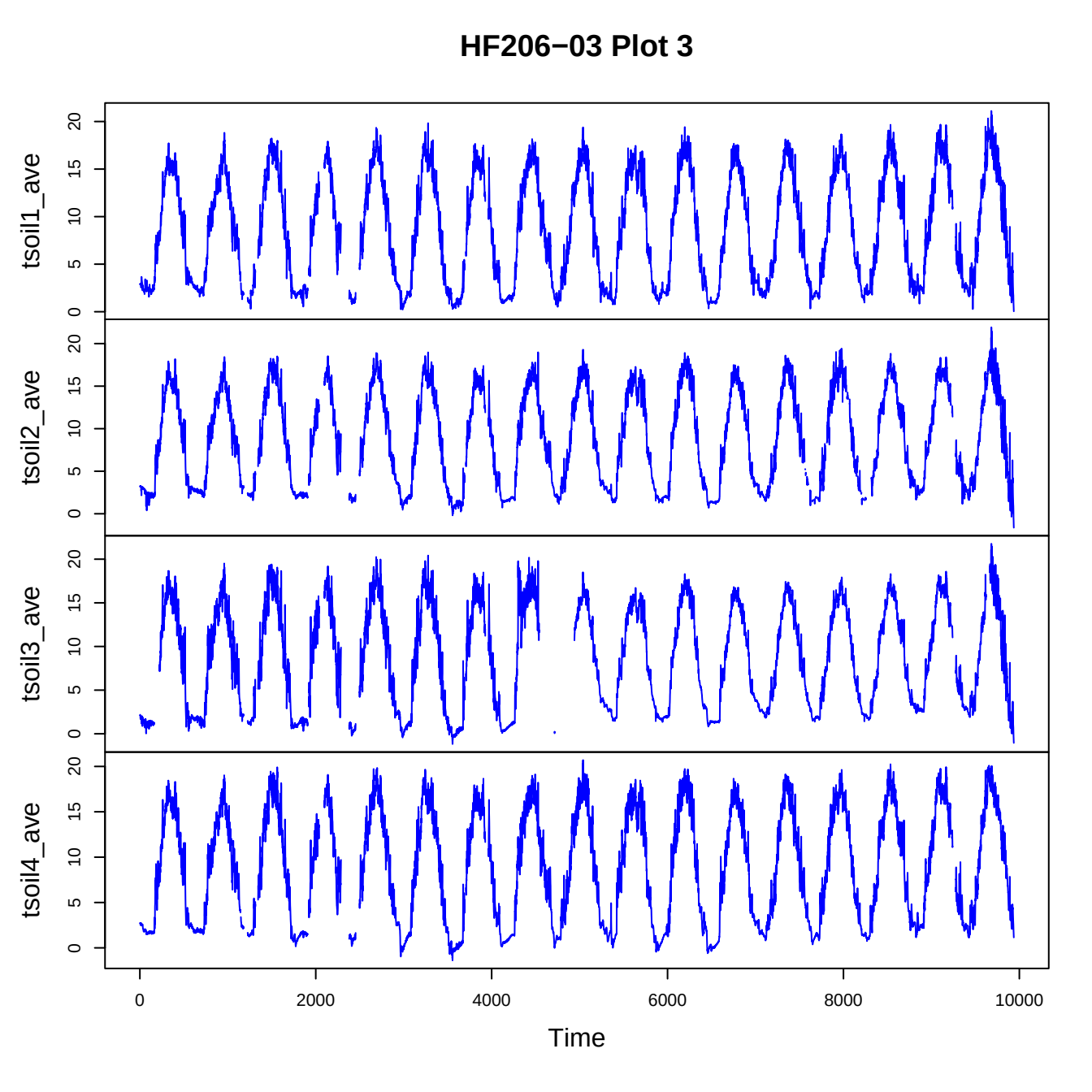
   datalogger (dimensionless)

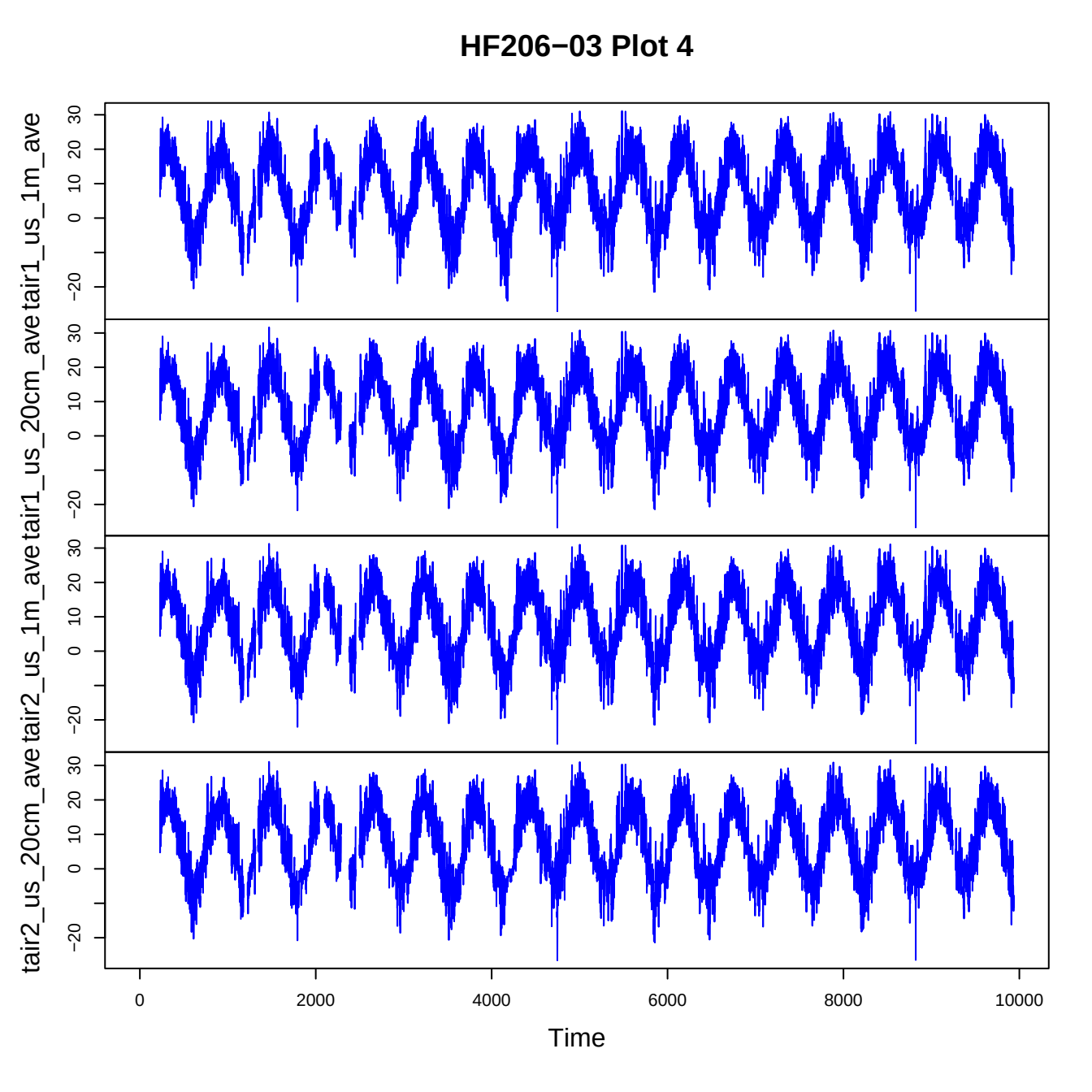
Variable	Min	Median	Mean	Max	NAs
year	2008.000	2016.000	2016.002	2025.000	0
datetime	2008-01-01T00:30:00			2025-01-09T10:30:00	0
dec_date	1.000	183.625	183.623	366.979	0
doy	1.000	183.000	182.819	366.000	1003
dec_hour	0.000	12.000	12.102	24.000	1047
par1_ave	0.000	1.232	23.025	1475.000	38530
par2_ave	0.000	1.367	18.924	1556.000	40521
par3_ave	0.000	1.197	17.093	1712.000	42607
tsoil1_ave	−0.111	8.310	8.643	21.110	12435
tsoil2_ave	−1.782	8.600	8.846	21.910	19367
tsoil3_ave	−1.230	8.600	8.679	42.890	27444
tsoil4_ave	−1.430	8.630	8.776	20.890	12164
tair1_us_1m_	−27.360	8.600	8.093	33.170	18943
tair1_us_20c	−27.080	8.440	7.974	32.780	18936
tair2_us_1m_	−27.210	8.600	8.095	32.140	19253
tair2_us_20c	−26.840	8.420	8.021	32.710	18940
swc1_ave	0.175	0.301	0.306	0.557	48598
swc2_ave	0.058	0.300	0.302	0.648	37301
par4_ave	0.000	0.899	23.574	3876.000	25808
par5_ave	0.000	0.785	15.483	1019.000	21236
par6_ave	0.000	1.131	26.186	1658.000	26898
tsoil5_ave	−2.803	8.130	8.322	21.750	16644
tsoil6_ave	−2.203	8.390	8.609	21.920	16510
tsoil7_ave	−1.790	8.620	8.692	21.670	16677
tsoil8_ave	−2.414	8.470	8.567	22.180	16597
tair3_us_1m_	−27.420	8.550	8.115	32.470	16616
tair3_us_20c	−26.960	8.340	8.027	32.730	16477
tair4_us_1m_	−27.250	8.740	8.179	34.700	22615
tair4_us_20c	−26.680	8.550	8.228	38.150	20606
swc3_ave	0.048	0.174	0.172	0.432	35544
swc4_ave	0.052	0.164	0.163	0.418	41012
par1_max	0.000	2.035	60.840	1730.000	38530
par2_max	0.000	2.309	53.174	1743.000	40521
par3_max	0.000	2.274	52.531	1814.000	42607
tsoil1_max	−7999.000	8.330	−0.372	21.140	12112
tsoil2_max	−1.763	8.630	8.875	21.940	19367
tsoil3_max	−1.387	8.610	8.700	44.880	25708
tsoil4_max	−7999.000	8.660	7.714	20.940	12125
tair1_us_1m_	−7999.000	8.920	8.008	35.560	18926
tair1_us_20c	−7999.000	8.760	7.892	36.030	18922
tair2_us_1m_	−7999.000	8.790	7.940	34.680	19237
tair2_us_20c	−7999.000	8.840	7.893	34.260	18926
swc1_max	−7999.000	0.300	−208.915	0.619	41897
swc2_max	−7999.000	0.299	−56.374	0.649	35440
par4_max	0.000	1.771	61.597	4798.000	25808
par5_max	0.000	1.700	41.937	1786.000	21236
par6_max	0.000	2.341	68.337	1843.000	26898
tsoil5_max	−2.775	8.180	8.364	22.100	16531
tsoil6_max	−2.184	8.440	8.654	22.790	16444

