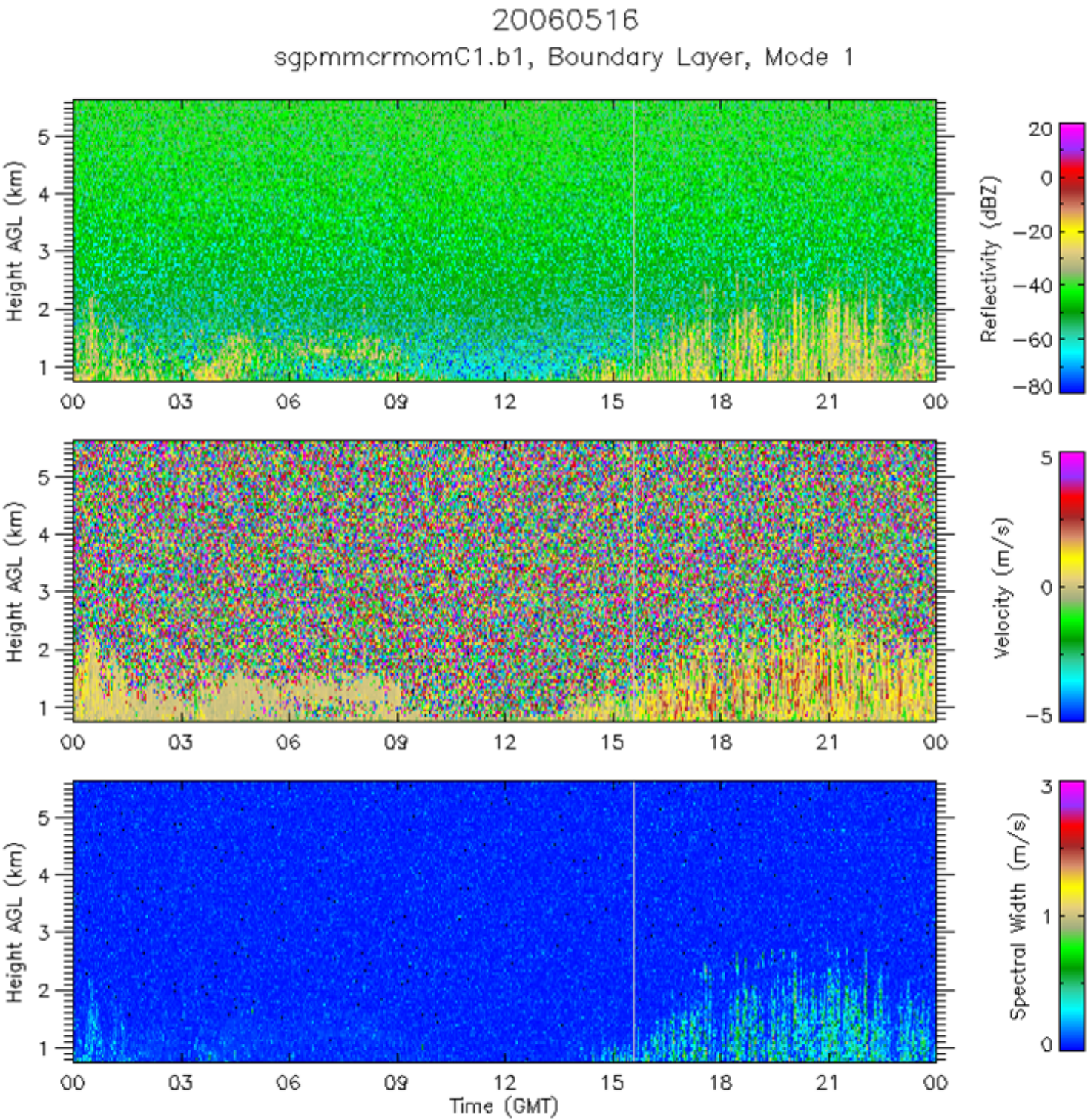
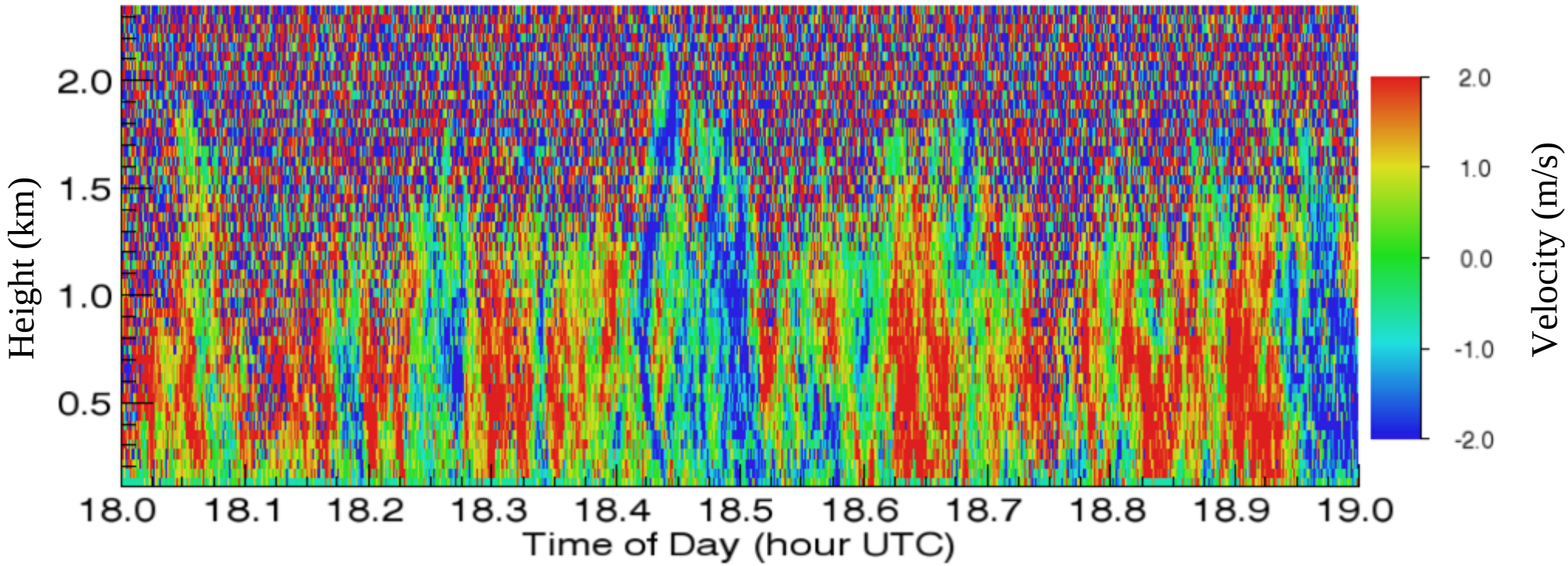
