SI Work Group Call

Conference phone number: Conference Line/Code / Ex. 6

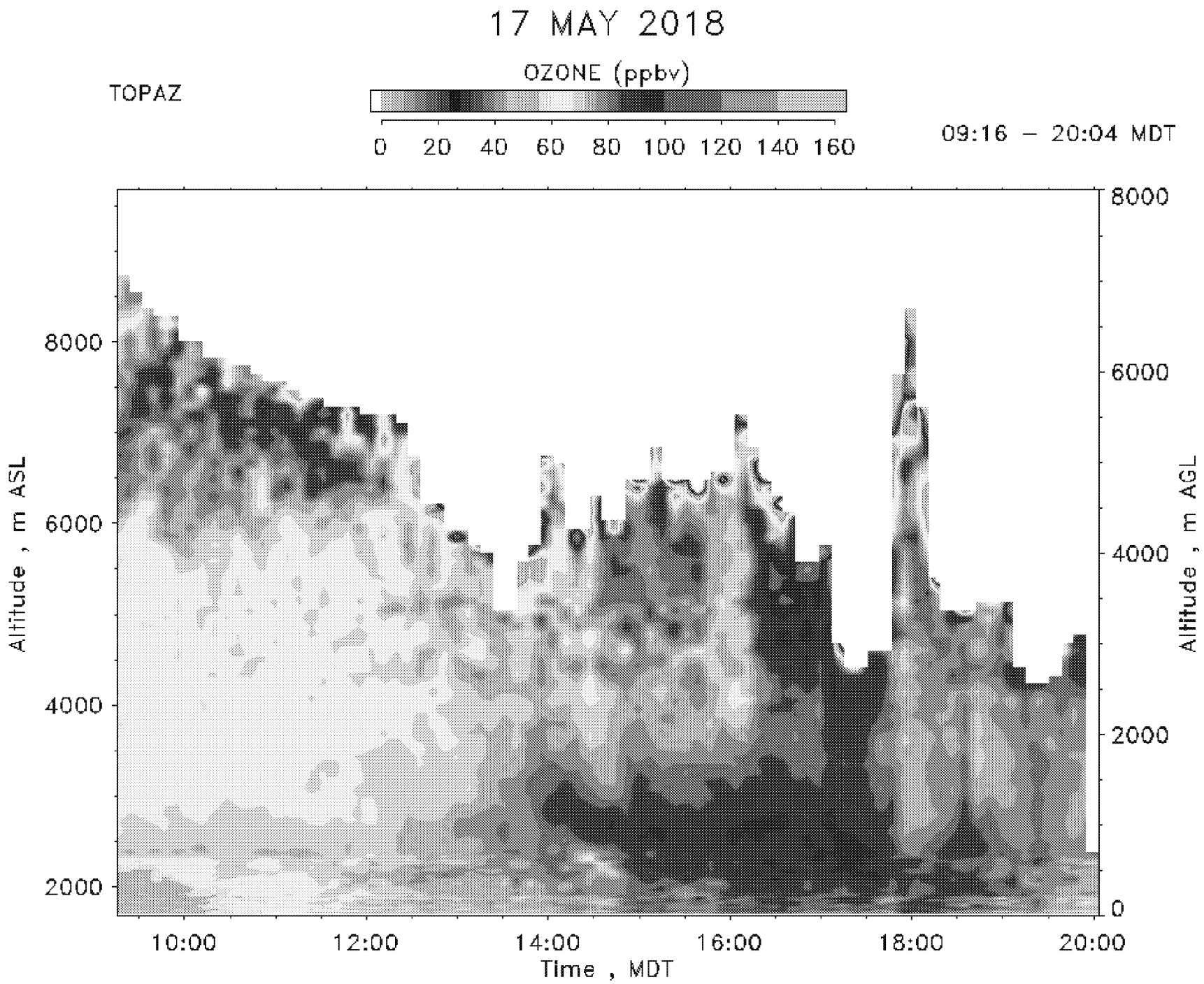
Conference ID pass code: Conference Line/Code / Ex. 6

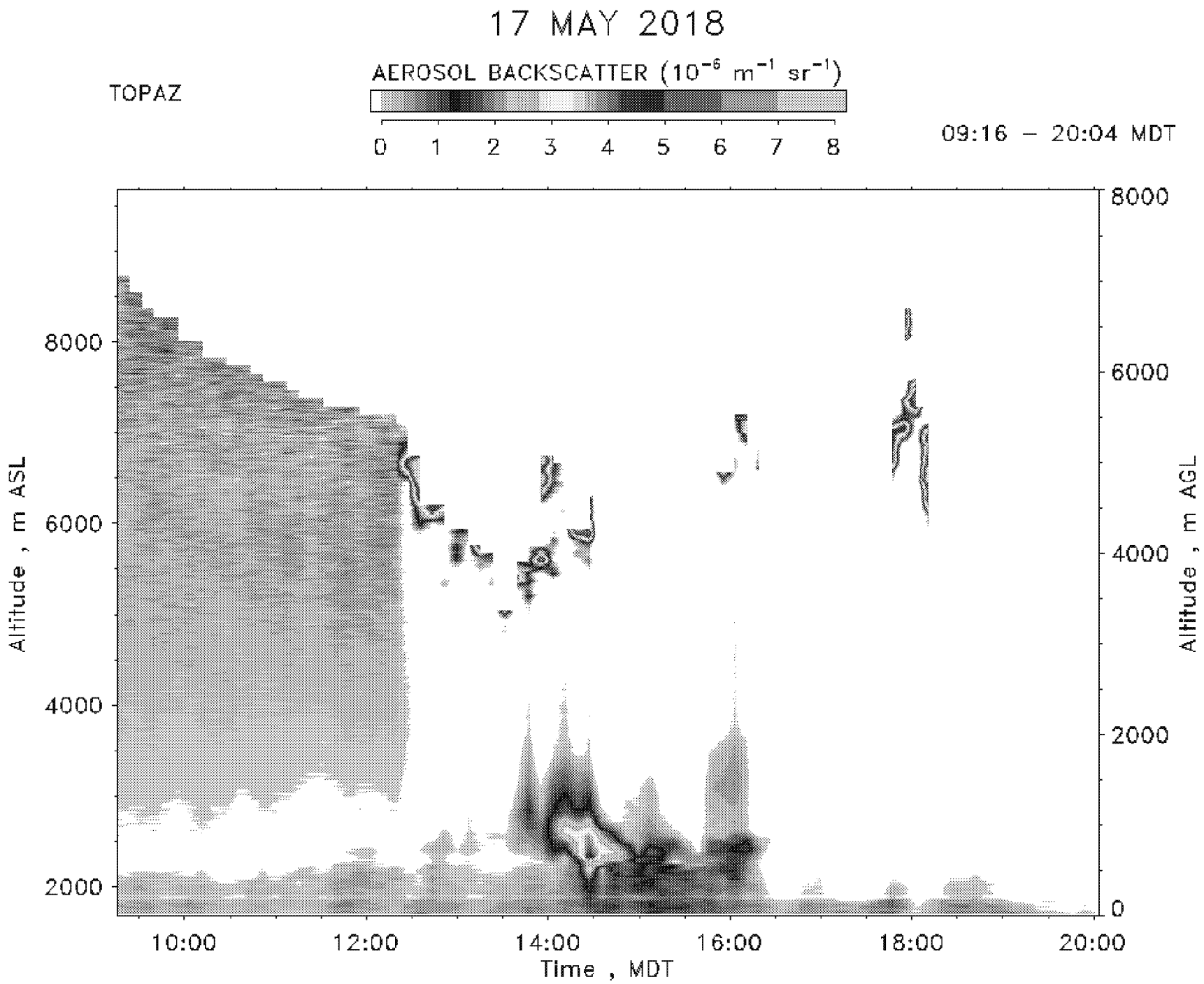
June 19, 2018

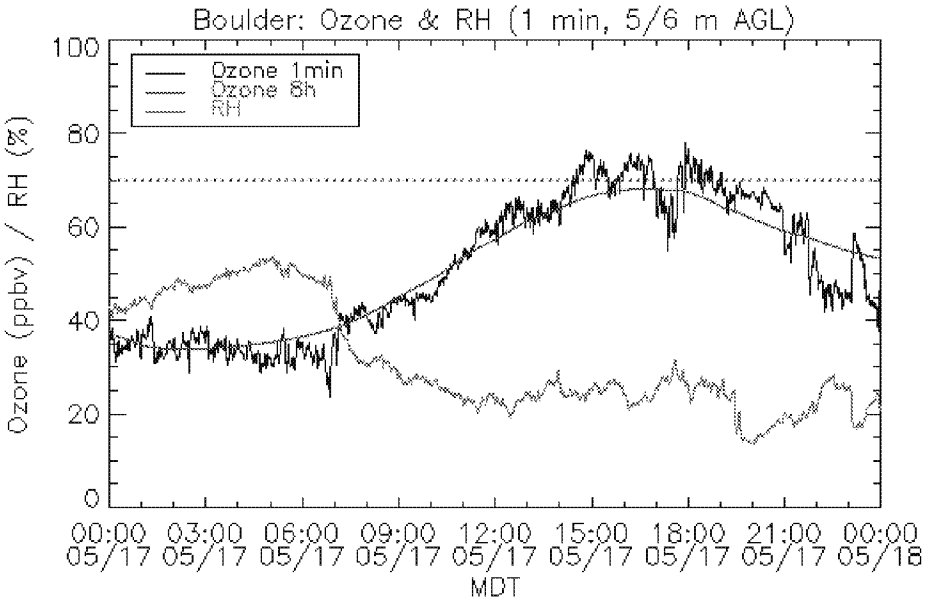
Agenda

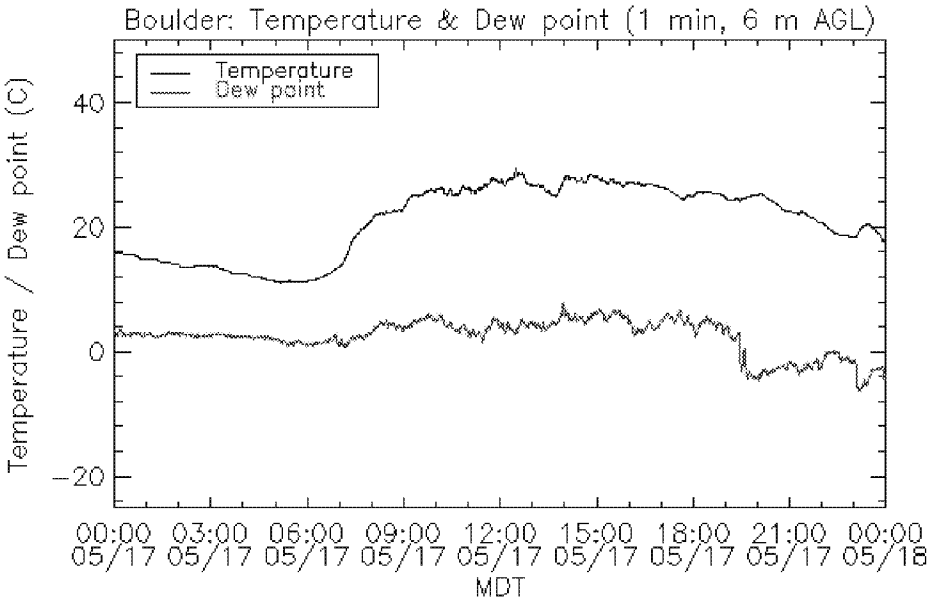
- Review AirNow and TOPAZ lidar data for some high ozone days in May and June 2018. Are any of these candidates for stratospheric intrusion events?

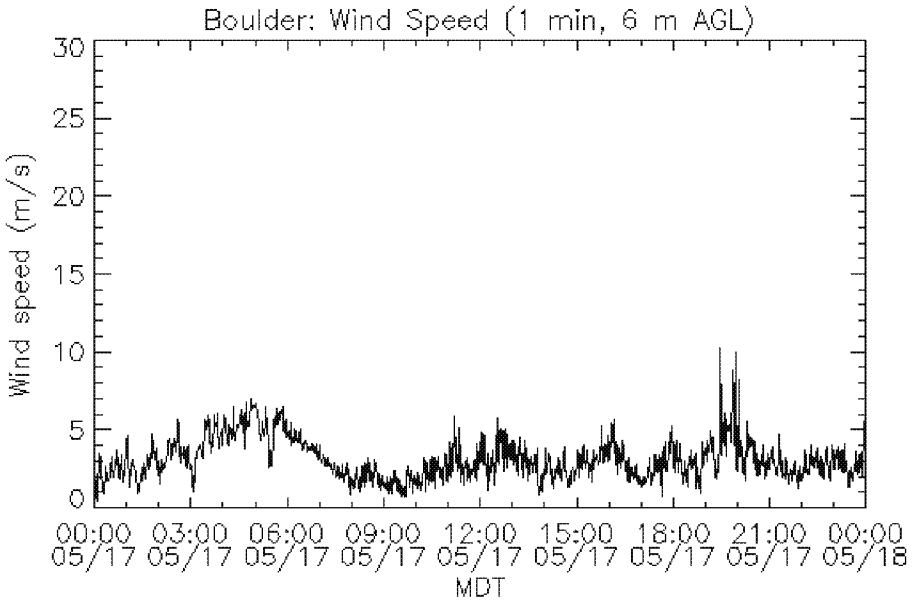
AirNow 8-hour Ozone: May 17, 2018

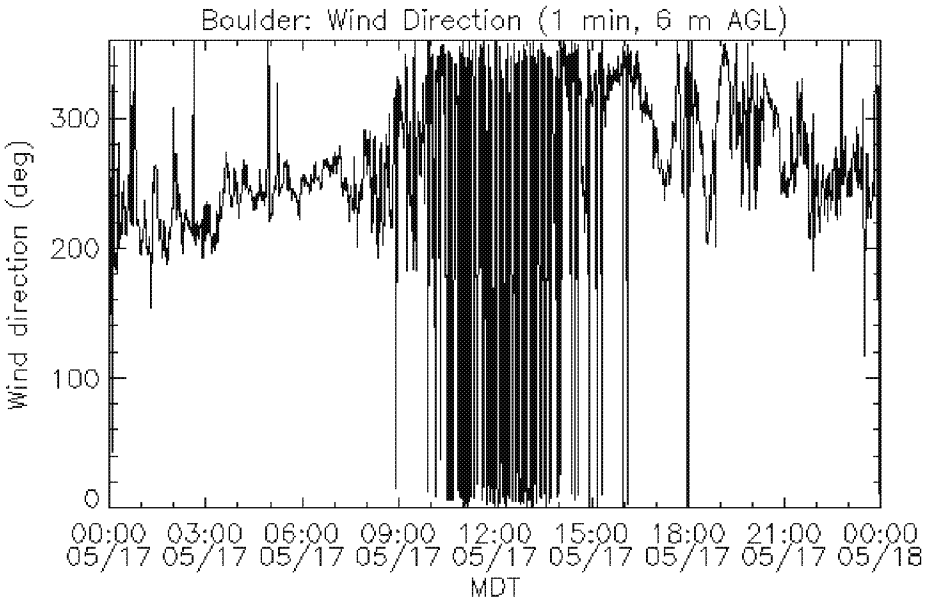

17 MAY 2018
TOPAZ
OZONE (ppbv)
0 20 40 60 80 100 120 140 160
09:16 – 20:04 MDT
Altitude , m ASL
8000
6000
4000
2000
Altitude , m AGL
8000
6000
4000
2000
0
10:00
12:00
14:00
16:00
18:00
20:00
Time , MDT