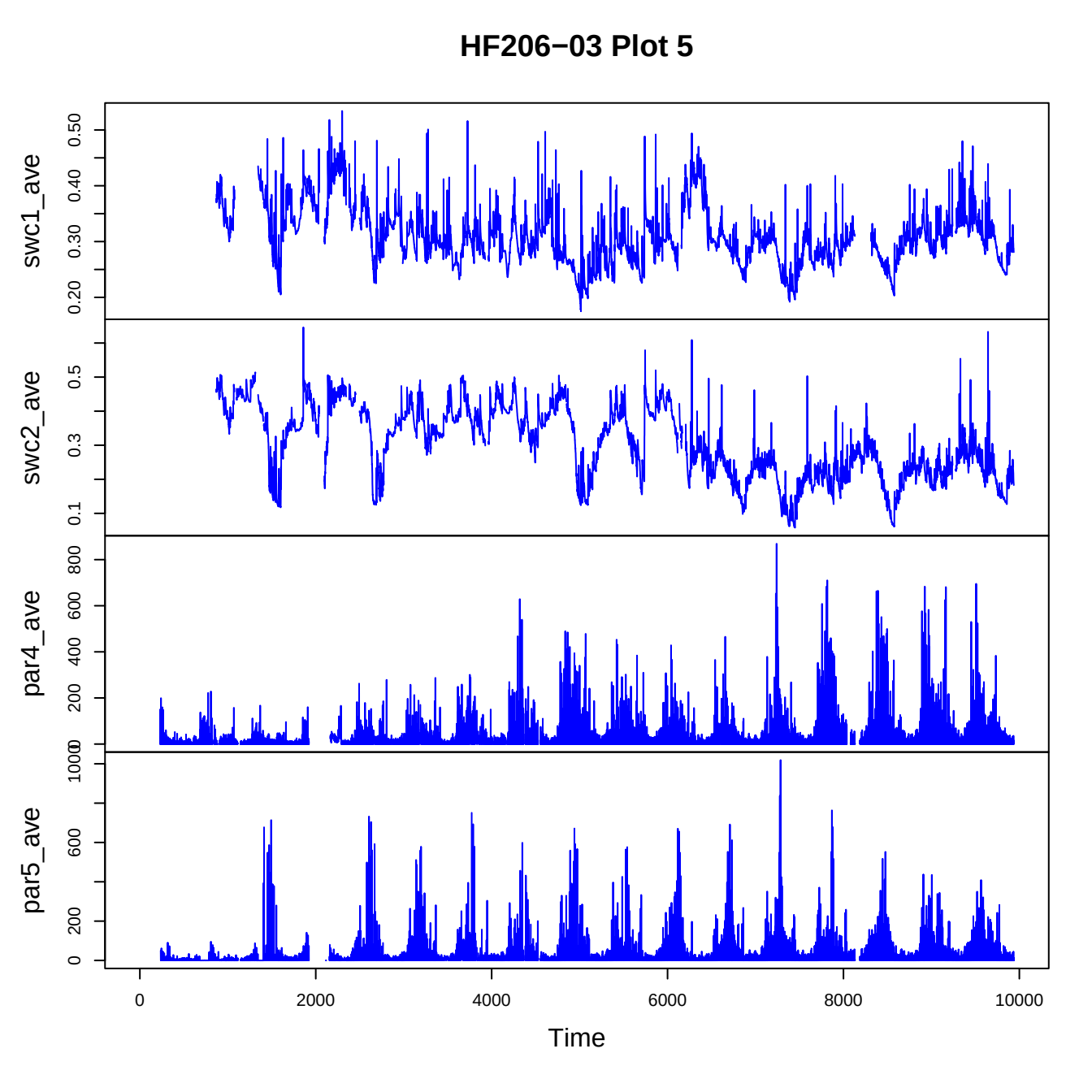
Variable	Min	Median	Mean	Max	NAs
tsoil7_max	−1.766	8.660	8.733	22.370	16596
tsoil8_max	−2.380	8.515	8.607	22.310	16571
tair3_us_1m_	−27.220	8.900	8.424	35.070	16529
tair3_us_20c	−26.780	8.700	8.330	35.250	16429
tair4_us_1m_	−27.130	9.030	8.487	41.930	22534
tair4_us_20c	−26.470	8.930	8.576	38.400	20574
swc3_max	0.048	0.174	0.226	6999.000	35541
swc4_max	0.052	0.164	0.217	6999.000	41009
par1_min	−296.900	0.722	8.273	1242.000	38530
par2_min	−285.200	1.154	7.663	1544.000	40521
par3_min	−244.900	0.855	6.502	1092.000	42607
tsoil1_min	−7999.000	8.270	−0.429	21.080	12112
tsoil2_min	−2.294	8.570	8.817	21.870	19367
tsoil3_min	−1.650	8.540	8.642	41.890	25708
tsoil4_min	−7999.000	8.590	7.653	20.840	12125
tair1_us_1m_	−7999.000	8.300	7.444	32.720	18926
tair1_us_20c	−7999.000	8.160	7.340	31.540	18922
tair2_us_1m_	−7999.000	8.330	7.474	31.720	19237
tair2_us_20c	−7999.000	8.150	7.399	31.860	18926
swc1_min	−7999.000	0.300	−208.916	0.555	41897
swc2_min	−7999.000	0.298	−56.375	0.648	35440
par4_min	−432.100	0.000	8.934	2806.000	25808
par5_min	−77.900	0.127	6.633	768.200	21236
par6_min	−2.314	0.000	9.603	1442.000	26898
tsoil5_min	−2.826	8.080	8.279	21.410	16531
tsoil6_min	−2.231	8.340	8.566	21.690	16444
tsoil7_min	−1.818	8.570	8.648	21.400	16596
tsoil8_min	−2.463	8.430	8.527	22.050	16571
tair3_us_1m_	−27.590	8.210	7.828	31.750	16529
tair3_us_20c	−27.160	8.040	7.754	31.840	16429
tair4_us_1m_	−27.460	8.420	7.904	32.600	22534
tair4_us_20c	−26.870	8.240	7.951	34.350	20574
swc3_min	0.048	0.173	0.225	6999.000	35541
swc4_min	0.052	0.164	0.217	6999.000	41009

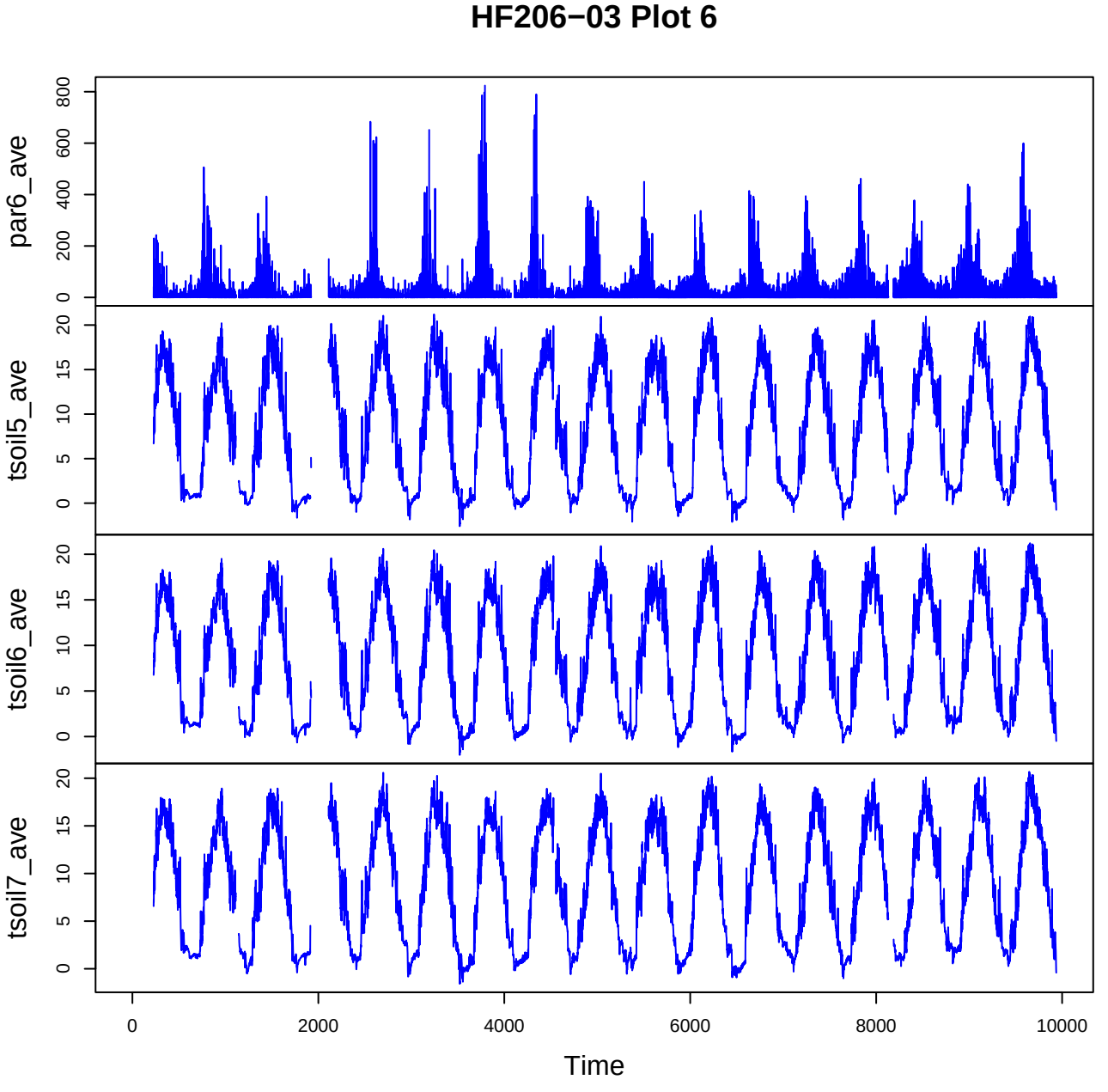

HF206−03 Plot 1
year
2010
2015
2020
2025
datetime
1.2e+09
1.5e+09
dec_date
0
100
200
300
doy
0
100
200
300
0
2000
4000
6000
8000
10000
Time