Insects as Clear Air Vertical Velocity Profilers

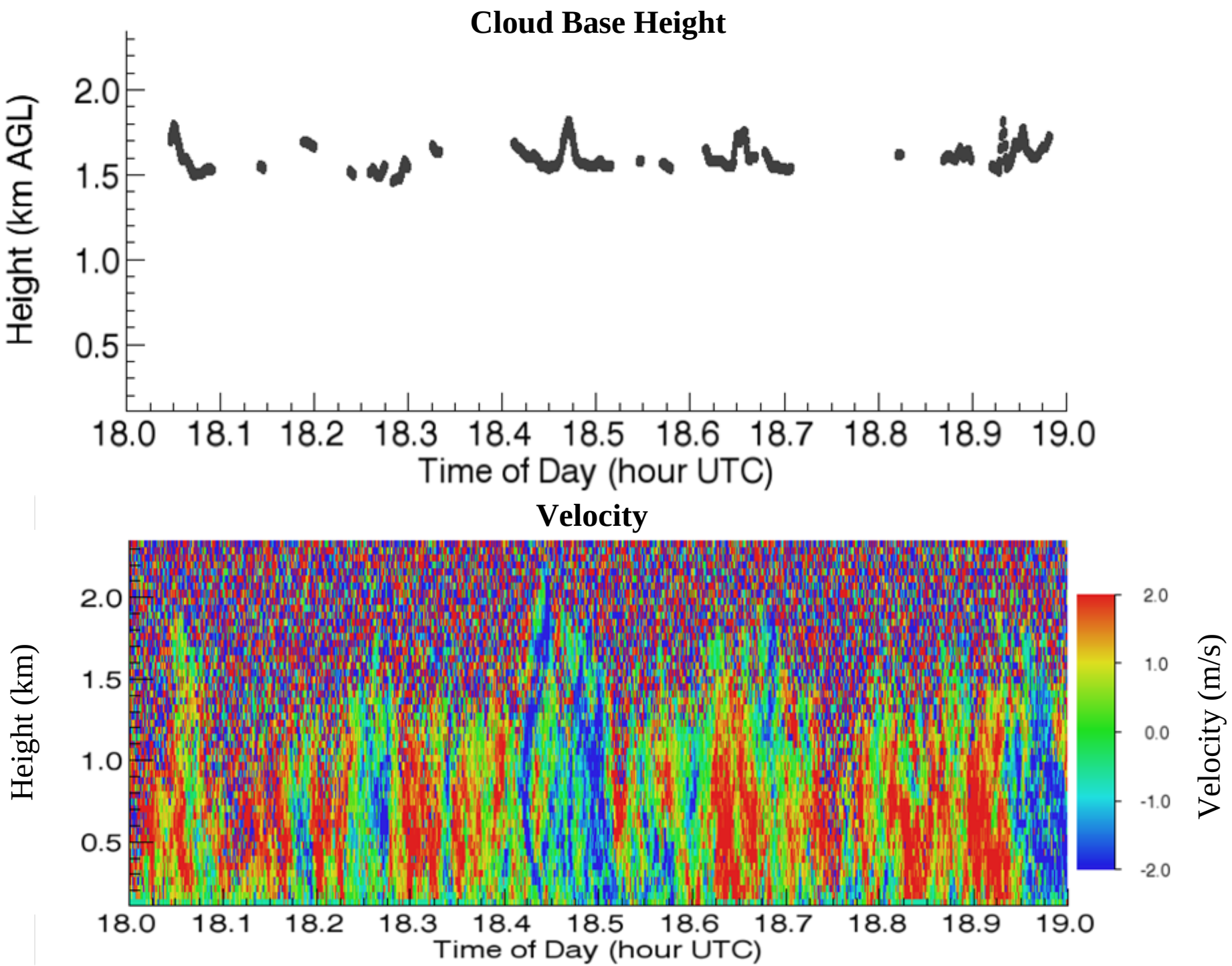
Edward Luke