17 MAY 2018
TOPAZ
AEROSOL BACKSCATTER (10^{-6} m^{-1} sr^{-1})
0 1 2 3 4 5 6 7 8
09:16 – 20:04 MDT
Altitude , m ASL
8000
6000
4000
2000
Altitude , m AGL
8000
6000
4000
2000
0
10:00
12:00
14:00
16:00
18:00
20:00
Time , MDT

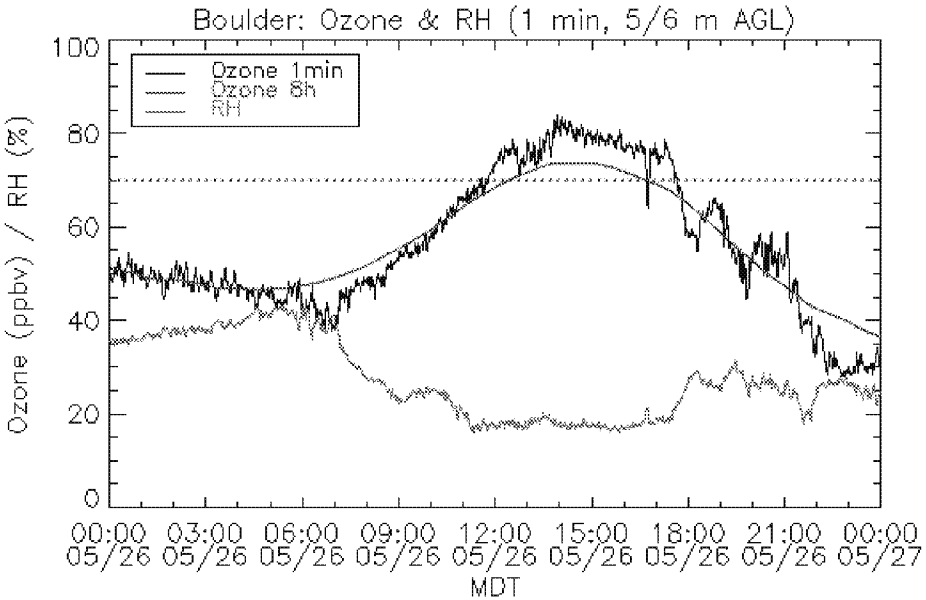

Boulder: Ozone & RH (1 min, 5/6 m AGL)
Ozone 1min
Ozone 8h
RH
Ozone (ppbv) / RH (%)
100
80
60
40
20
0
00:00 05/17
03:00 05/17
06:00 05/17
09:00 05/17
12:00 05/17
15:00 05/17
18:00 05/17
21:00 05/17
00:00 05/18
MDT

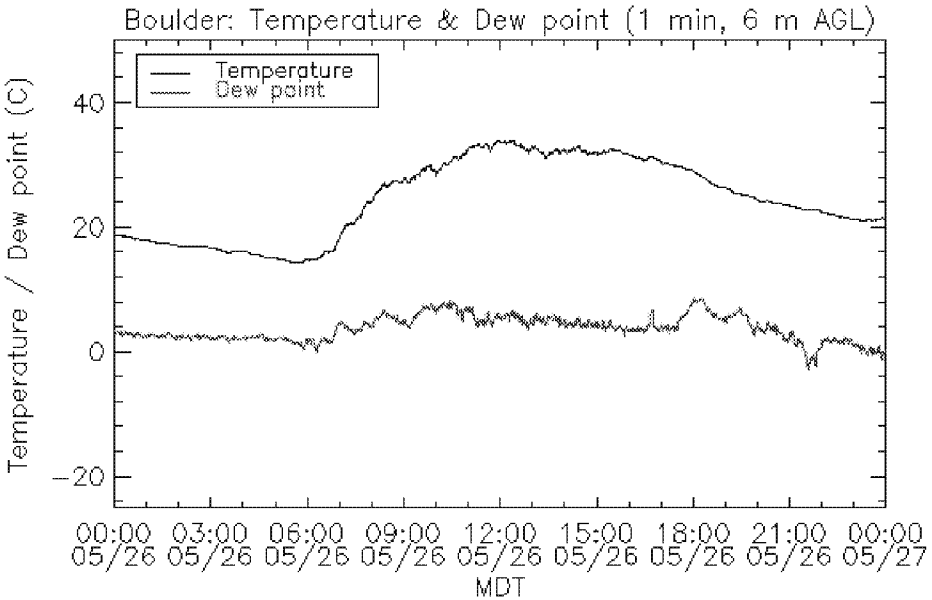

Boulder: Temperature & Dew point (1 min, 6 m AGL)
Temperature
Dew point
Temperature / Dew point (C)
40
20
0
−20
00:00 05/17
03:00 05/17
06:00 05/17
09:00 05/17
12:00 05/17
15:00 05/17
18:00 05/17
21:00 05/17
00:00 05/18
MDT

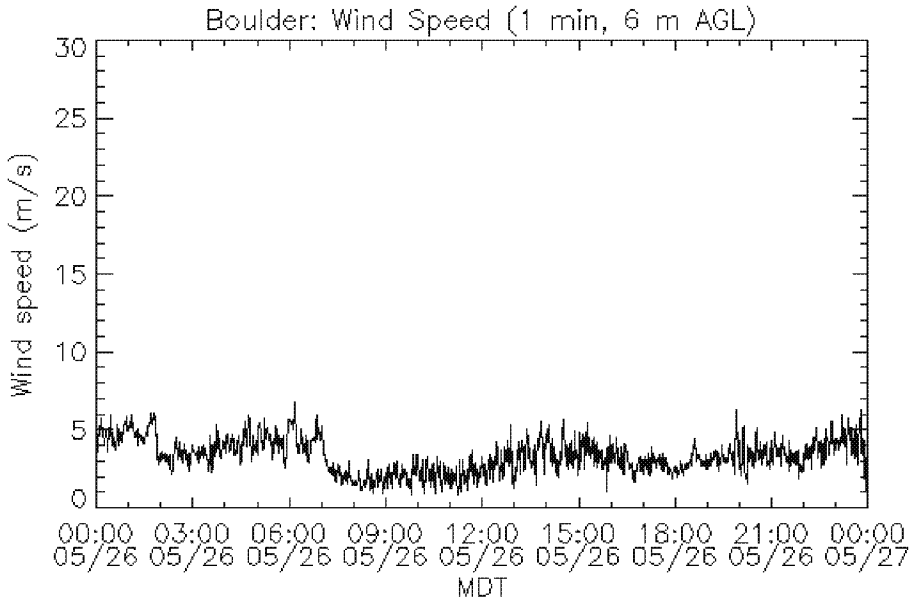

Boulder: Wind Speed (1 min, 6 m AGL)
Wind speed (m/s)
30
25
20
15
10
5
0
00:00 05/17
03:00 05/17
06:00 05/17
09:00 05/17
12:00 05/17
15:00 05/17
18:00 05/17
21:00 05/17
00:00 05/18
MDT

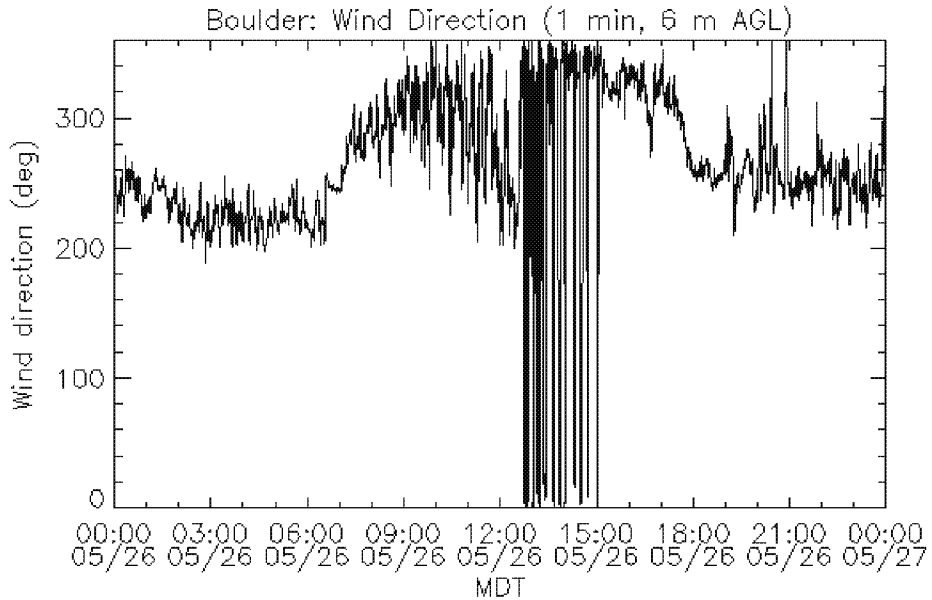

Boulder: Wind Direction (1 min, 6 m AGL)
Wind direction (deg)
300
200
100
0
00:00 05/17
03:00 05/17
06:00 05/17
09:00 05/17
12:00 05/17
15:00 05/17
18:00 05/17
21:00 05/17
00:00 05/18
MDT

AirNow 8-hour Ozone: May 26, 2018

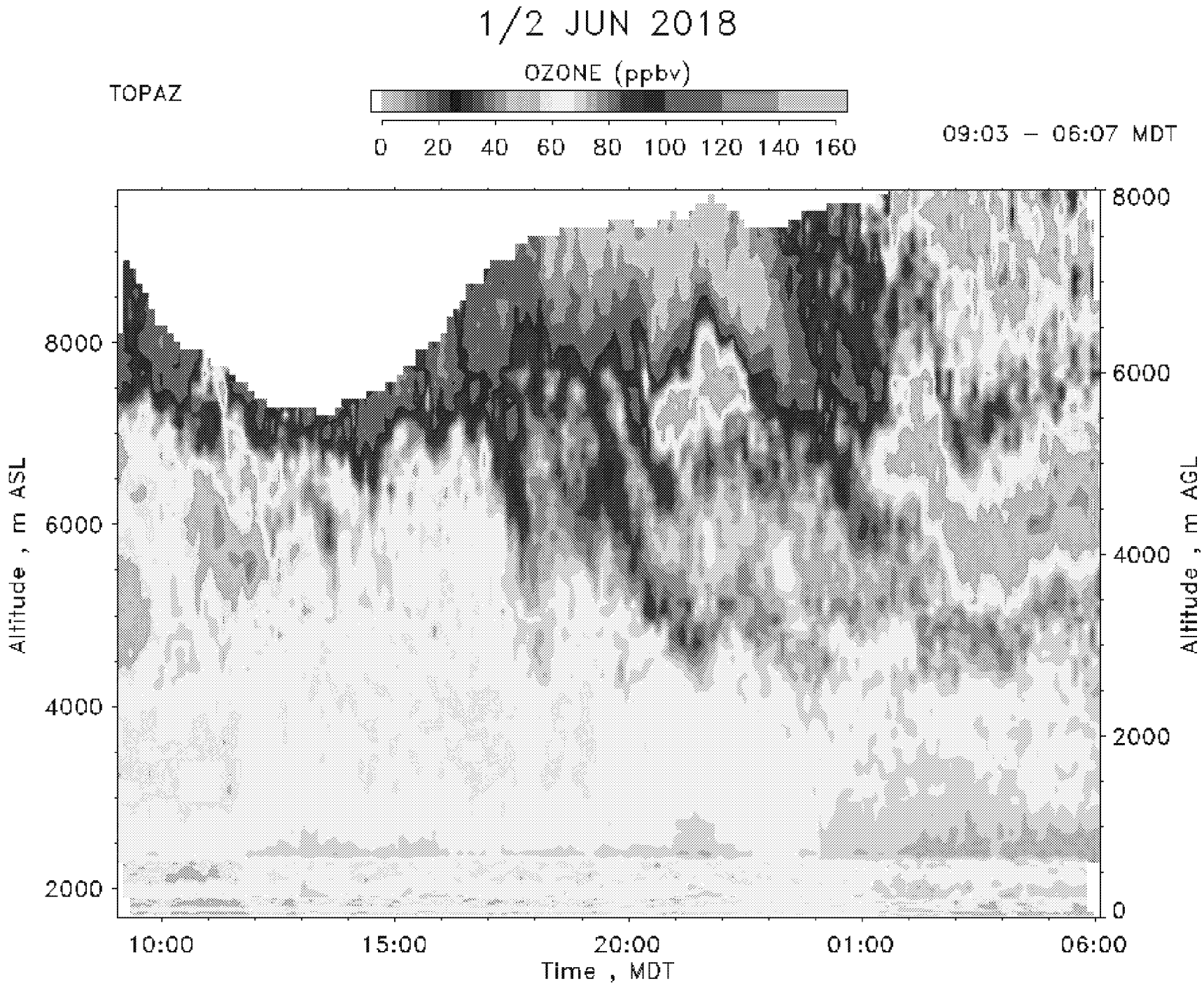

Boulder: Ozone & RH (1 min, 5/6 m AGL)
Ozone 1min
Ozone 8h
RH
Ozone (ppbv) / RH (%)
100
80
60
40
20
0
00:00 05/26
03:00 05/26
06:00 05/26
09:00 05/26
12:00 05/26
15:00 05/26
18:00 05/26
21:00 05/26
00:00 05/27
MDT