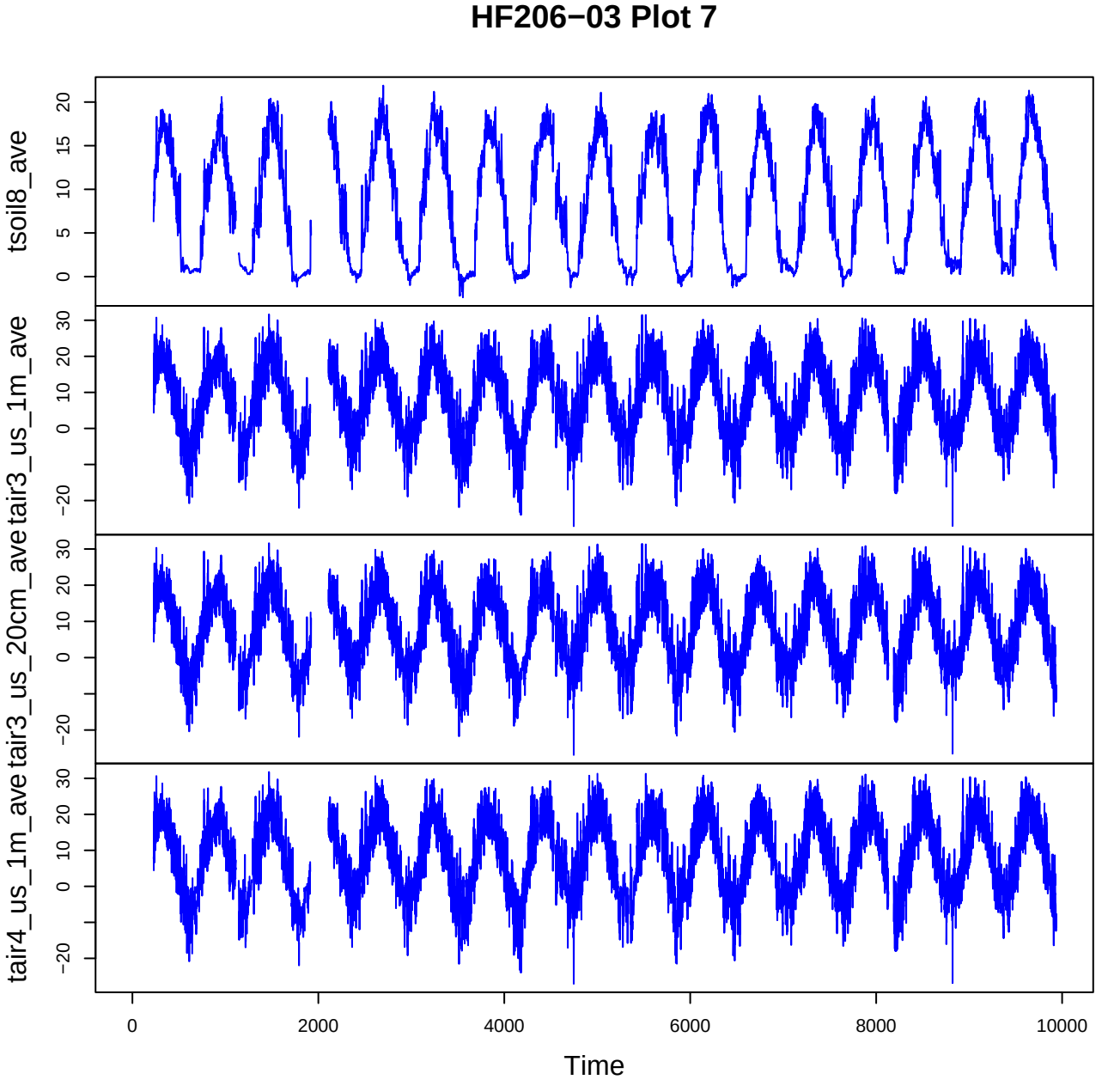

HF206−03 Plot 2
dec_hour
0
5
10
15
20
par1_ave
0
200
600
1000
par2_ave
0
200
400
600
par3_ave
0
500
1000
1500
0
2000
4000
6000
8000
10000
Time


HF206−03 Plot 3
tsoil1_ave
tsoil2_ave
tsoil3_ave
tsoil4_ave
0
5
10
15
20
0
2000
4000
6000
8000
10000
Time


HF206−03 Plot 4
tair1_us_1m_ave
tair1_us_20cm_ave
tair2_us_1m_ave
tair2_us_20cm_ave
30
20
10
0
−20
0
2000
4000
6000
8000
10000
Time


HF206−03 Plot 5
swc1_ave
0.20
0.30
0.40
0.50
swc2_ave
0.1
0.3
0.5
par4_ave
0
200
400
600
800
1000
par5_ave
0
200
600
1000
0
2000
4000
6000
8000
10000
Time


HF206−03 Plot 6
par6_ave
tsoil5_ave
tsoil6_ave
tsoil7_ave
0
200
400
600
800
0
5
10
15
20
0
2000
4000
6000
8000
10000
Time


HF206−03 Plot 7
tsoil8_ave
tair3_us_1m_ave
tair3_us_20cm_ave
tair4_us_1m_ave
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5
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15
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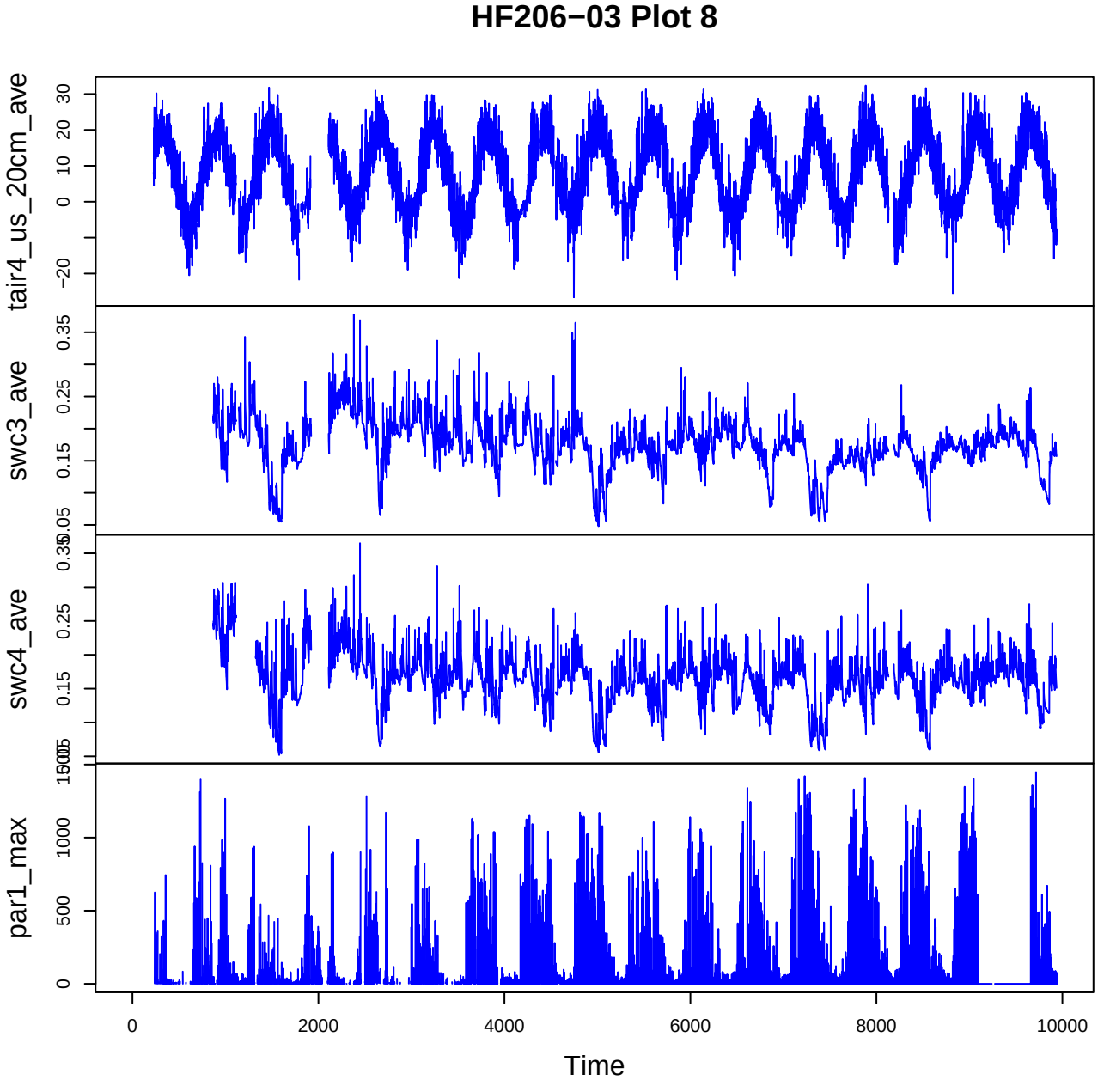
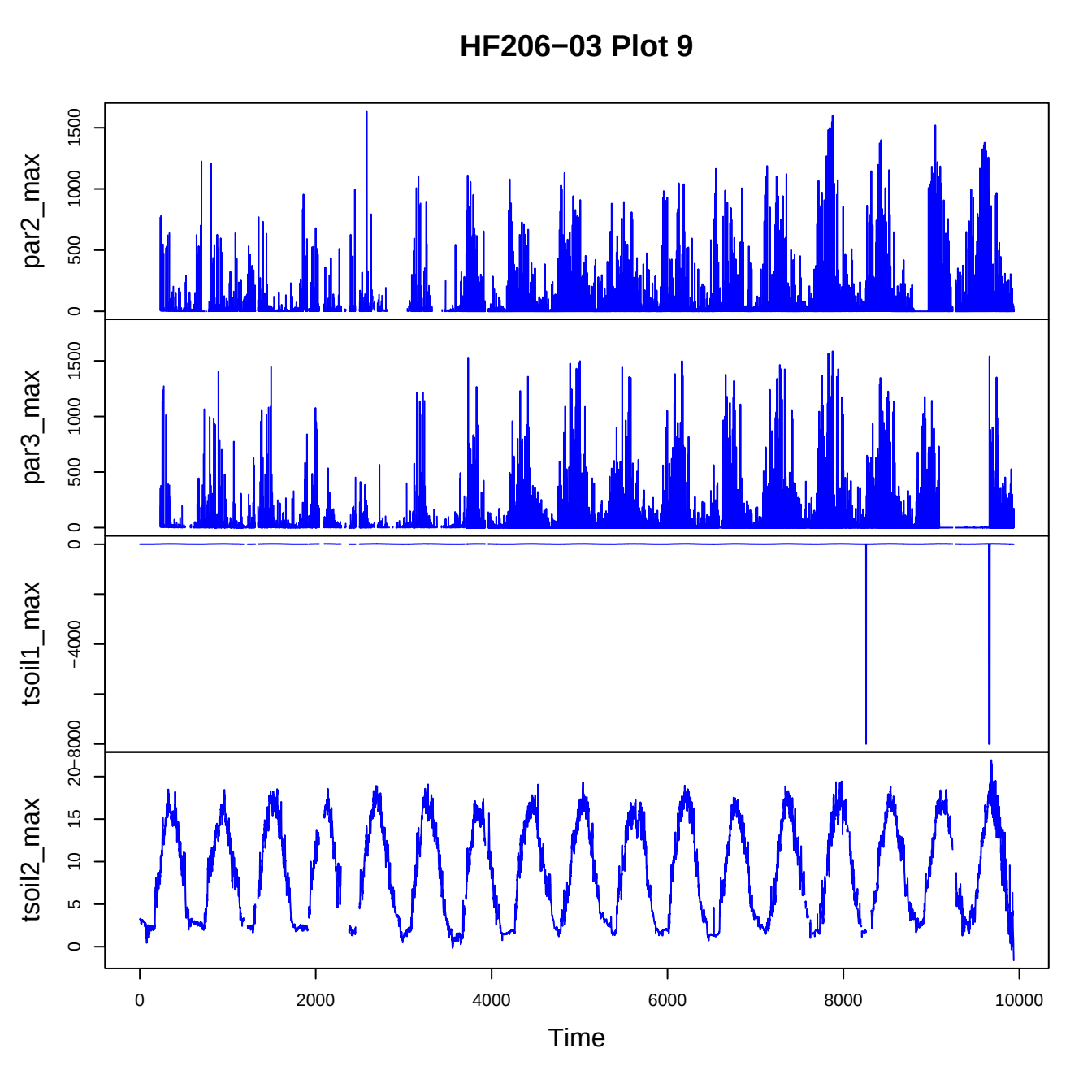
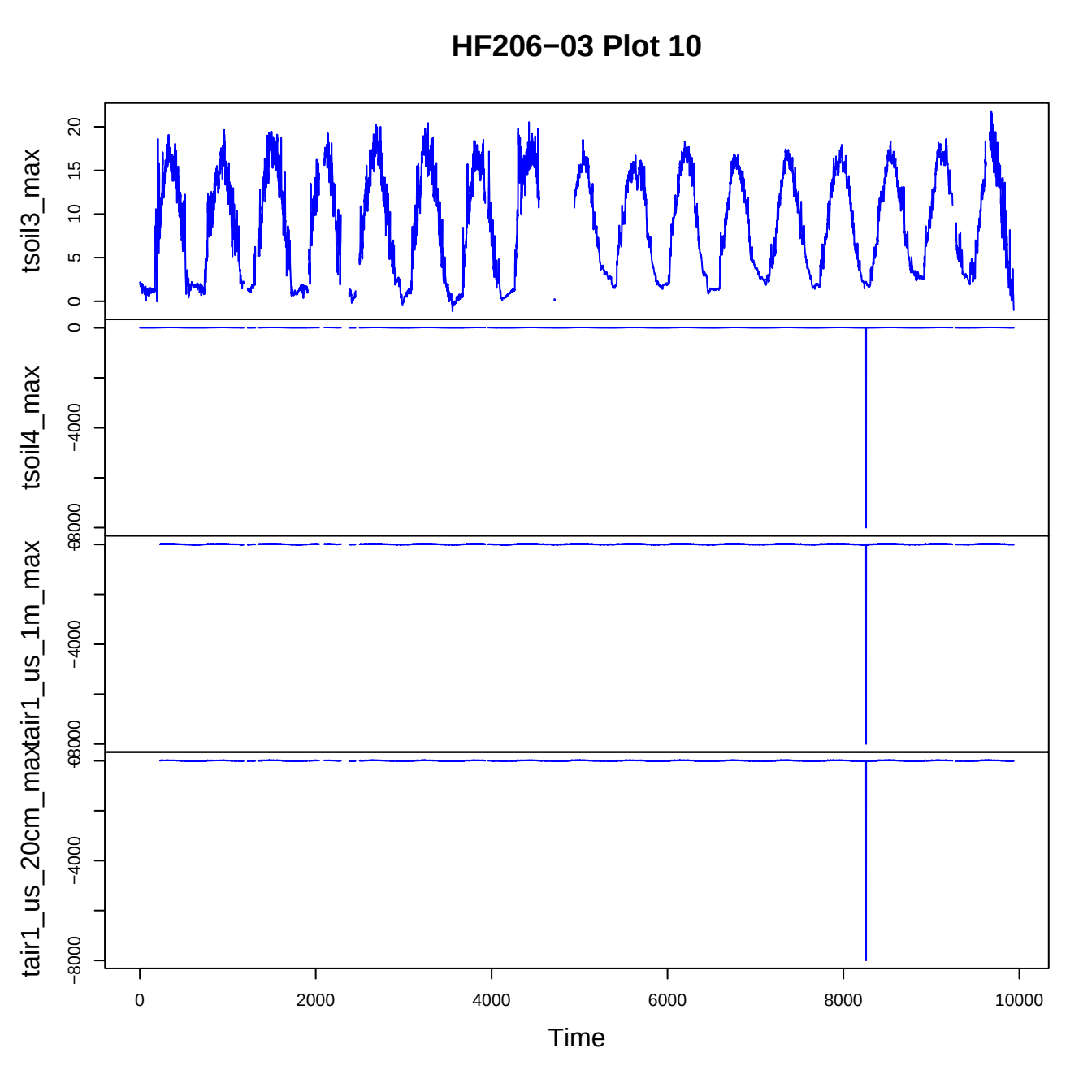
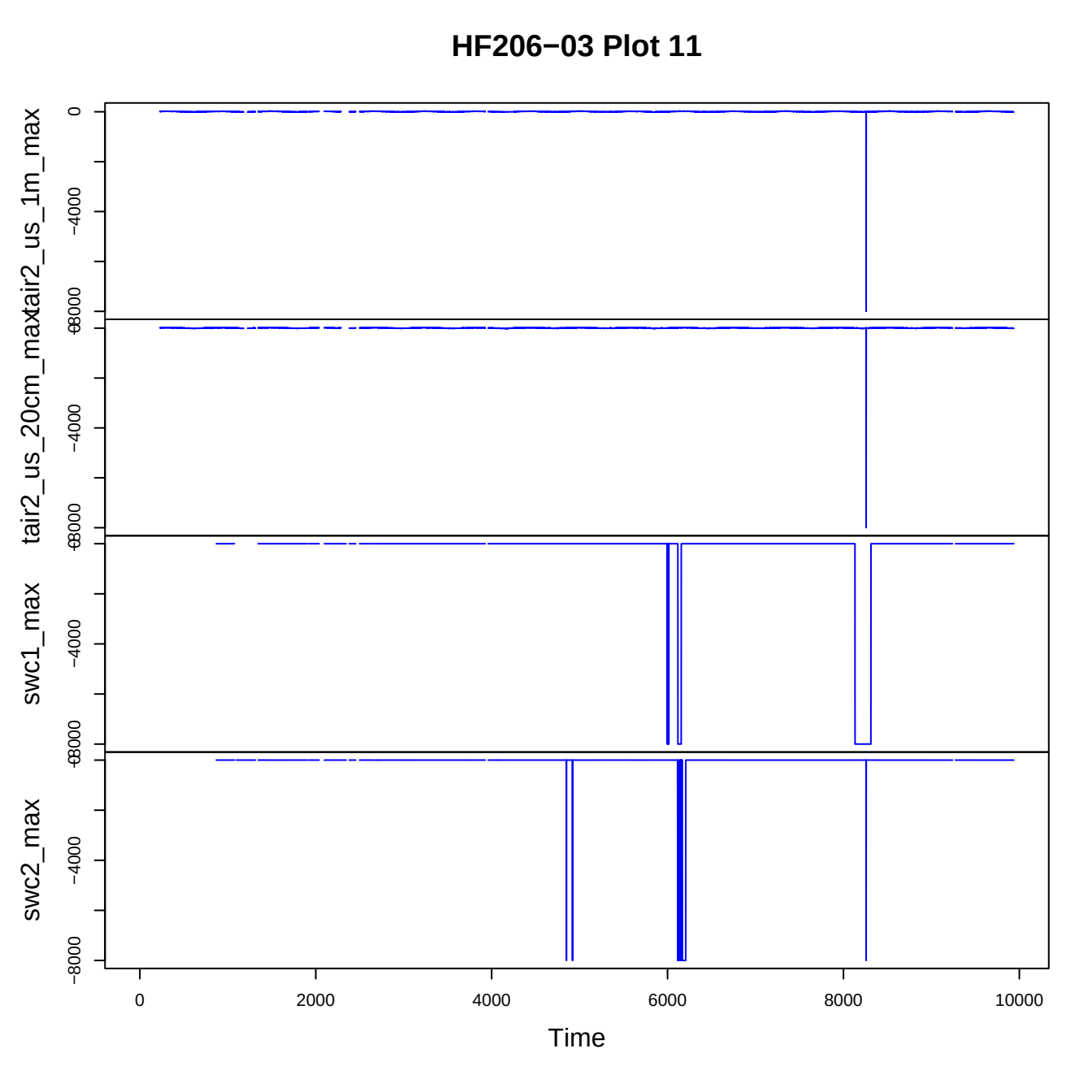
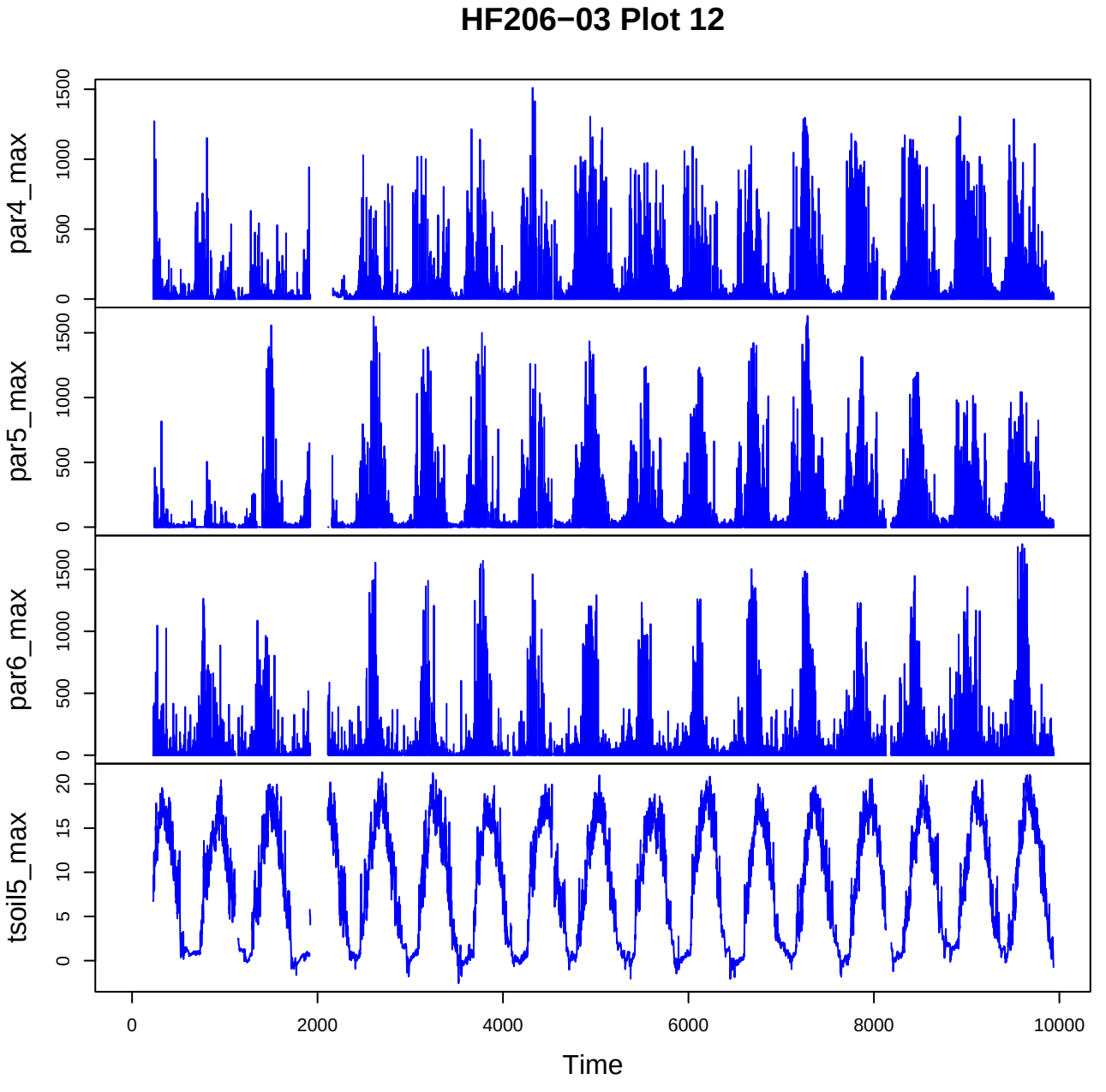
4000
6000
8000
10000
Time