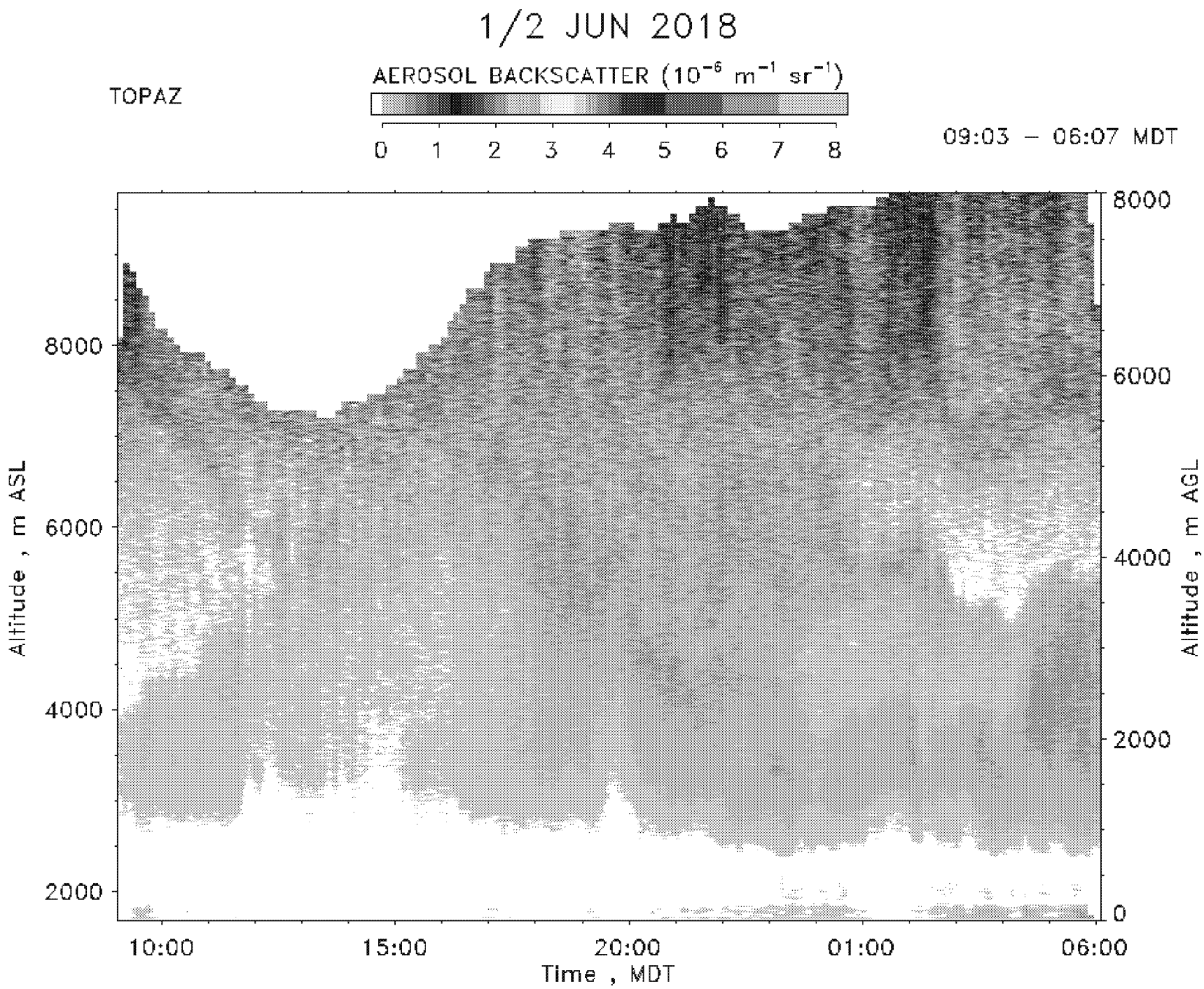

Boulder: Temperature & Dew point (1 min, 6 m AGL)
Temperature
Dew point
Temperature / Dew point (C)
40
20
0
−20
00:00 05/26
03:00 05/26
06:00 05/26
09:00 05/26
12:00 05/26
15:00 05/26
18:00 05/26
21:00 05/26
00:00 05/27
MDT

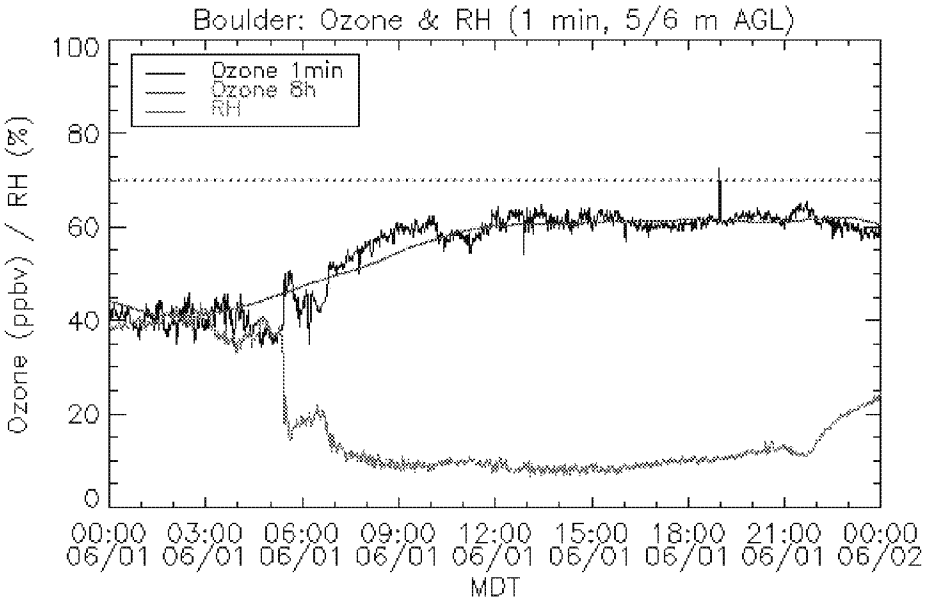

Boulder: Wind Speed (1 min, 6 m AGL)
Wind speed (m/s)
30
25
20
15
10
5
0
00:00 05/26
03:00 05/26
06:00 05/26
09:00 05/26
12:00 05/26
15:00 05/26
18:00 05/26
21:00 05/26
00:00 05/27
MDT

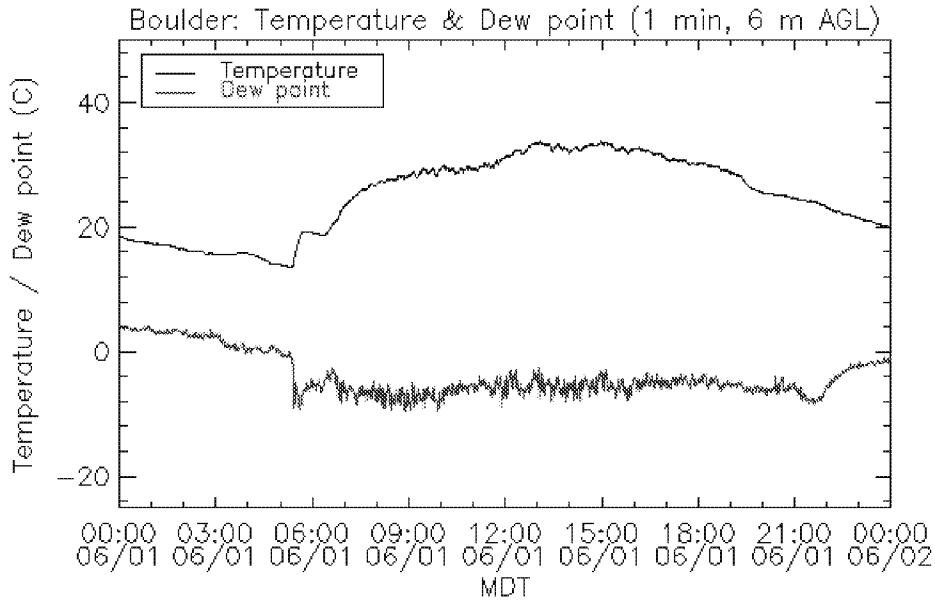

Boulder: Wind Direction (1 min, 6 m AGL)
Wind direction (deg)
300
200
100
0
00:00 05/26
03:00 05/26
06:00 05/26
09:00 05/26
12:00 05/26
15:00 05/26
18:00 05/26
21:00 05/26
00:00 05/27
MDT

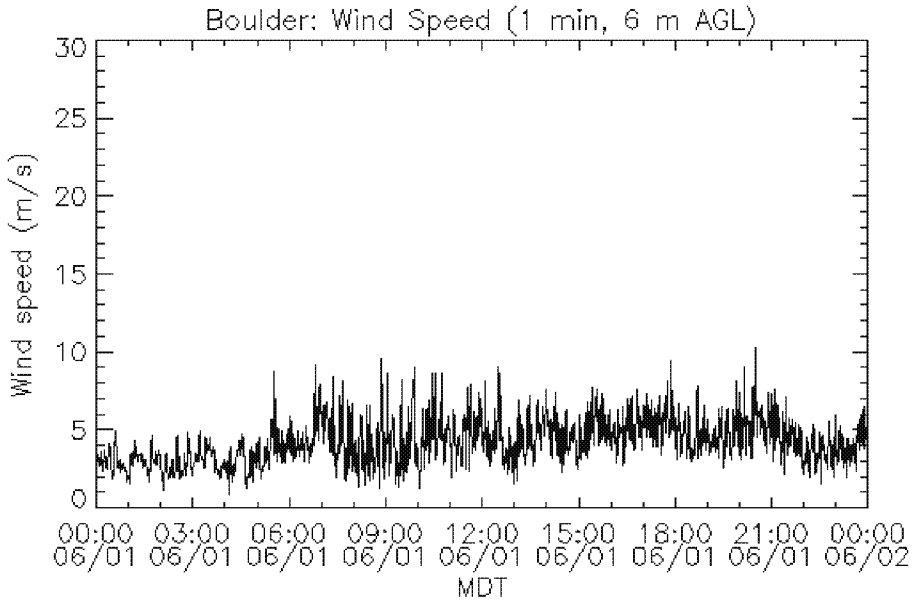
AirNow 8-hour Ozone: June 1, 2018

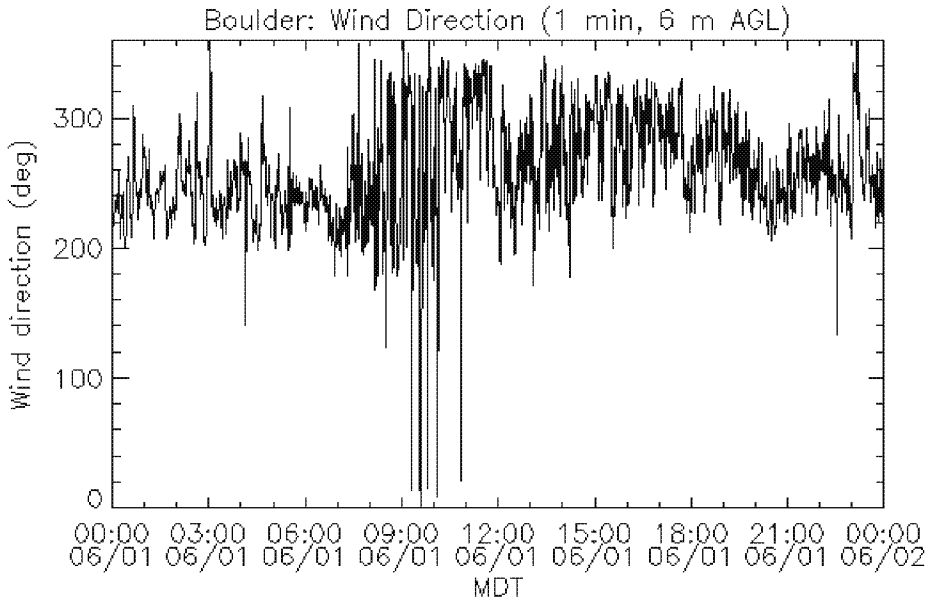

1/2 JUN 2018
TOPAZ
OZONE (ppbv)
0 20 40 60 80 100 120 140 160
09:03 – 06:07 MDT
Altitude , m ASL
8000
6000
4000
2000
Altitude , m AGL
8000
6000
4000
2000
0
10:00
15:00
20:00
01:00
06:00
Time , MDT


1/2 JUN 2018
TOPAZ
AEROSOL BACKSCATTER (10^{-6} m^{-1} sr^{-1})
0 1 2 3 4 5 6 7 8
09:03 – 06:07 MDT
Altitude , m ASL
8000
6000
4000
2000
Altitude , m AGL
8000
6000
4000
2000
0
10:00
15:00
20:00
01:00
06:00
Time , MDT