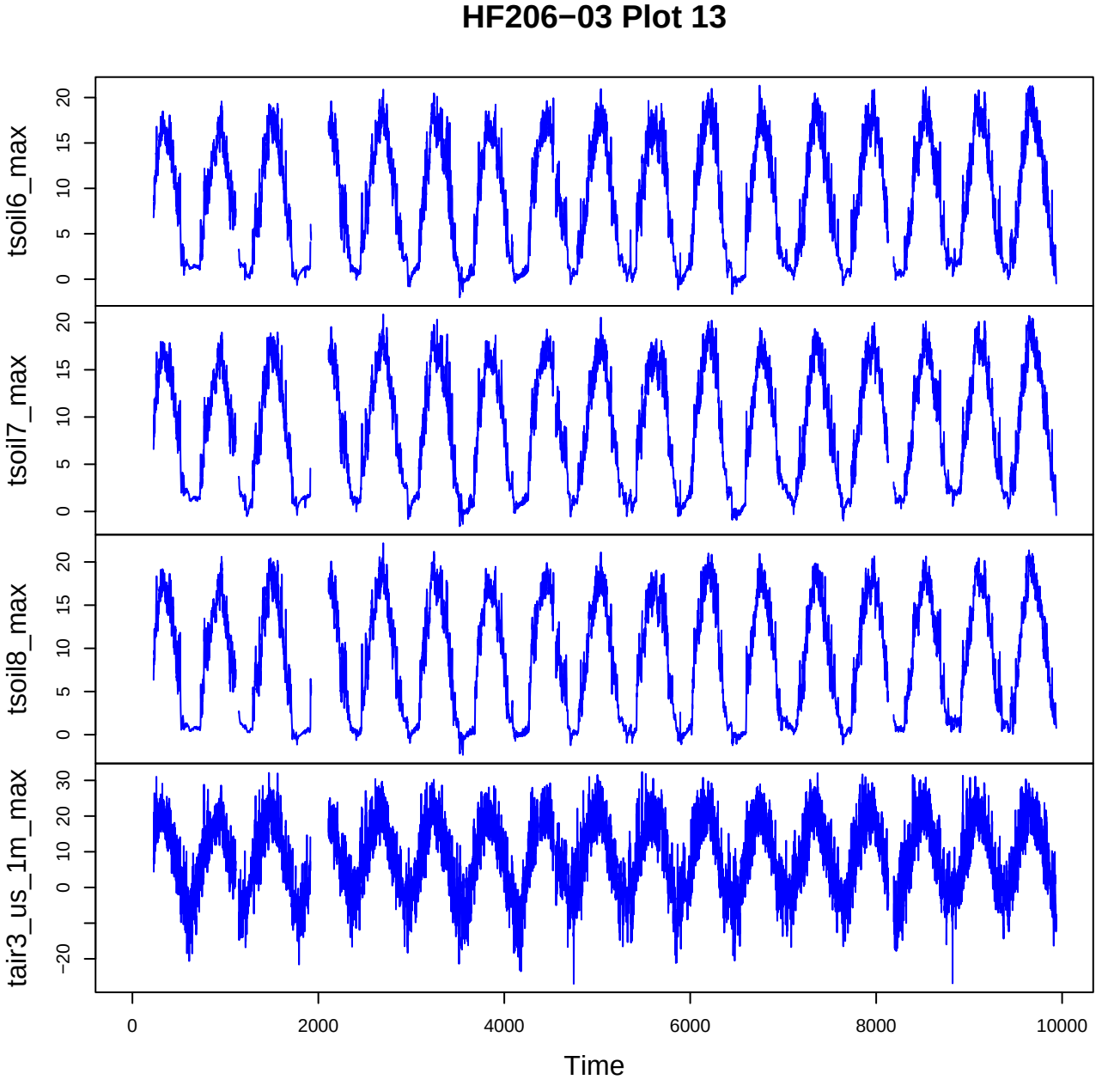

HF206−03 Plot 8
tair4_us_20cm_ave
swc3_ave
swc4_ave
par1_max
Time
0
2000
4000
6000
8000
10000

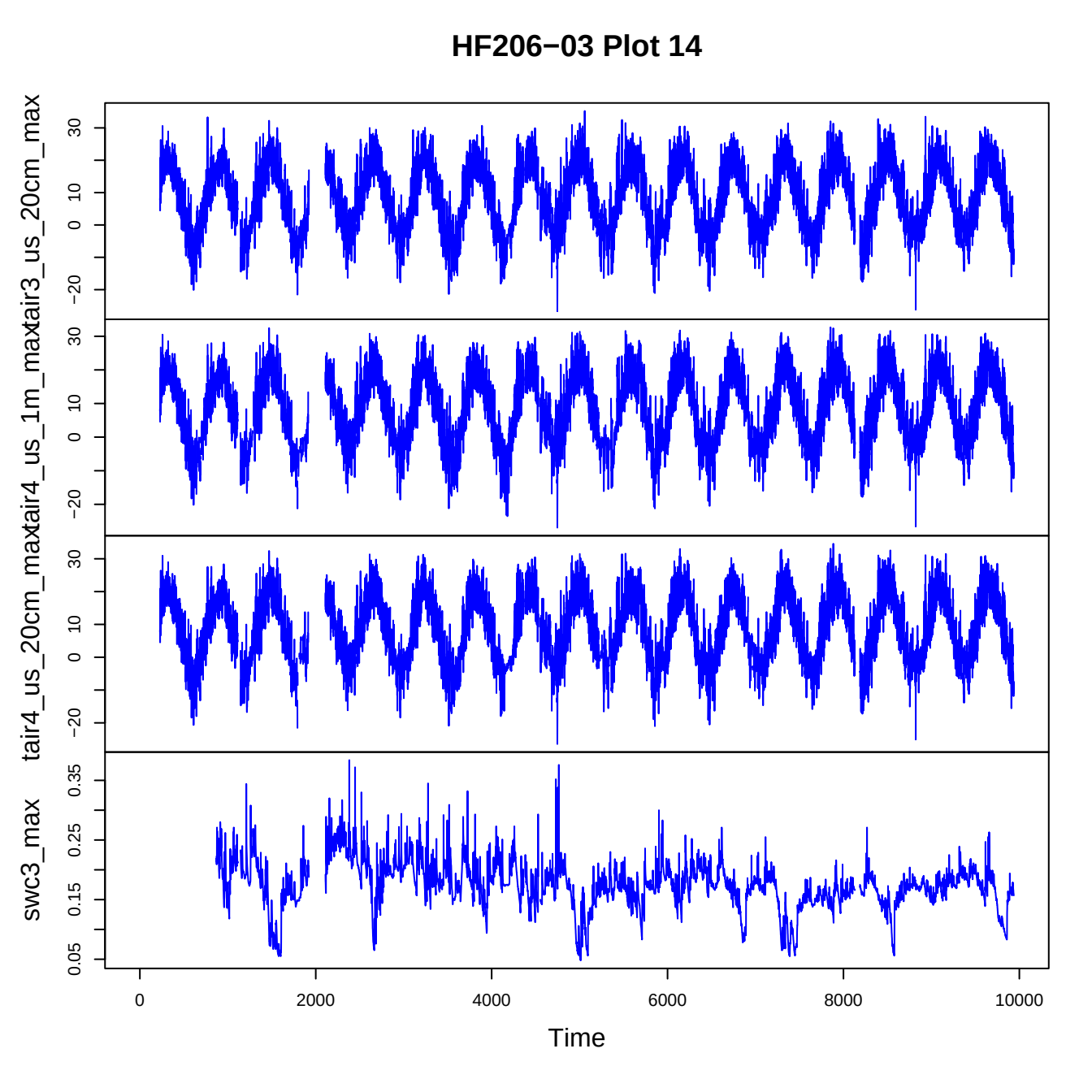

HF206−03 Plot 9
par2_max
par3_max
tsoil1_max
tsoil2_max
0
500
1000
1500
−4000
−8000
5
10
15
20
2000
4000
6000
8000
10000
Time

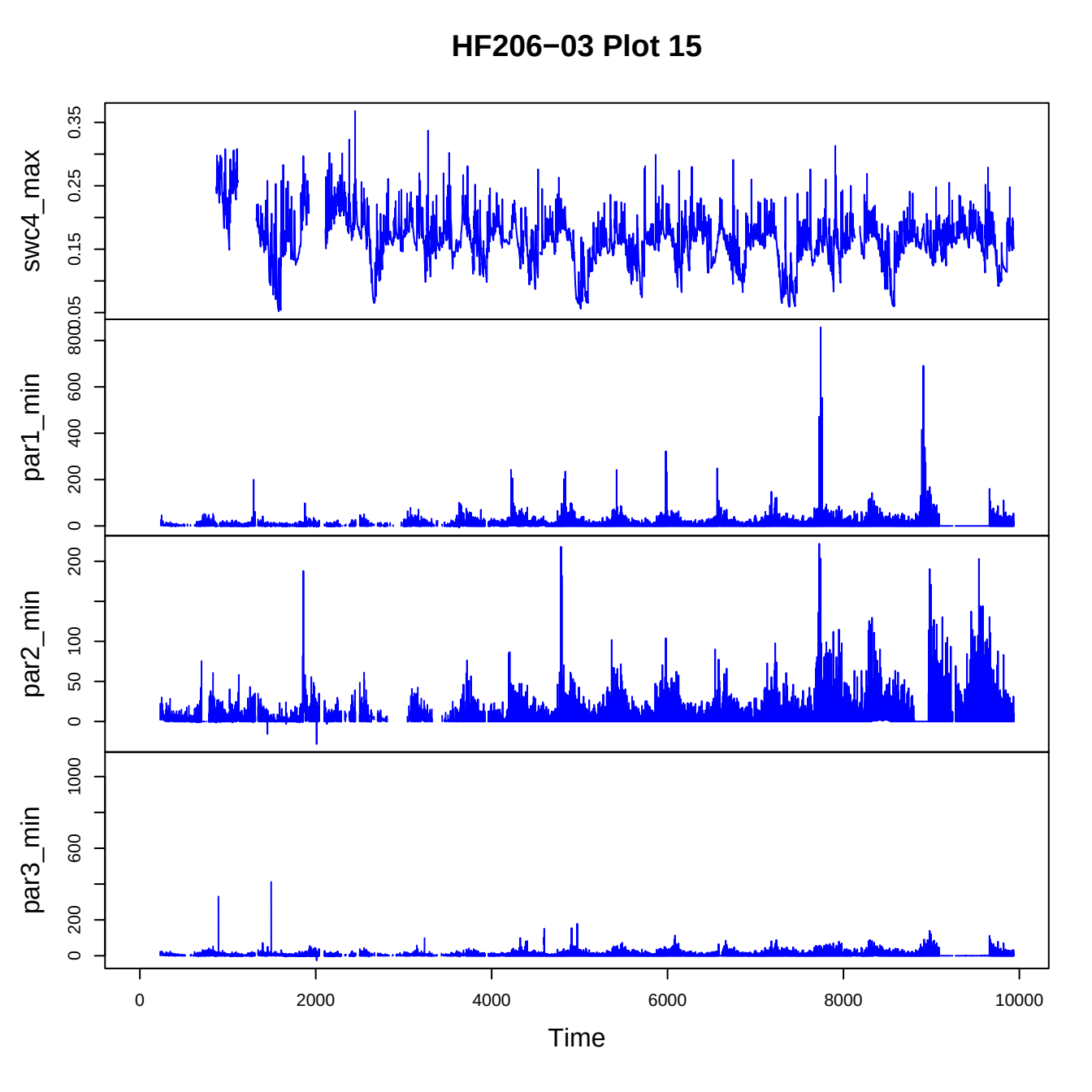

HF206−03 Plot 10
tsoil3_max
tsoil4_max
tair1_us_1m_max
tair1_us_20cm_max
0
5
10
15
20
−4000
−8000
0
2000
4000
6000
8000
10000
Time

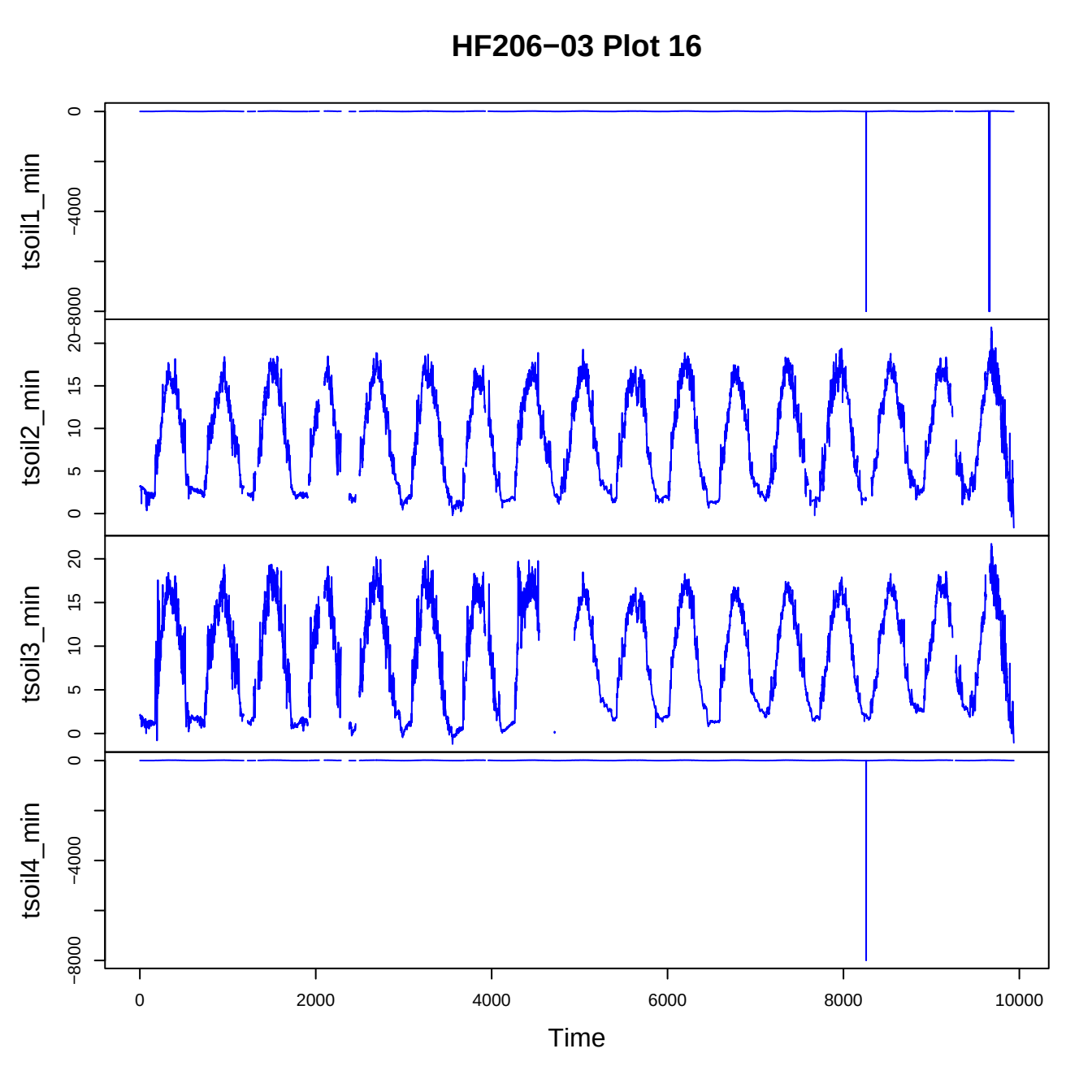

HF206−03 Plot 11
tair2_us_1m_max
tair2_us_20cm_max
swc1_max
swc2_max
0
−4000
−8000
0
2000
4000
6000
8000
10000
Time