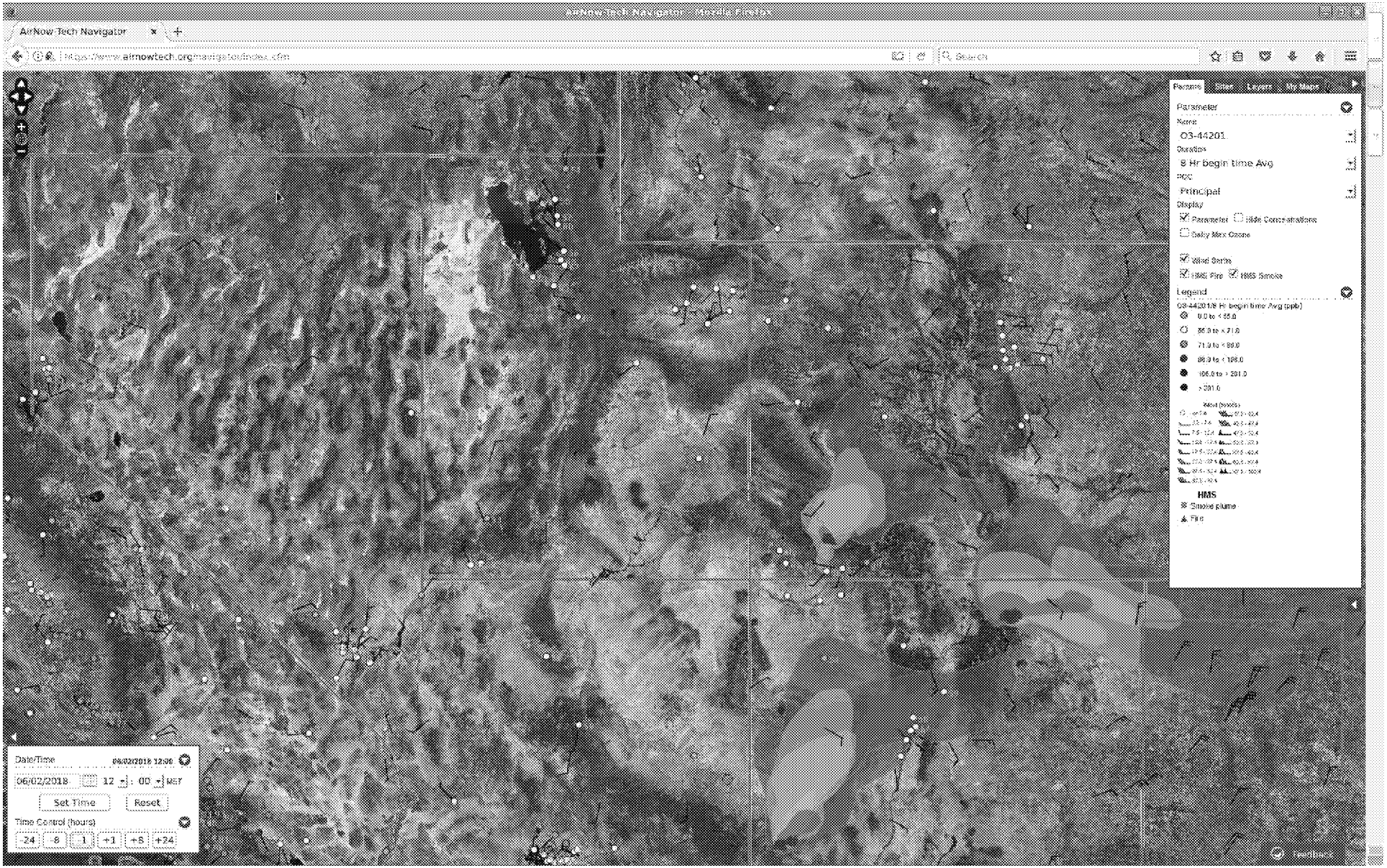

Boulder: Ozone & RH (1 min, 5/6 m AGL)
Ozone 1min
Ozone 8h
RH
Ozone (ppbv) / RH (%)
100
80
60
40
20
0
00:00 06/01
03:00 06/01
06:00 06/01
09:00 06/01
12:00 06/01
15:00 06/01
18:00 06/01
21:00 06/01
00:00 06/02
MDT

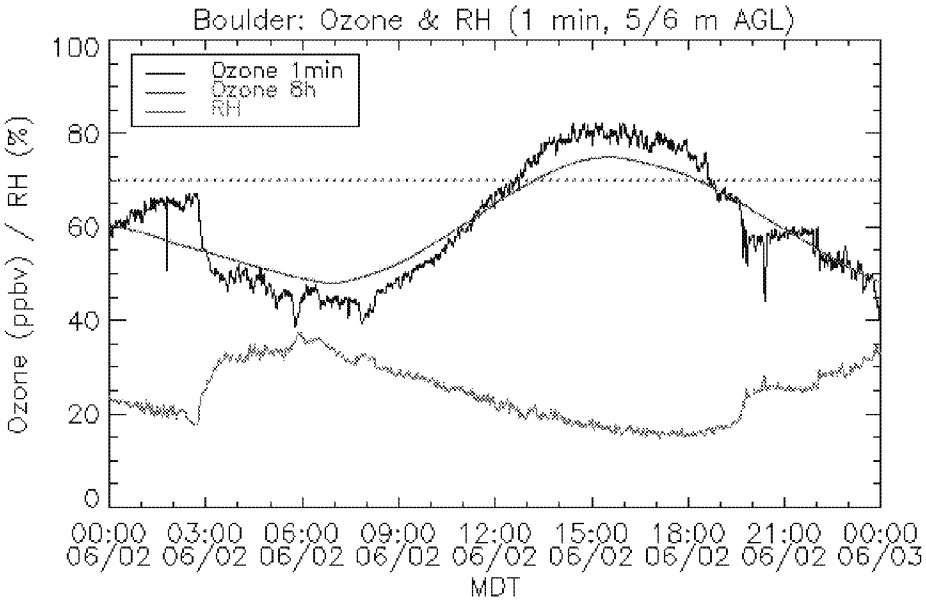

Boulder: Temperature & Dew point (1 min, 6 m AGL)
Temperature
Dew point
Temperature / Dew point (C)
40
20
0
−20
00:00 06/01
03:00 06/01
06:00 06/01
09:00 06/01
12:00 06/01
15:00 06/01
18:00 06/01
21:00 06/01
00:00 06/02
MDT

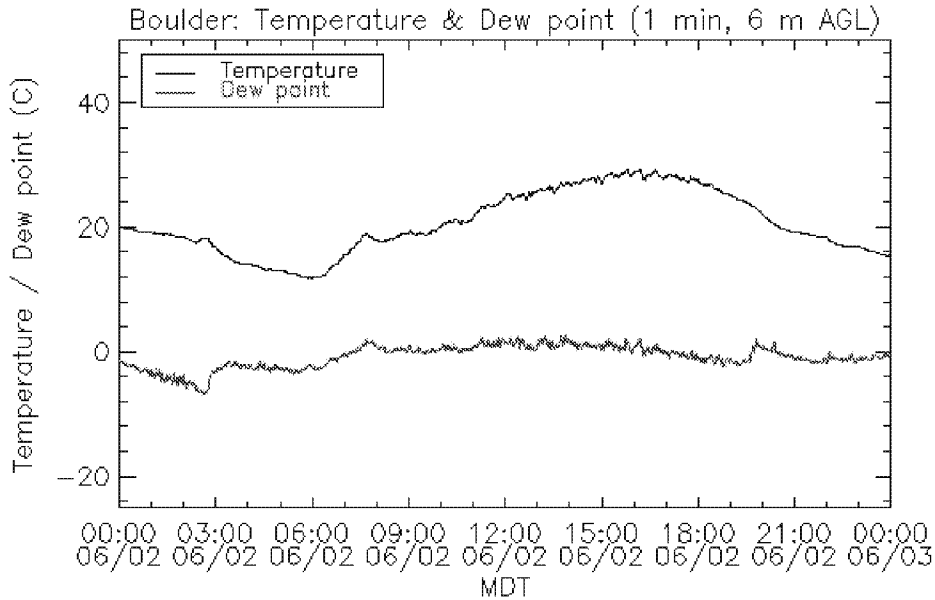

Boulder: Wind Speed (1 min, 6 m AGL)
Wind speed (m/s)
30
25
20
15
10
5
0
00:00 06/01
03:00 06/01
06:00 06/01
09:00 06/01
12:00 06/01
15:00 06/01
18:00 06/01
21:00 06/01
00:00 06/02
MDT

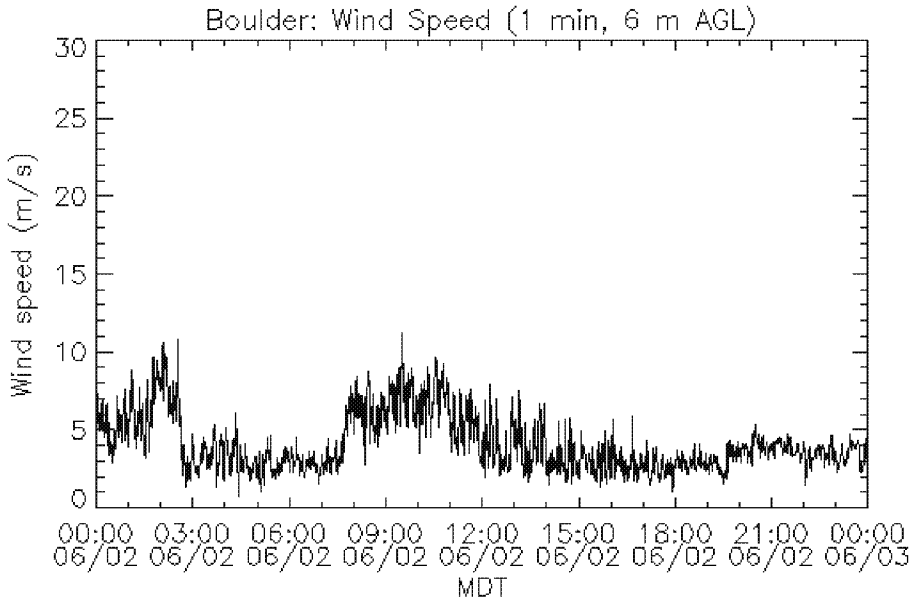

Boulder: Wind Direction (1 min, 6 m AGL)
Wind direction (deg)
300
200
100
0
00:00 06/01
03:00 06/01
06:00 06/01
09:00 06/01
12:00 06/01
15:00 06/01
18:00 06/01
21:00 06/01
00:00 06/02
MDT

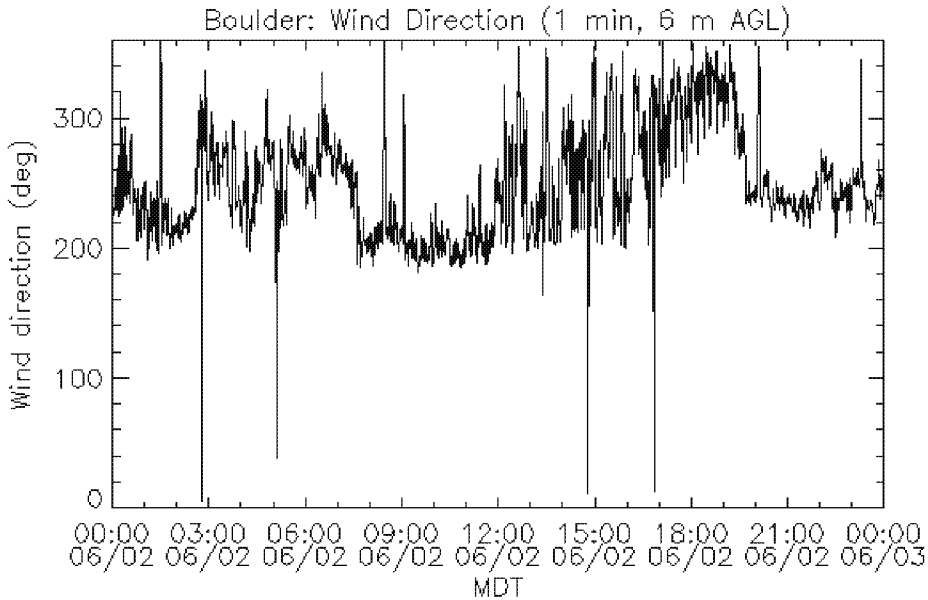
AirNow 8-hour Ozone: June 2, 2018



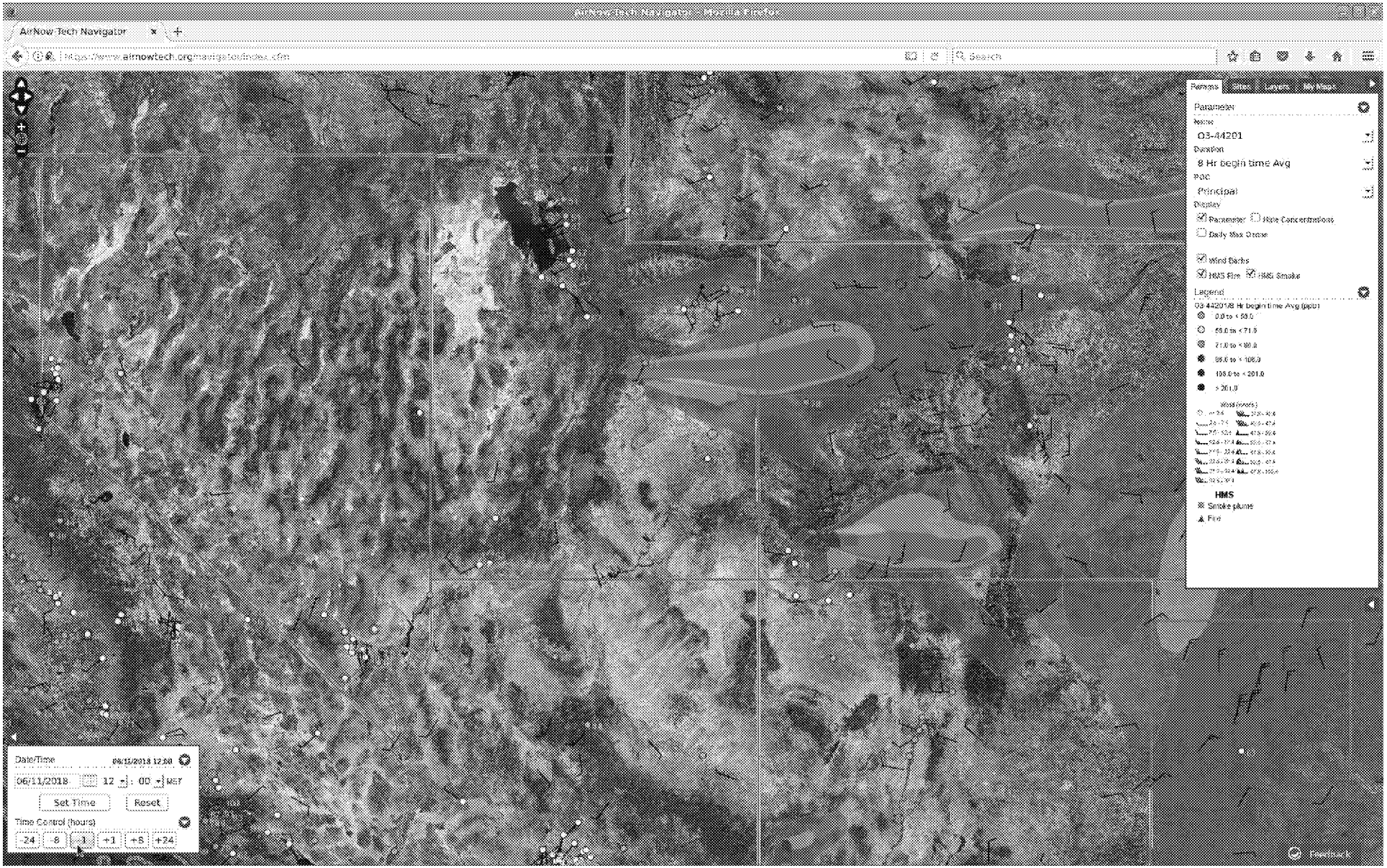

Boulder: Ozone & RH (1 min, 5/6 m AGL)
Ozone 1min
Ozone 8h
RH
Ozone (ppbv) / RH (%)
100
80
60
40
20
0
00:00 06/02
03:00 06/02
06:00 06/02
09:00 06/02
12:00 06/02
15:00 06/02
18:00 06/02
21:00 06/02
00:00 06/03
MDT