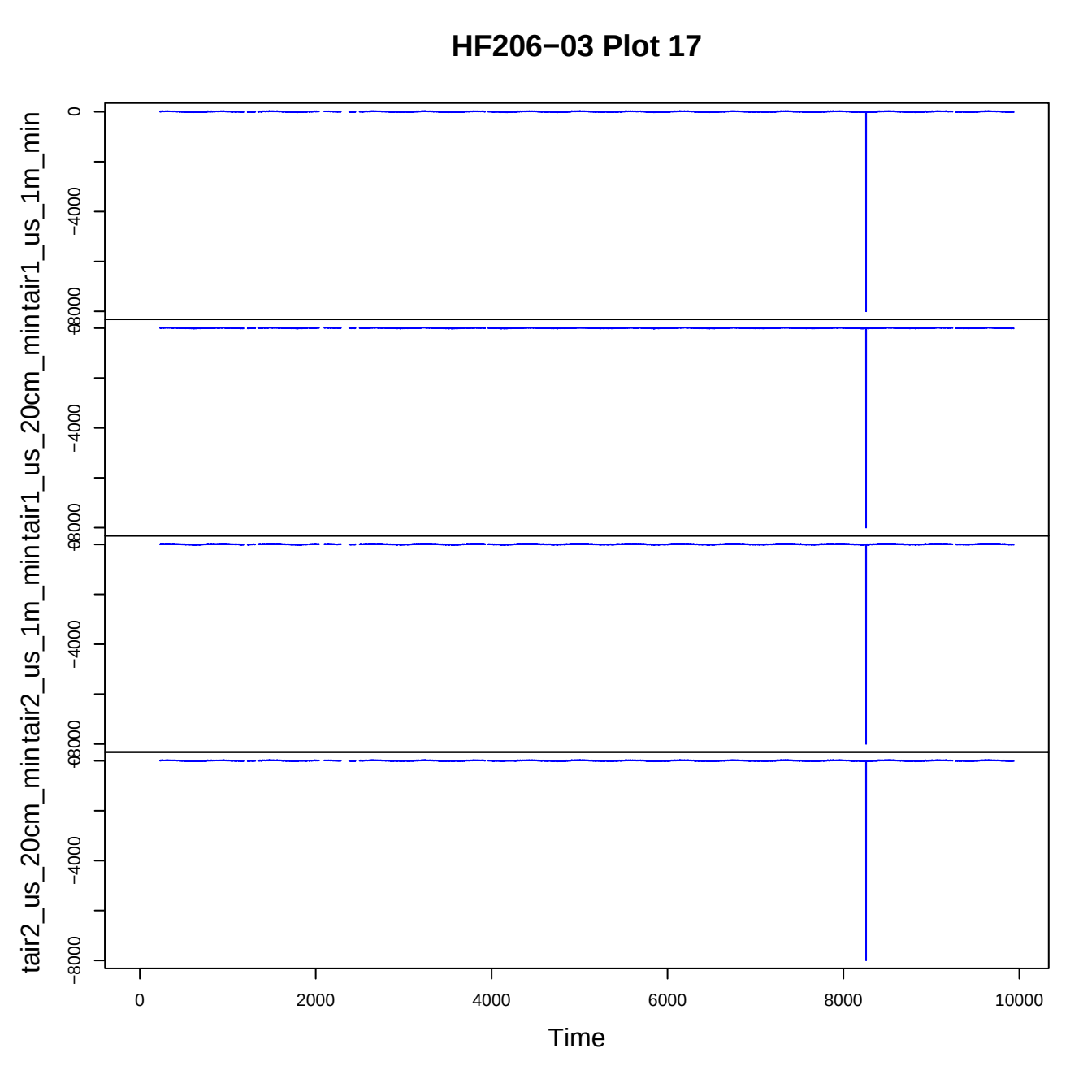

HF206−03 Plot 12
par4_max
par5_max
par6_max
tsoil5_max
0
500
1000
1500
0
5
10
15
20
0
2000
4000
6000
8000
10000
Time

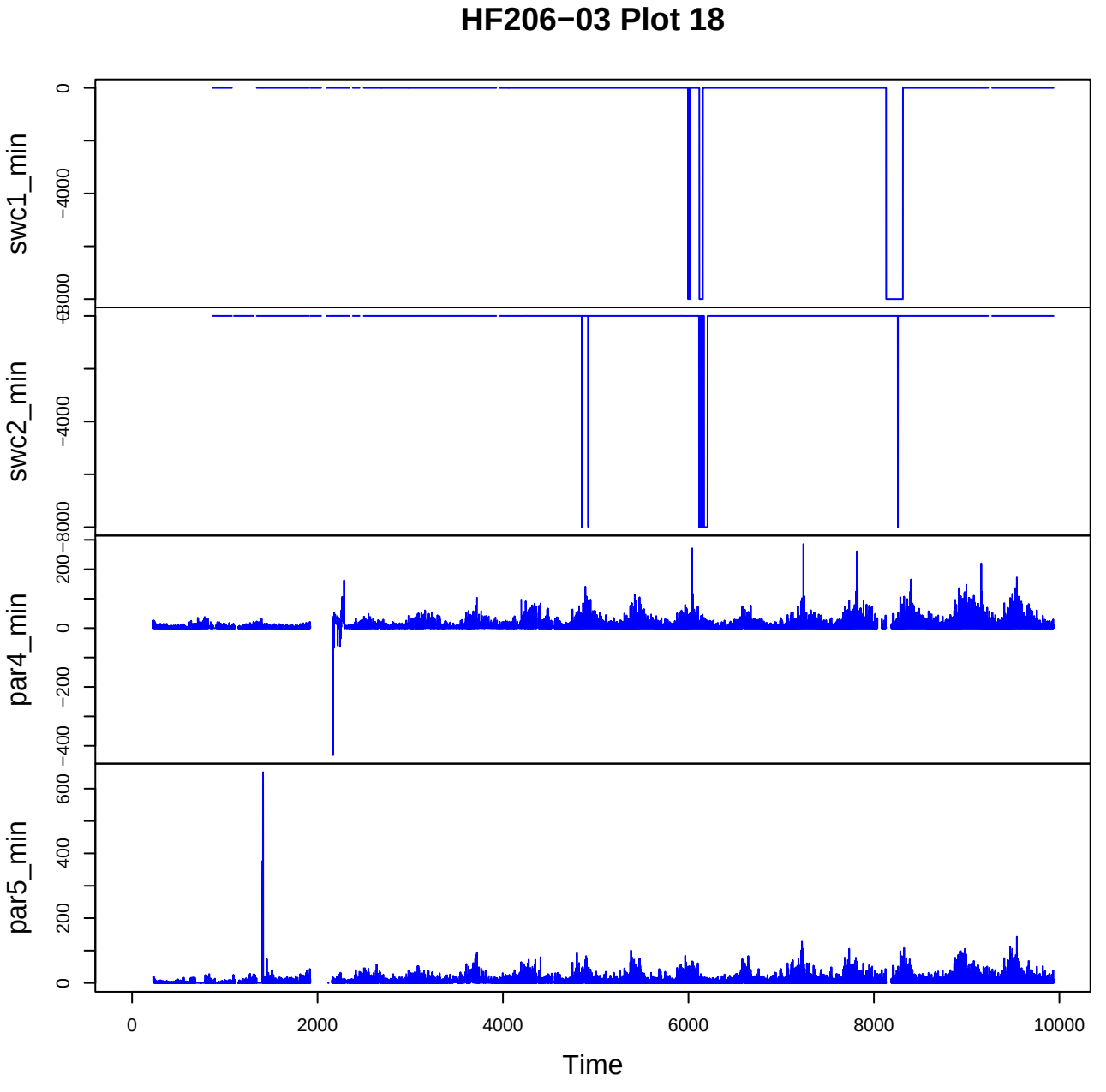

HF206−03 Plot 13
tsoil6_max
tsoil7_max
tsoil8_max
tair3_us_1m_max
0
5
10
15
20
−20
0
10
20
30
0
2000
4000
6000
8000
10000
Time

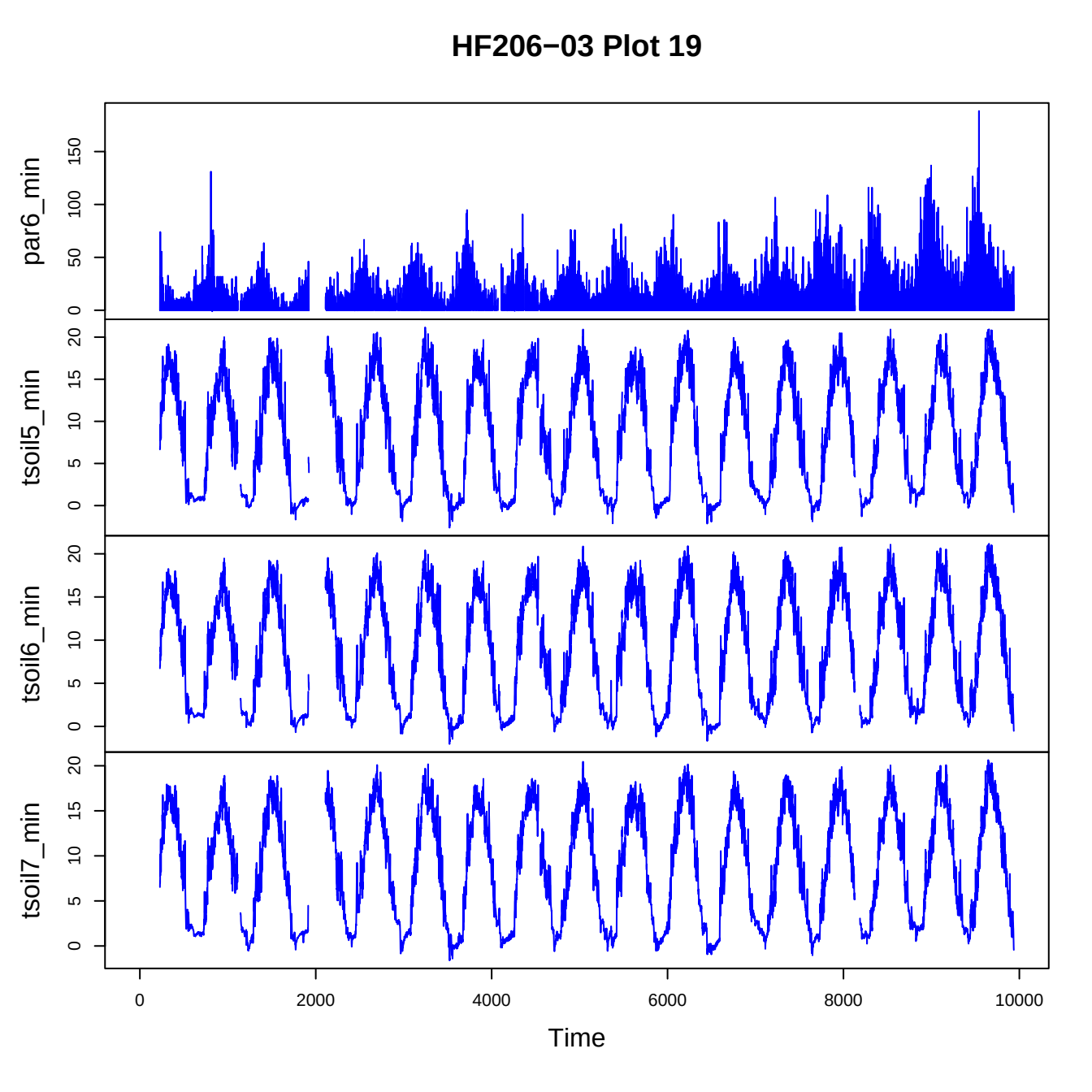

HF206−03 Plot 14
tair3_us_20cm_max
tair4_us_1m_max
tair4_us_20cm_max
swc3_max
30
10
0
−20
0.35
0.25
0.15
0.05
0
2000
4000
6000
8000
10000
Time