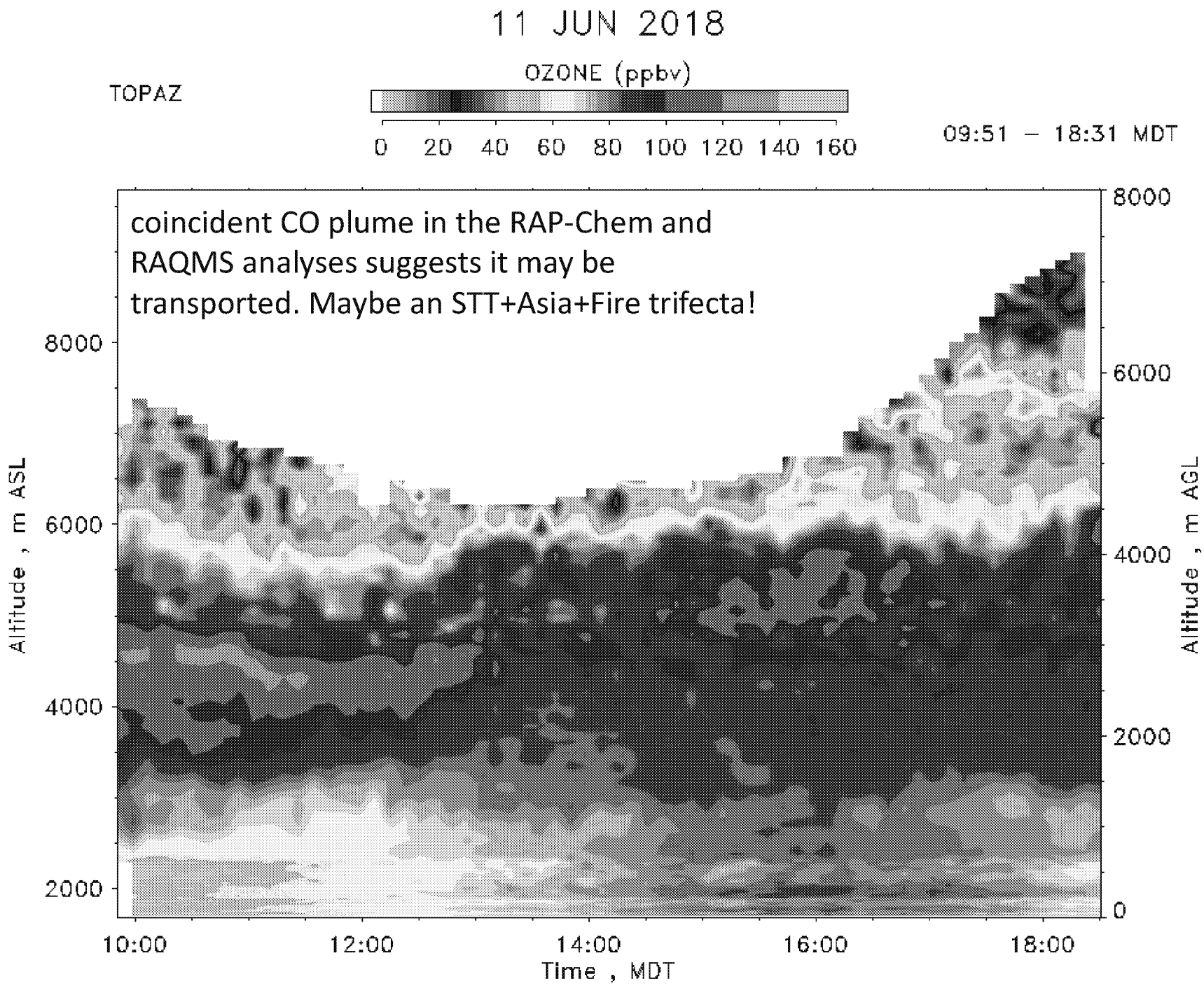

Boulder: Temperature & Dew point (1 min, 6 m AGL)
Temperature
Dew point
Temperature / Dew point (C)
40
20
0
−20
00:00 06/02
03:00 06/02
06:00 06/02
09:00 06/02
12:00 06/02
15:00 06/02
18:00 06/02
21:00 06/02
00:00 06/03
MDT

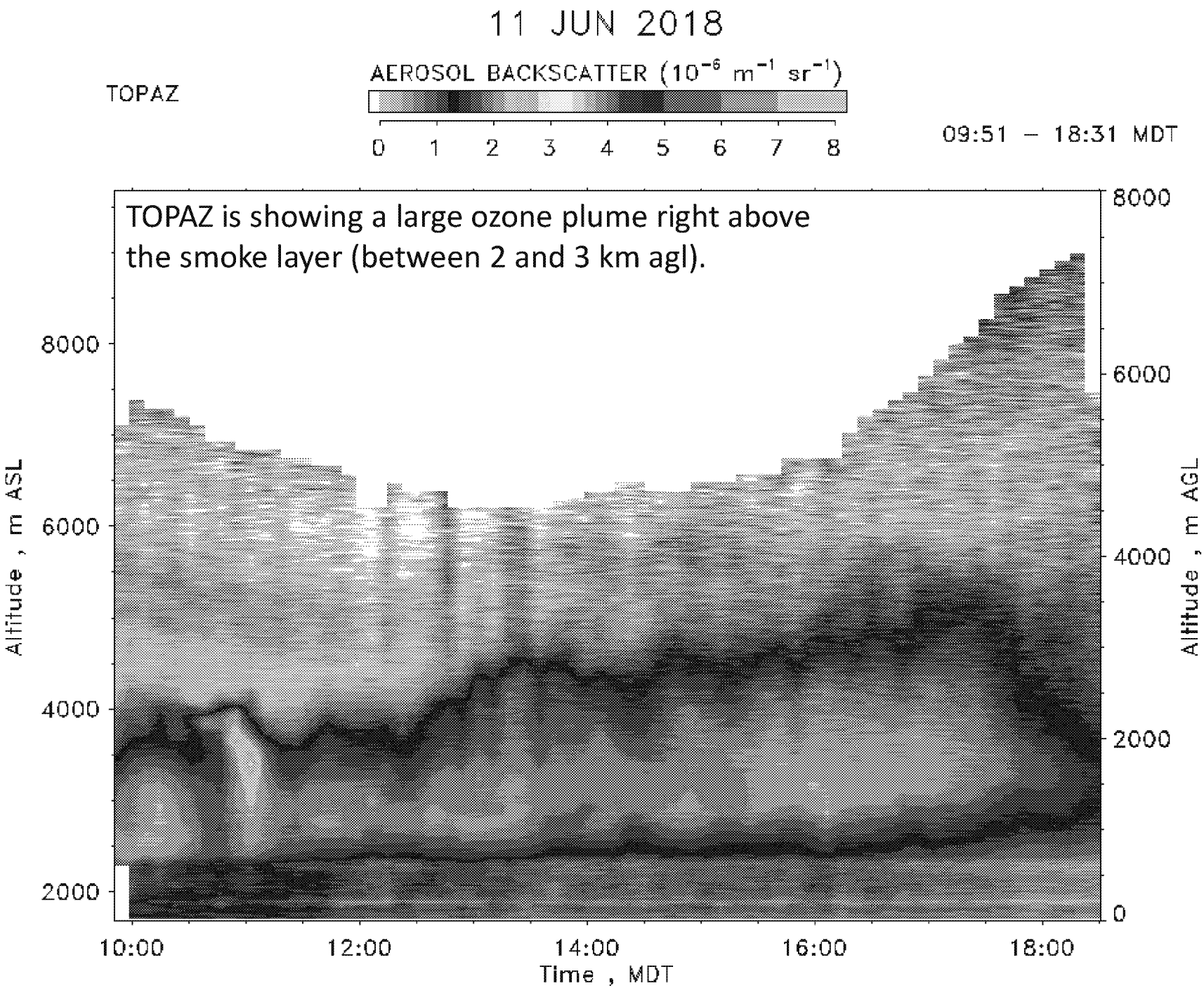

Boulder: Wind Speed (1 min, 6 m AGL)
Wind speed (m/s)
30
25
20
15
10
5
0
00:00 06/02
03:00 06/02
06:00 06/02
09:00 06/02
12:00 06/02
15:00 06/02
18:00 06/02
21:00 06/02
00:00 06/03
MDT

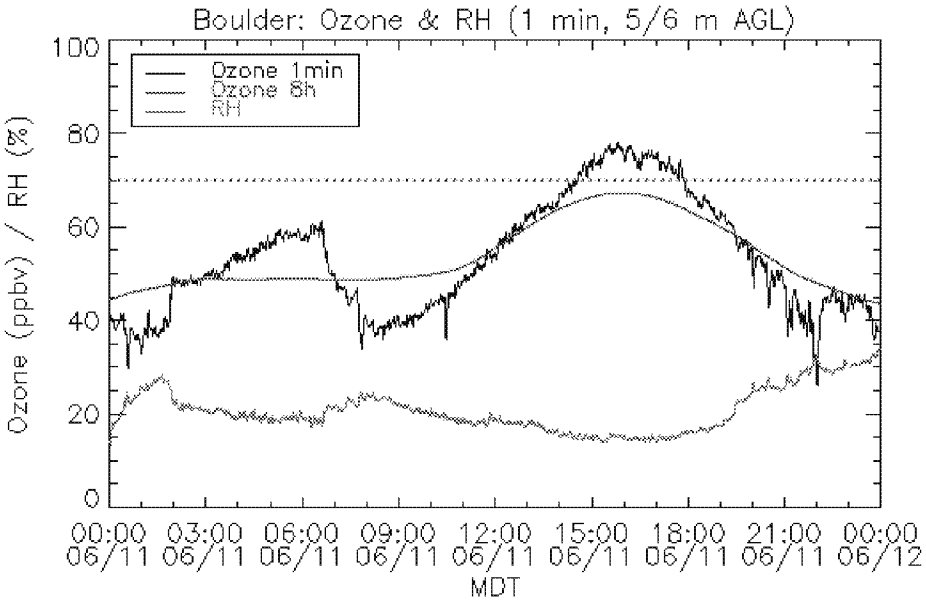

Boulder: Wind Direction (1 min, 6 m AGL)
Wind direction (deg)
300
200
100
0
00:00 06/02
03:00 06/02
06:00 06/02
09:00 06/02
12:00 06/02
15:00 06/02
18:00 06/02
21:00 06/02
00:00 06/03
MDT

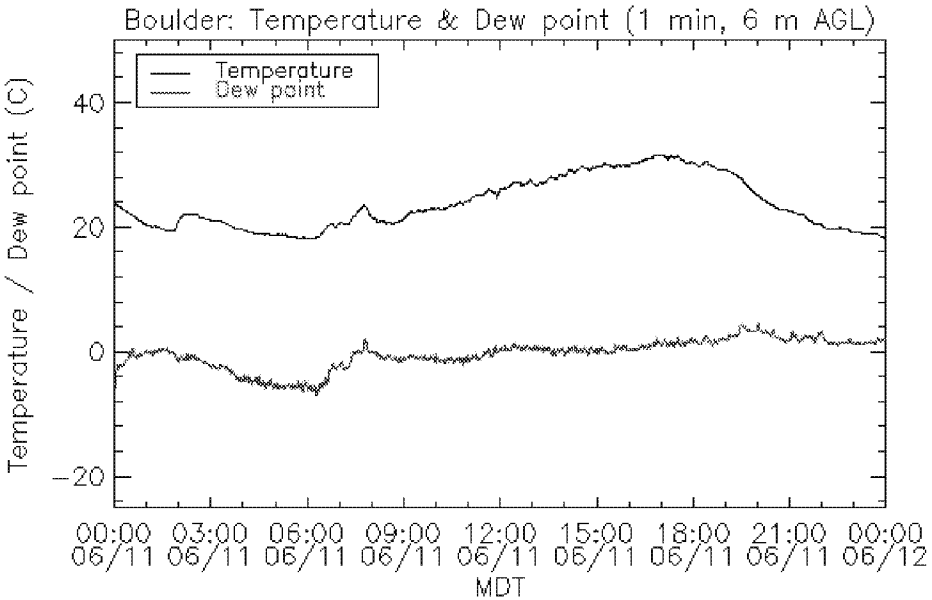
AirNow 8-hour Ozone: June 11, 2018

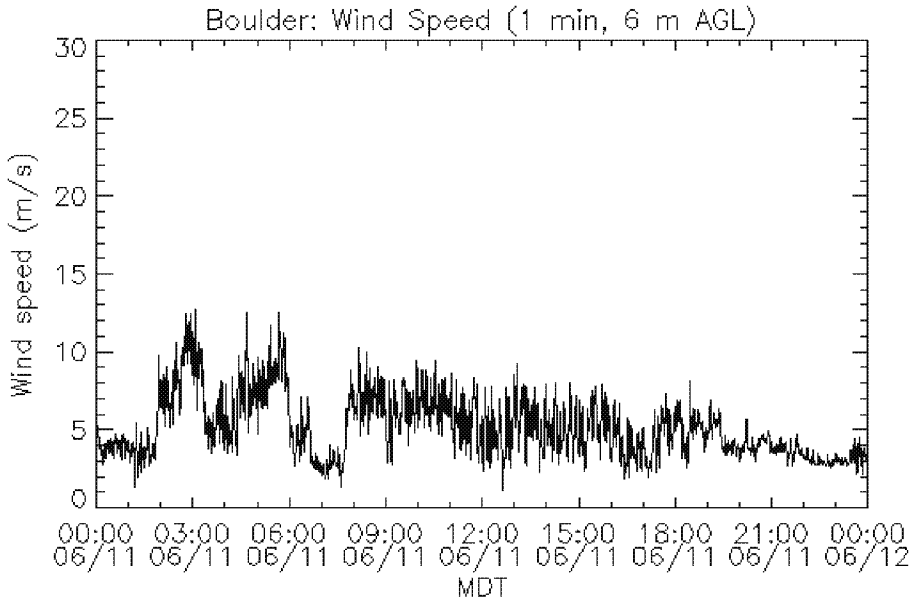


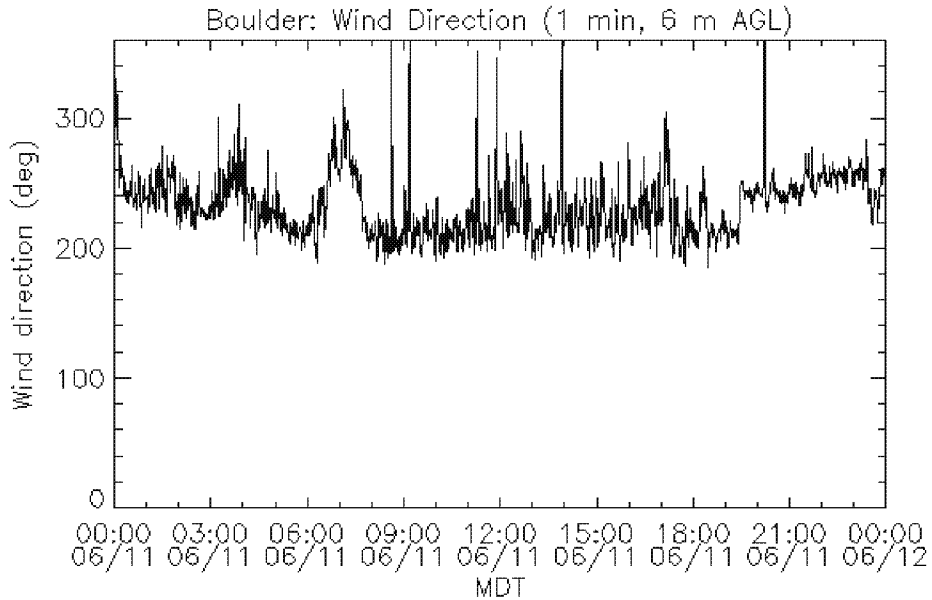

11 JUN 2018
TOPAZ
OZONE (ppbv)
0 20 40 60 80 100 120 140 160
09:51 – 18:31 MDT
coincident CO plume in the RAP-Chem and RAQMS analyses suggests it may be transported. Maybe an STT+Asia+Fire trifecta!
Altitude , m ASL
8000
6000
4000
2000
Altitude , m AGL
8000
6000
4000
2000
0
10:00
12:00
14:00
16:00
18:00
Time , MDT


11 JUN 2018
TOPAZ
AEROSOL BACKSCATTER (10^{-6} m^{-1} sr^{-1})
0 1 2 3 4 5 6 7 8
09:51 – 18:31 MDT
TOPAZ is showing a large ozone plume right above the smoke layer (between 2 and 3 km agl).
Altitude , m ASL
8000
6000
4000
2000
Altitude , m AGL
8000
6000
4000
2000
0
10:00
12:00
14:00
16:00
18:00
Time , MDT

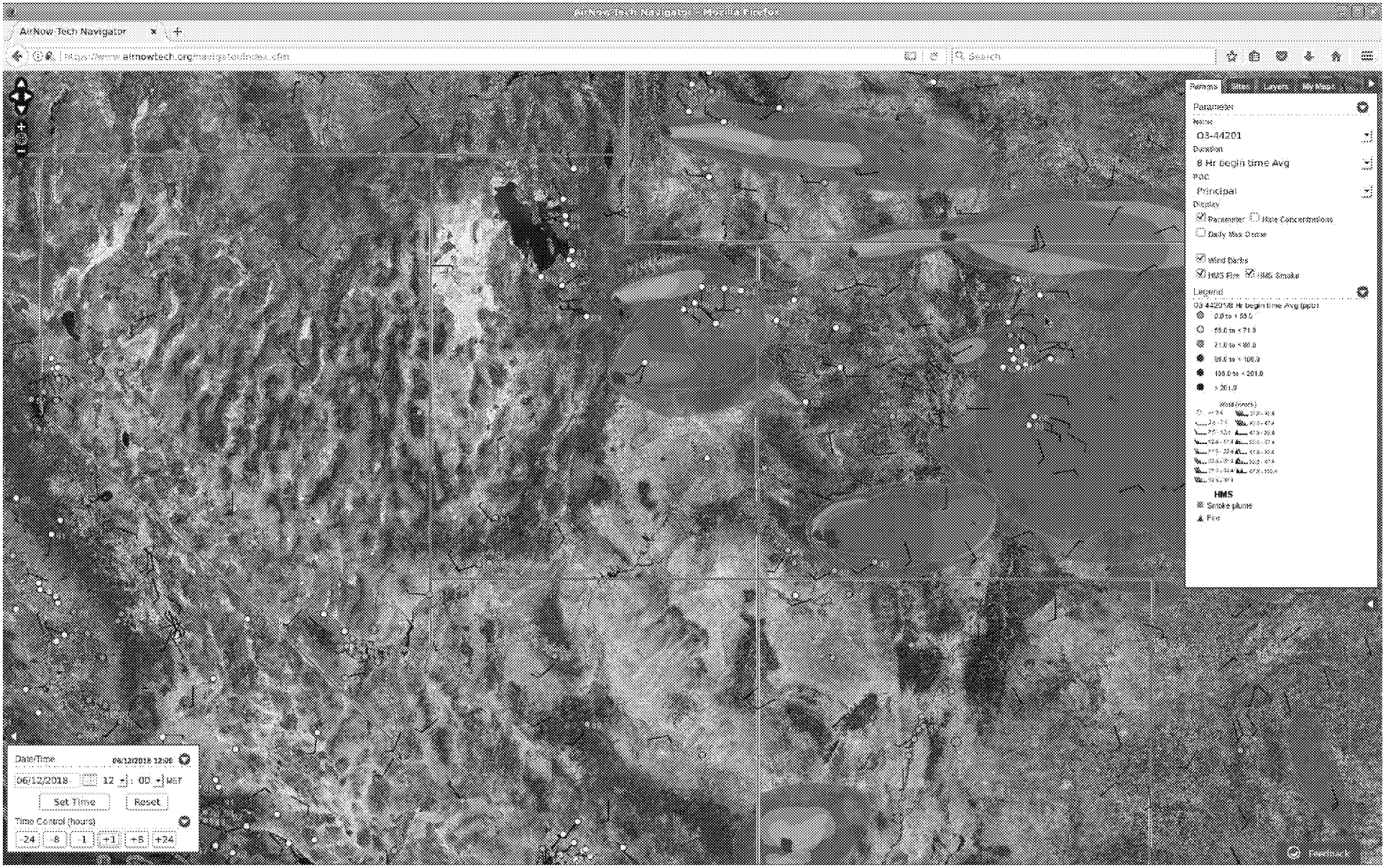

Boulder: Ozone & RH (1 min, 5/6 m AGL)
Ozone 1min
Ozone 8h
RH
Ozone (ppbv) / RH (%)
100
80
60
40
20
0
00:00 06/11
03:00 06/11
06:00 06/11
09:00 06/11
12:00 06/11
15:00 06/11
18:00 06/11
21:00 06/11
00:00 06/12
MDT


Boulder: Temperature & Dew point (1 min, 6 m AGL)
Temperature
Dew point
Temperature / Dew point (C)
40
20
0
−20
00:00 06/11
03:00 06/11
06:00 06/11
09:00 06/11
12:00 06/11
15:00 06/11
18:00 06/11
21:00 06/11
00:00 06/12
MDT

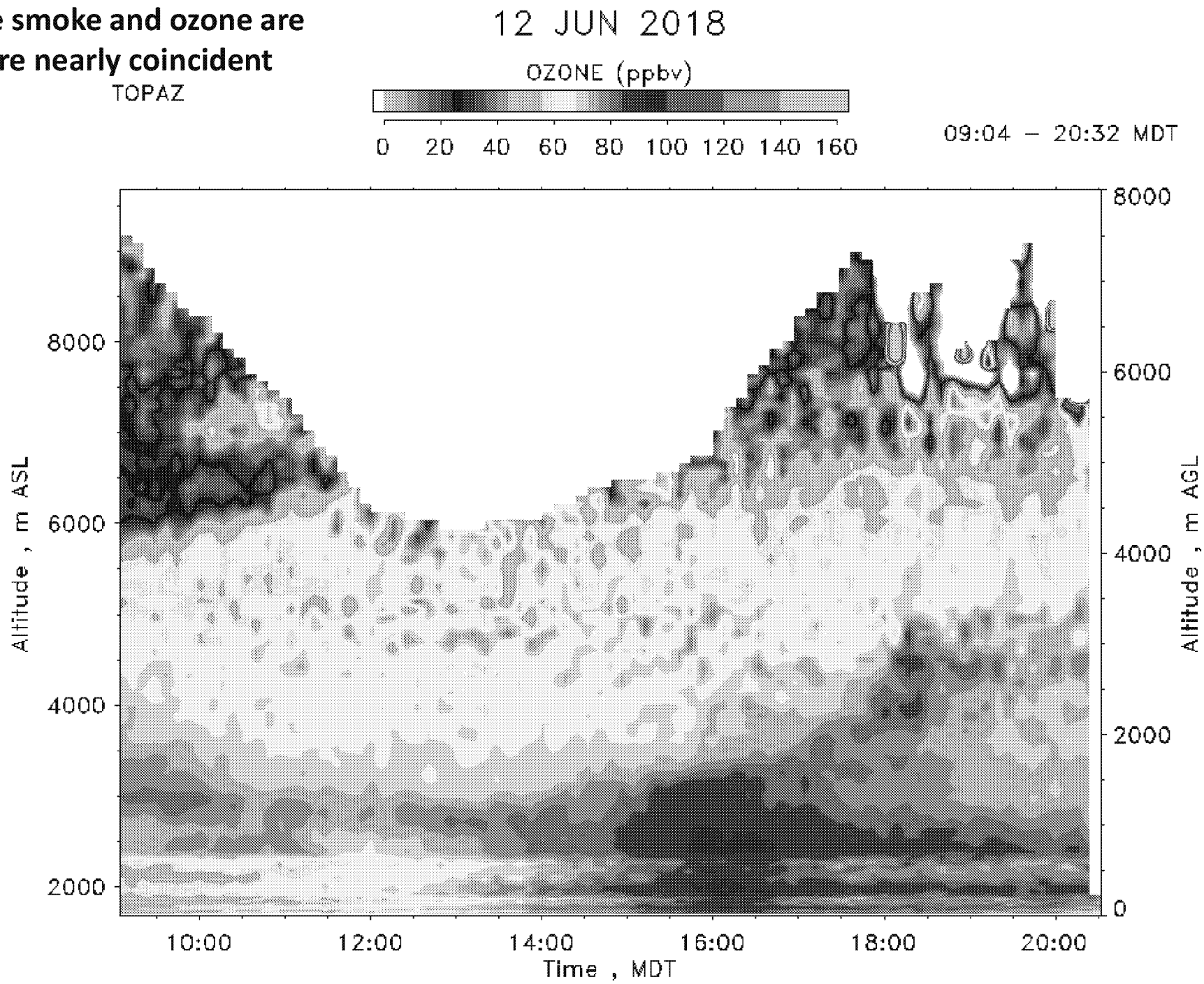

Boulder: Wind Speed (1 min, 6 m AGL)
Wind speed (m/s)
30
25
20
15
10
5
0
00:00 06/11
03:00 06/11
06:00 06/11
09:00 06/11
12:00 06/11
15:00 06/11
18:00 06/11
21:00 06/11
00:00 06/12
MDT