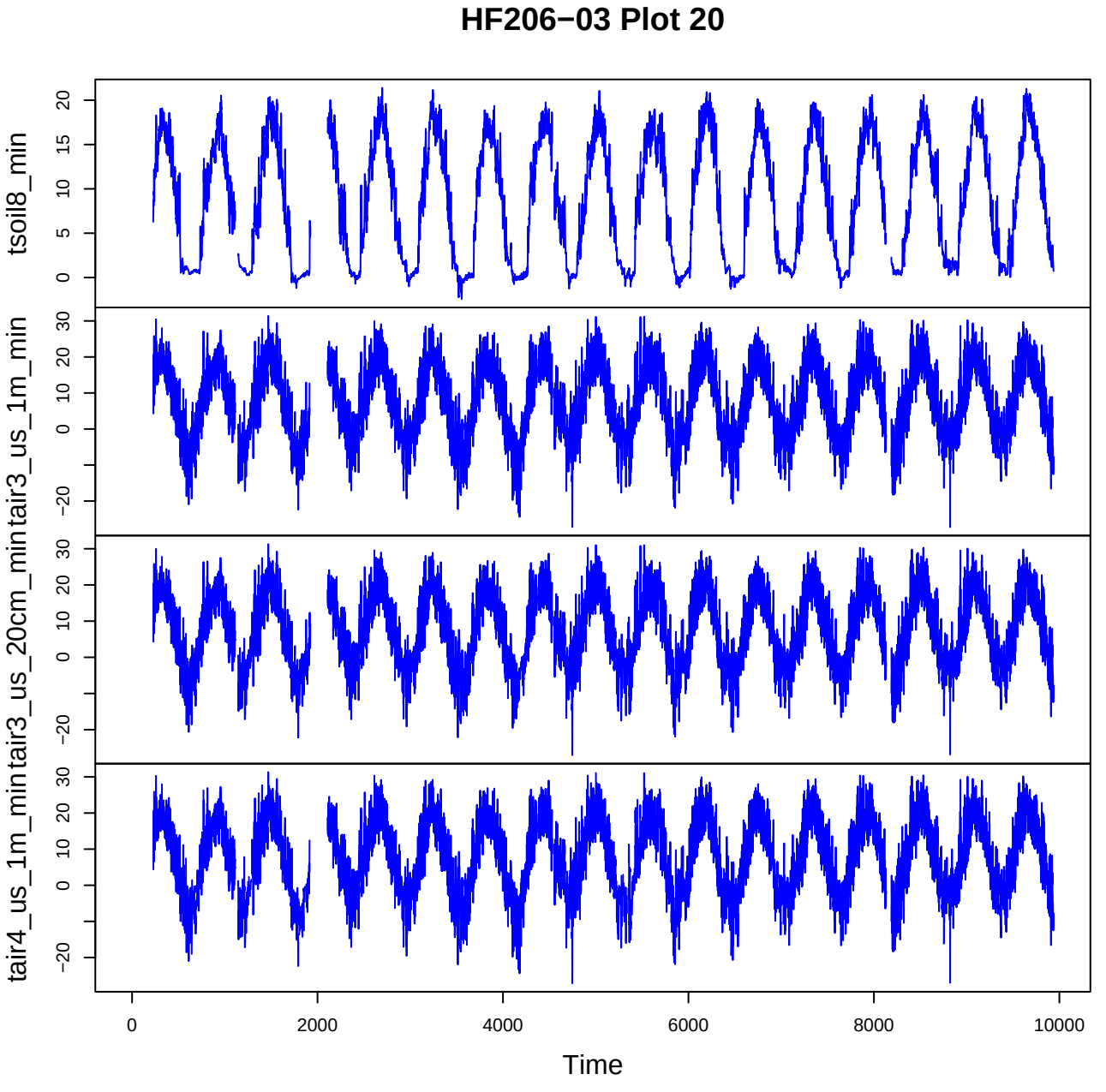

HF206−03 Plot 15
swc4_max
0.05
0.15
0.25
0.35
par1_min
0
200
400
600
800
par2_min
0
50
100
200
par3_min
0
200
600
1000
0
2000
4000
6000
8000
10000
Time

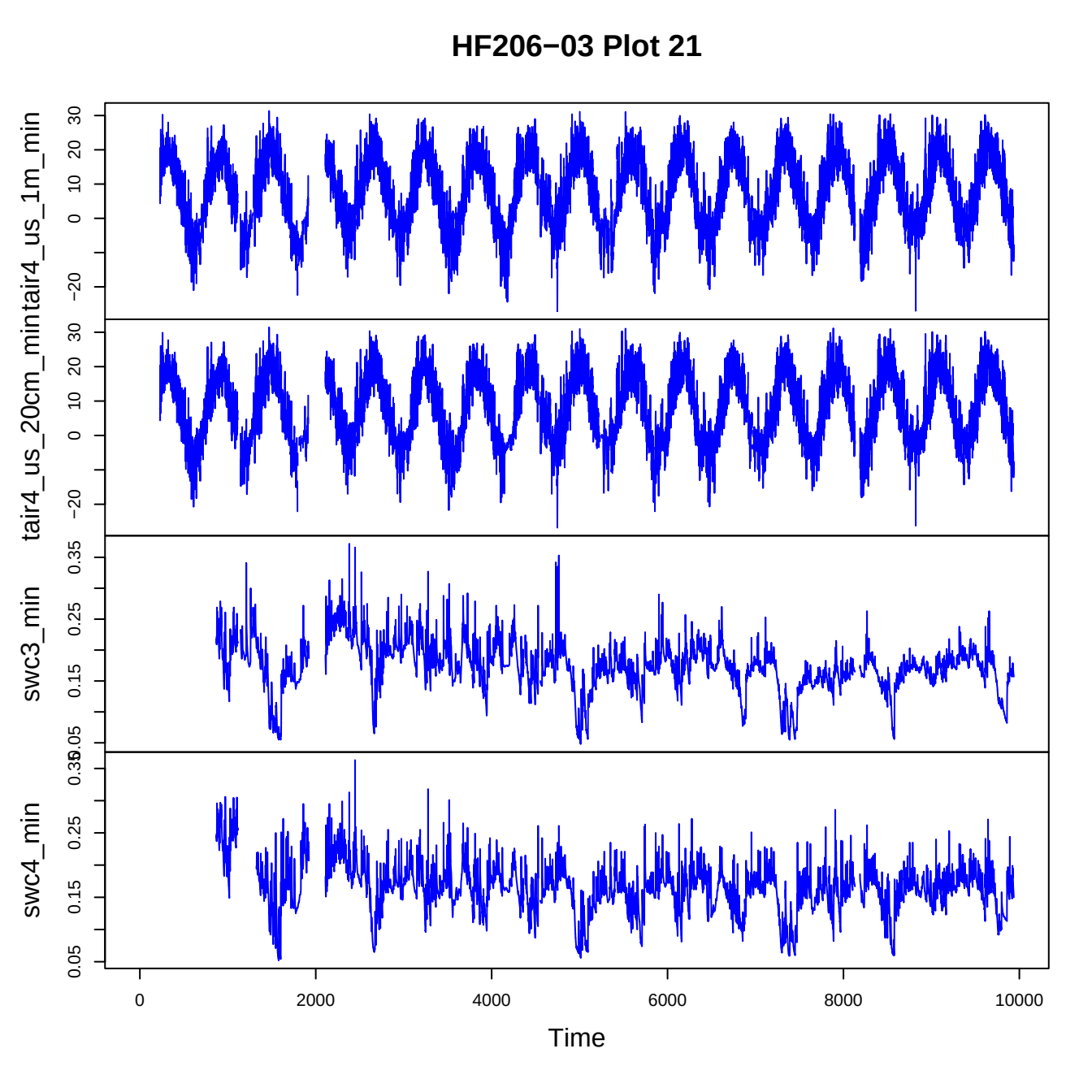

HF206−03 Plot 16
tsoil1_min
tsoil2_min
tsoil3_min
tsoil4_min
0
−4000
−8000
0
5
10
15
20
0
2000
4000
6000
8000
10000
Time


HF206−03 Plot 17
tair2_us_20cm_min
tair2_us_1m_min
tair1_us_20cm_min
tair1_us_1m_min
0
−4000
−8000
0
2000
4000
6000
8000
10000
Time


HF206−03 Plot 18
swc1_min
swc2_min
par4_min
par5_min
0
−4000
−8000
200
−200
−400
600
400
2000
4000
6000
8000
10000
Time


HF206−03 Plot 19
par6_min
tsoil5_min
tsoil6_min
tsoil7_min
0
50
100
150
0
5
10
15
20
0
2000
4000
6000
8000
10000
Time


HF206−03 Plot 20
tsoil8_min
tair3_us_1m_min
tair3_us_20cm_min
tair4_us_1m_min
0
5
10
15
20
−20
0
10
20
30
0
2000
4000
6000
8000
10000
Time


HF206−03 Plot 21
tair4_us_1m_min
tair4_us_20cm_min
swc3_min
swc4_min
30
20
10
0
−20
0.35
0.25
0.15
0.05
0
2000
4000
6000
8000
10000
Time