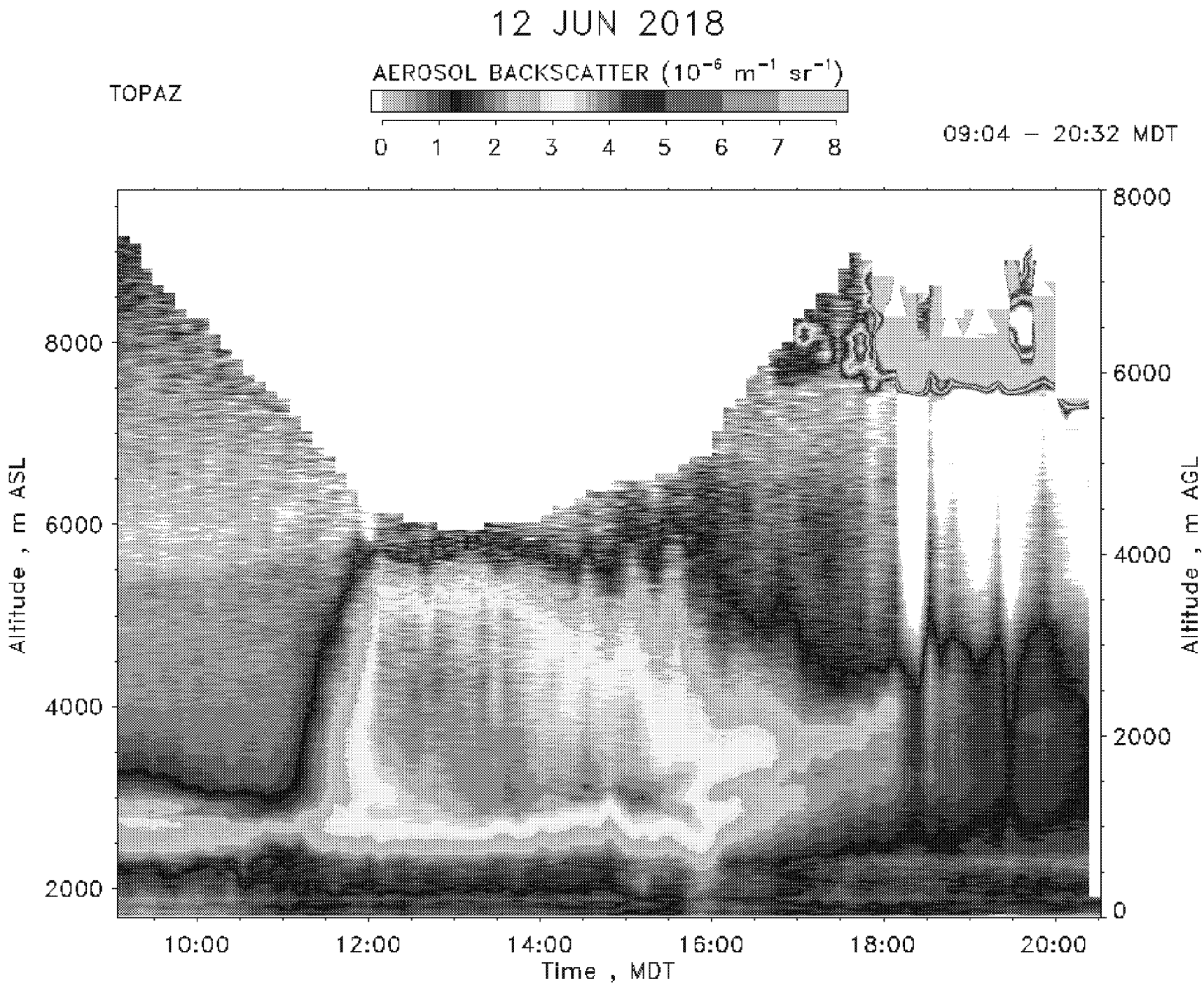

Boulder: Wind Direction (1 min, 6 m AGL)
Wind direction (deg)
300
200
100
0
00:00 06/11
03:00 06/11
06:00 06/11
09:00 06/11
12:00 06/11
15:00 06/11
18:00 06/11
21:00 06/11
00:00 06/12
MDT

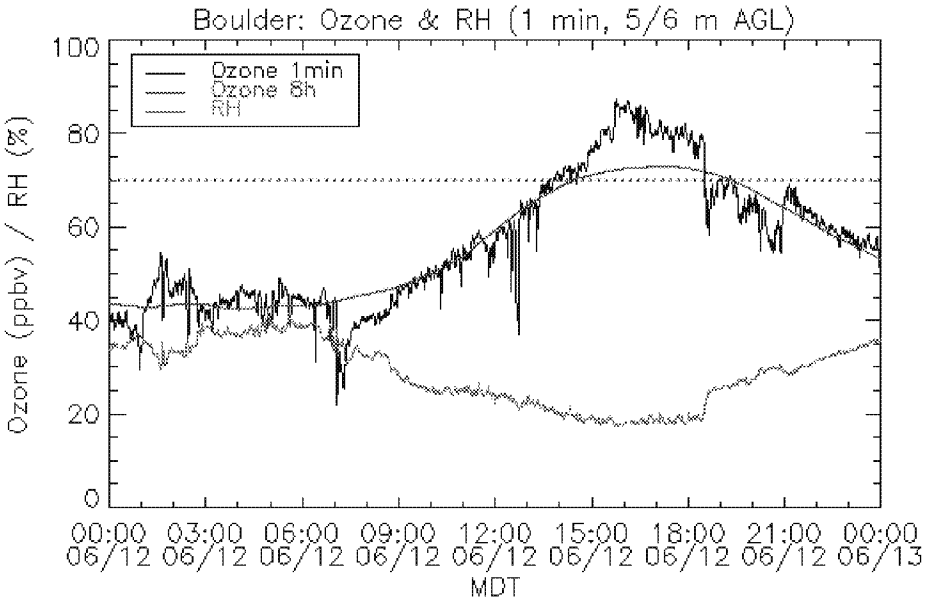
AirNow 8-hour Ozone: June 12, 2018

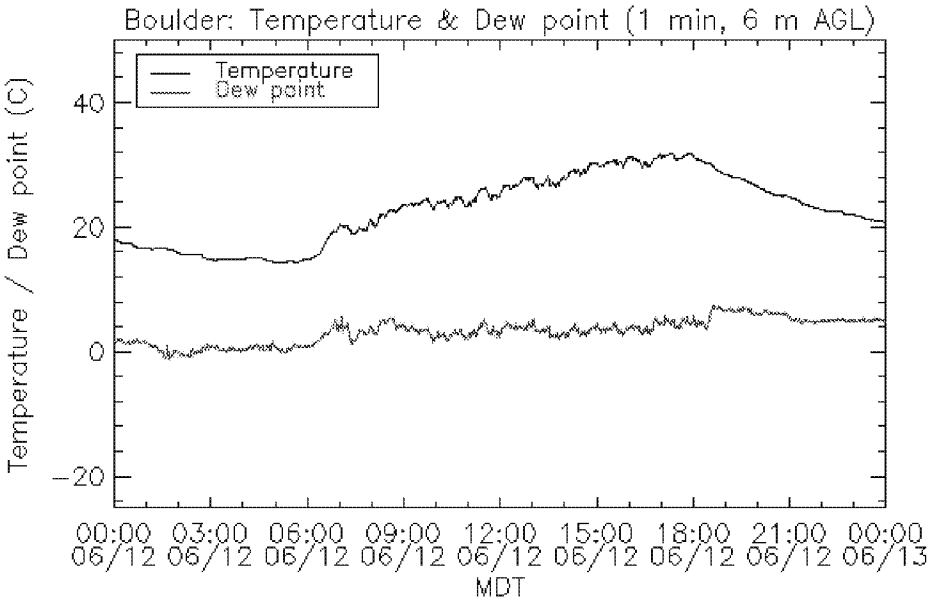


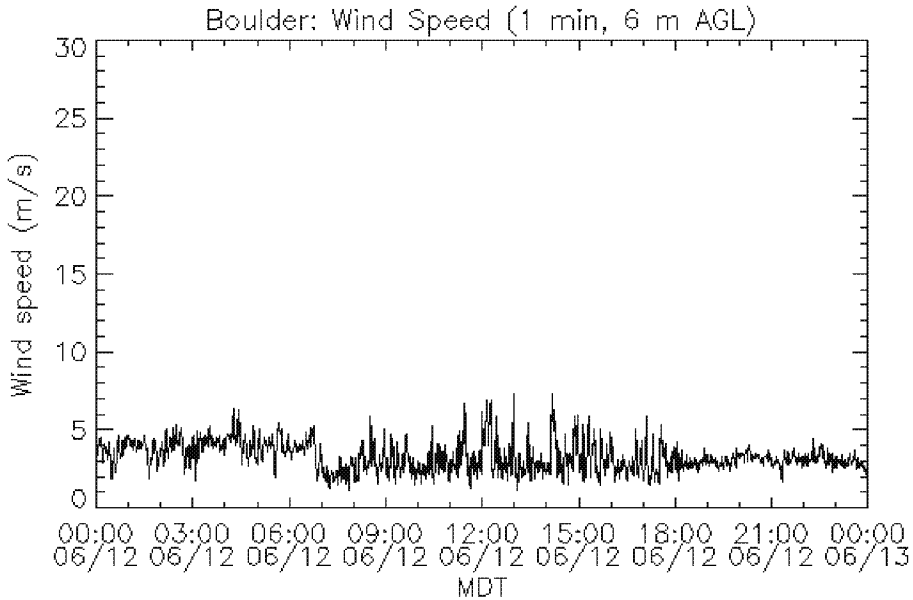
The smoke and ozone are more nearly coincident

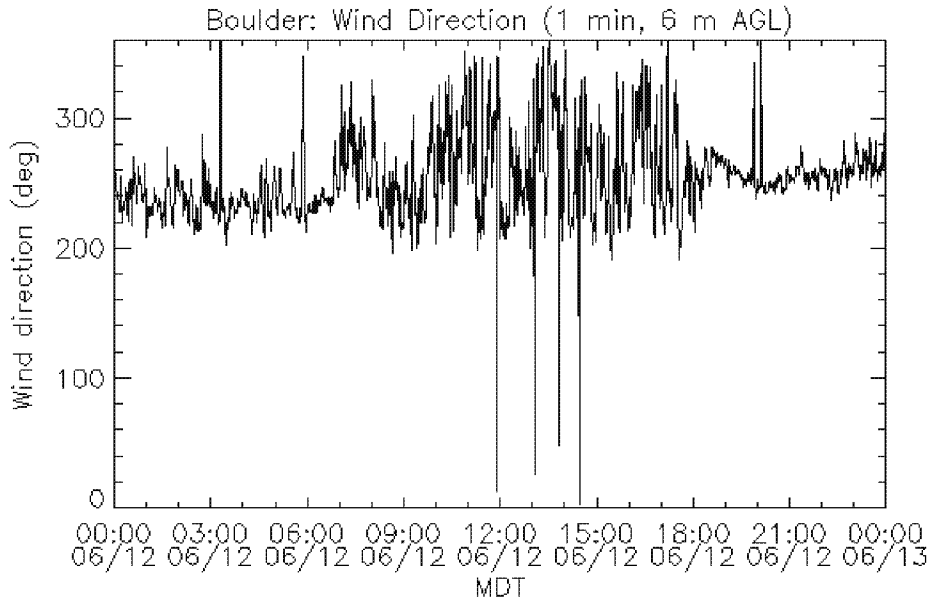



12 JUN 2018
TOPAZ
AEROSOL BACKSCATTER (10^{-6} m^{-1} sr^{-1})
0 1 2 3 4 5 6 7 8
09:04 – 20:32 MDT
Altitude , m ASL
8000
6000
4000
2000
Altitude , m AGL
8000
6000
4000
2000
0
10:00
12:00
14:00
16:00
18:00
20:00
Time , MDT

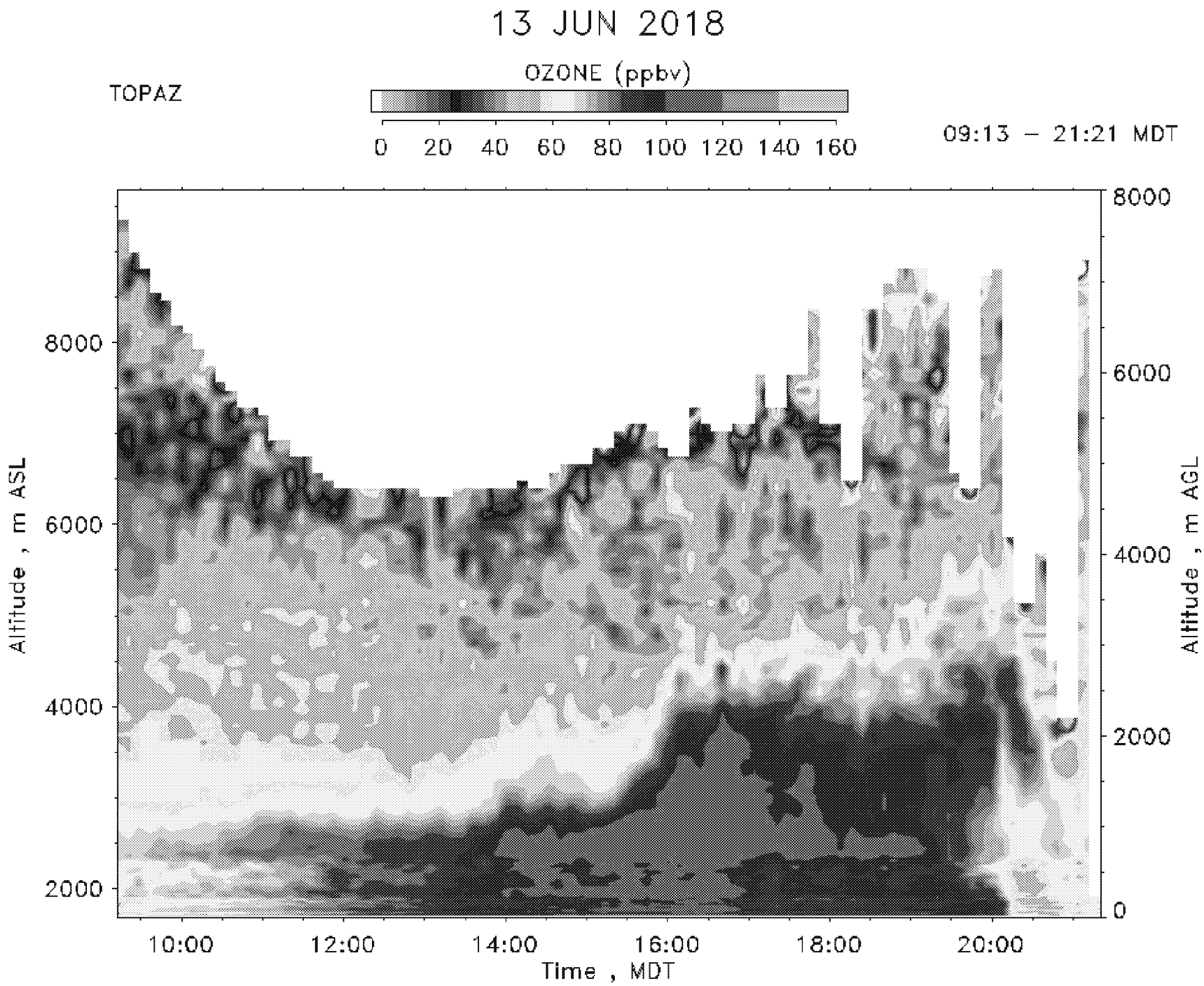

Boulder: Ozone & RH (1 min, 5/6 m AGL)
Ozone 1min
Ozone 8h
RH
Ozone (ppbv) / RH (%)
100
80
60
40
20
0
00:00 06/12
03:00 06/12
06:00 06/12
09:00 06/12
12:00 06/12
15:00 06/12
18:00 06/12
21:00 06/12
00:00 06/13
MDT

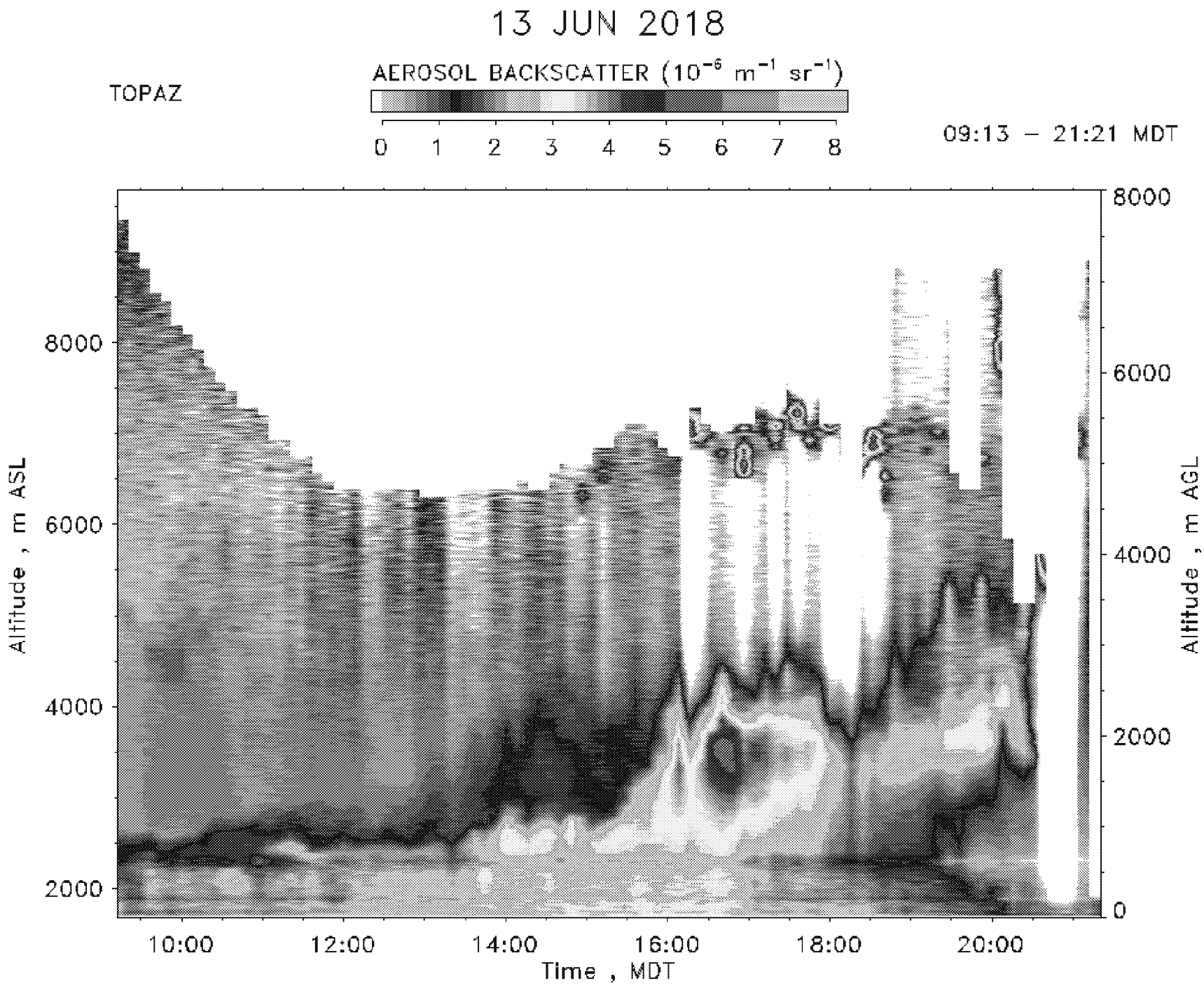

Boulder: Temperature & Dew point (1 min, 6 m AGL)
Temperature
Dew point
Temperature / Dew point (C)
40
20
0
−20
00:00 06/12
03:00 06/12
06:00 06/12
09:00 06/12
12:00 06/12
15:00 06/12
18:00 06/12
21:00 06/12
00:00 06/13
MDT

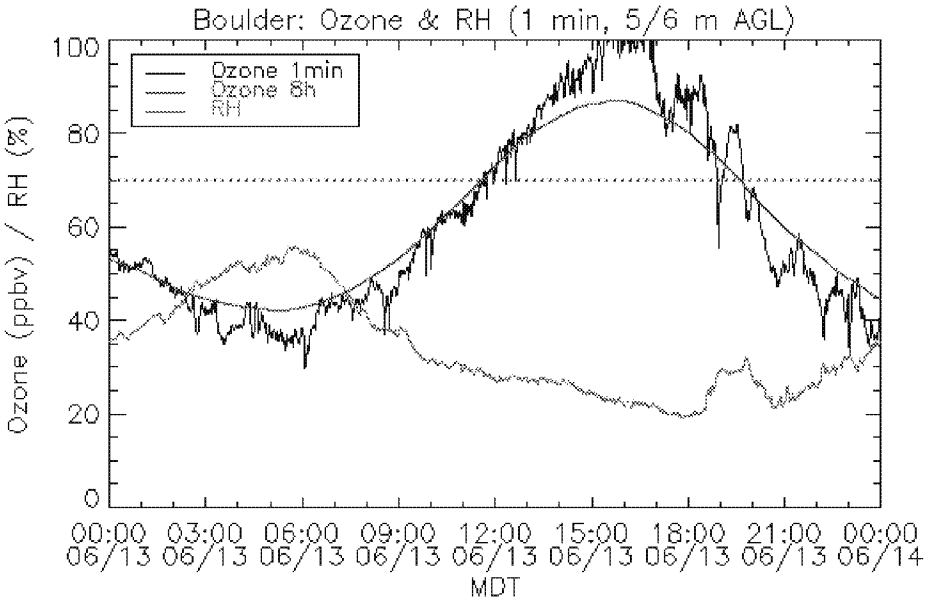

Boulder: Wind Speed (1 min, 6 m AGL)
Wind speed (m/s)
30
25
20
15
10
5
0
00:00 06/12
03:00 06/12
06:00 06/12
09:00 06/12
12:00 06/12
15:00 06/12
18:00 06/12
21:00 06/12
00:00 06/13
MDT

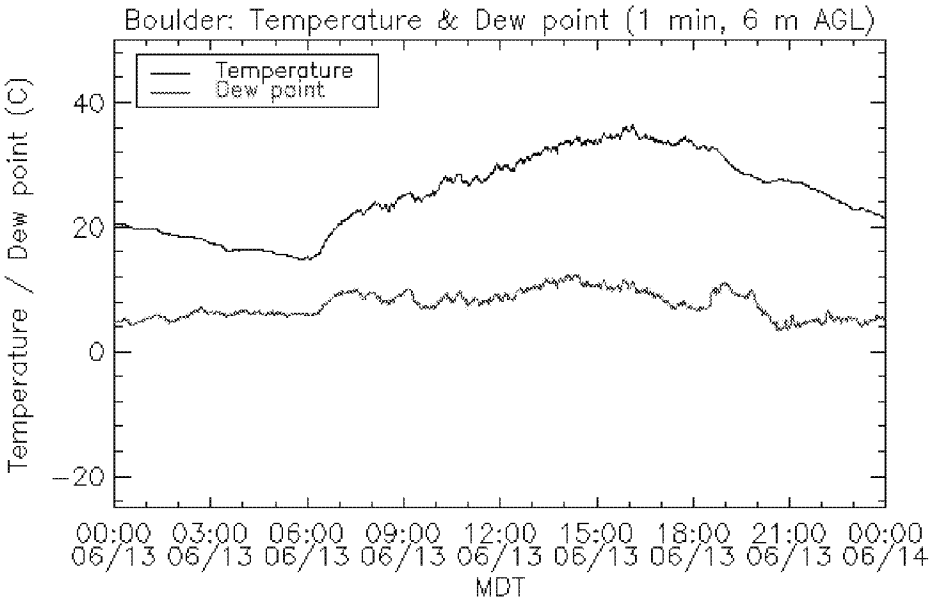

Boulder: Wind Direction (1 min, 6 m AGL)
Wind direction (deg)
300
200
100
0
00:00 06/12
03:00 06/12
06:00 06/12
09:00 06/12
12:00 06/12
15:00 06/12
18:00 06/12
21:00 06/12
00:00 06/13
MDT

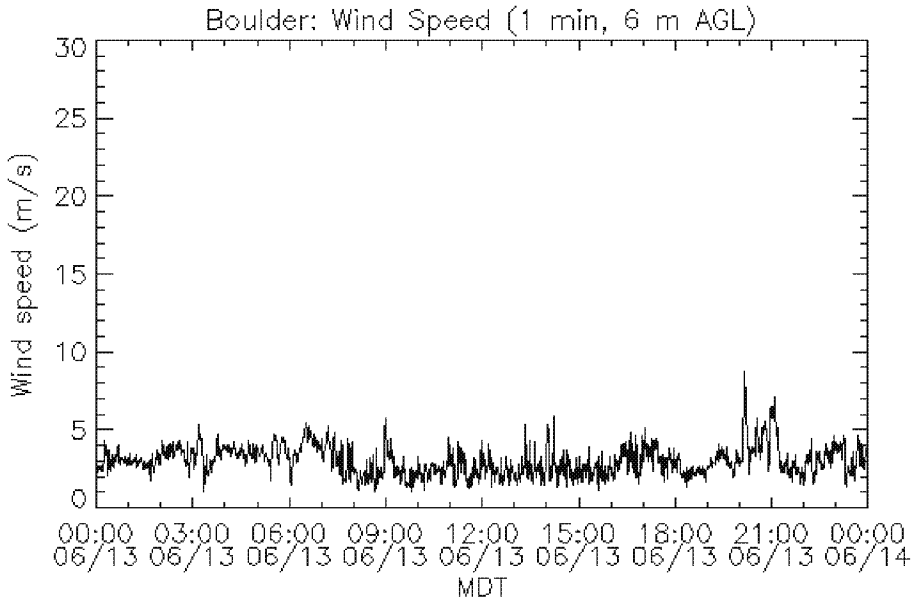
AirNow 8-hour Ozone: June 13, 2018

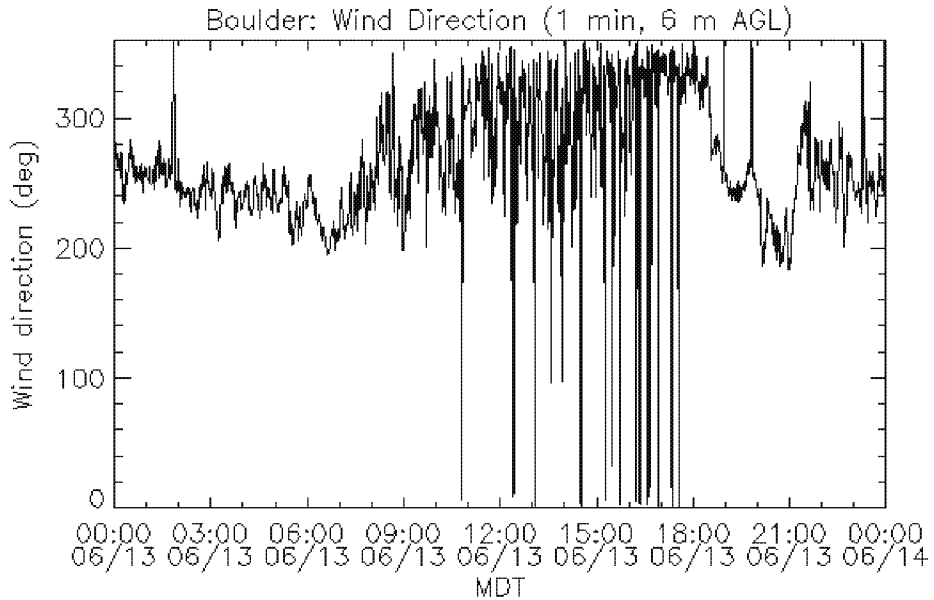

13 JUN 2018
TOPAZ
OZONE (ppbv)
0 20 40 60 80 100 120 140 160
09:13 – 21:21 MDT
Altitude , m ASL
8000
6000
4000
2000
Altitude , m AGL
8000
6000
4000
2000
0
10:00
12:00
14:00
16:00
18:00
20:00
Time , MDT


13 JUN 2018
TOPAZ
AEROSOL BACKSCATTER (10^{-6} m^{-1} sr^{-1})
0 1 2 3 4 5 6 7 8
09:13 – 21:21 MDT
Altitude , m ASL
8000
6000
4000
2000
Altitude , m AGL
8000
6000
4000
2000
0
10:00
12:00
14:00
16:00
18:00
20:00
Time , MDT


Boulder: Ozone & RH (1 min, 5/6 m AGL)
Ozone 1min
Ozone 8h
RH
Ozone (ppbv) / RH (%)
100
80
60
40
20
0
00:00 06/13
03:00 06/13
06:00 06/13
09:00 06/13
12:00 06/13
15:00 06/13
18:00 06/13
21:00 06/13
00:00 06/14
MDT


Boulder: Temperature & Dew point (1 min, 6 m AGL)
Temperature
Dew point
Temperature / Dew point (C)
40
20
0
−20
00:00 06/13
03:00 06/13
06:00 06/13
09:00 06/13
12:00 06/13
15:00 06/13
18:00 06/13
21:00 06/13
00:00 06/14
MDT


Boulder: Wind Speed (1 min, 6 m AGL)
Wind speed (m/s)
30
25
20
15
10
5
0
00:00 06/13
03:00 06/13
06:00 06/13
09:00 06/13
12:00 06/13
15:00 06/13
18:00 06/13
21:00 06/13
00:00 06/14
MDT


Boulder: Wind Direction (1 min, 6 m AGL)
Wind direction (deg)
300
200
100
0
00:00 06/13
03:00 06/13
06:00 06/13
09:00 06/13
12:00 06/13
15:00 06/13
18:00 06/13
21:00 06/13
00:00 06/14
MDT