Brookhaven National Lab

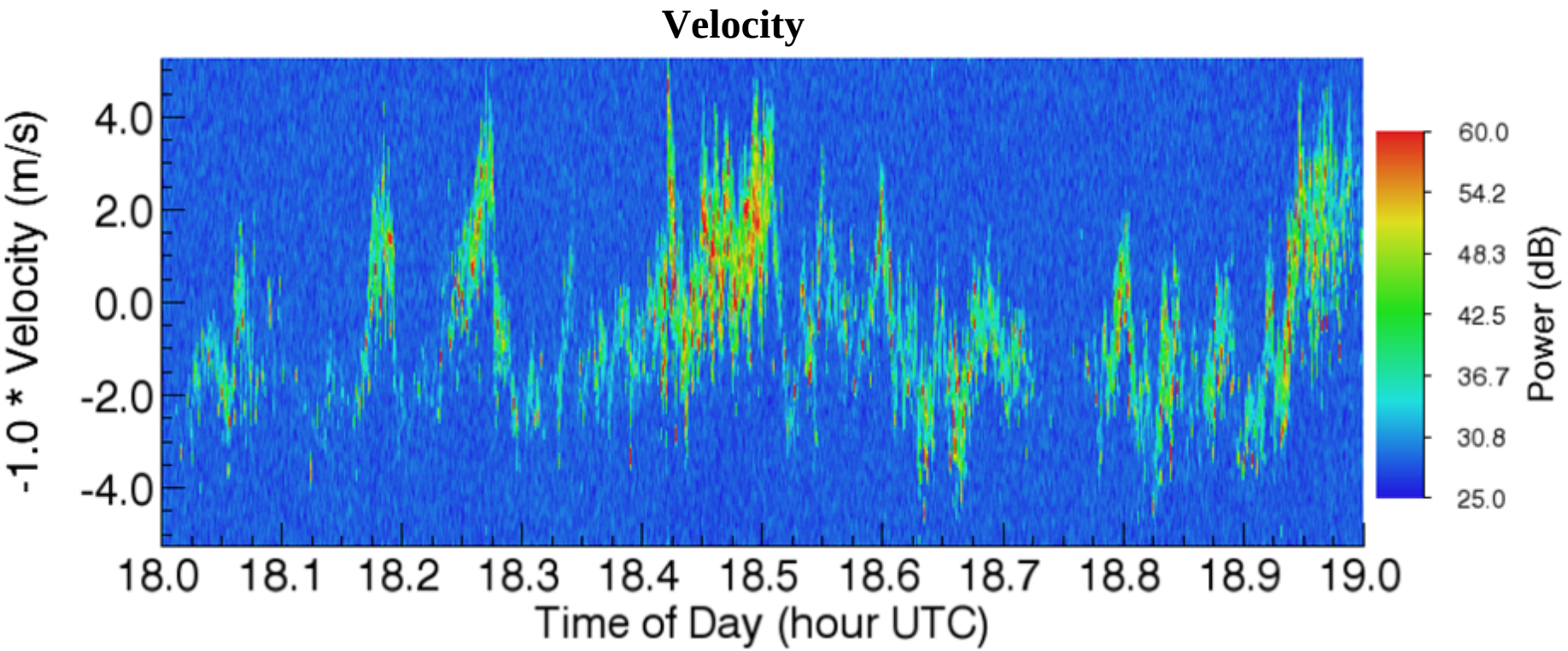
Pavlos Kollias
McGill University

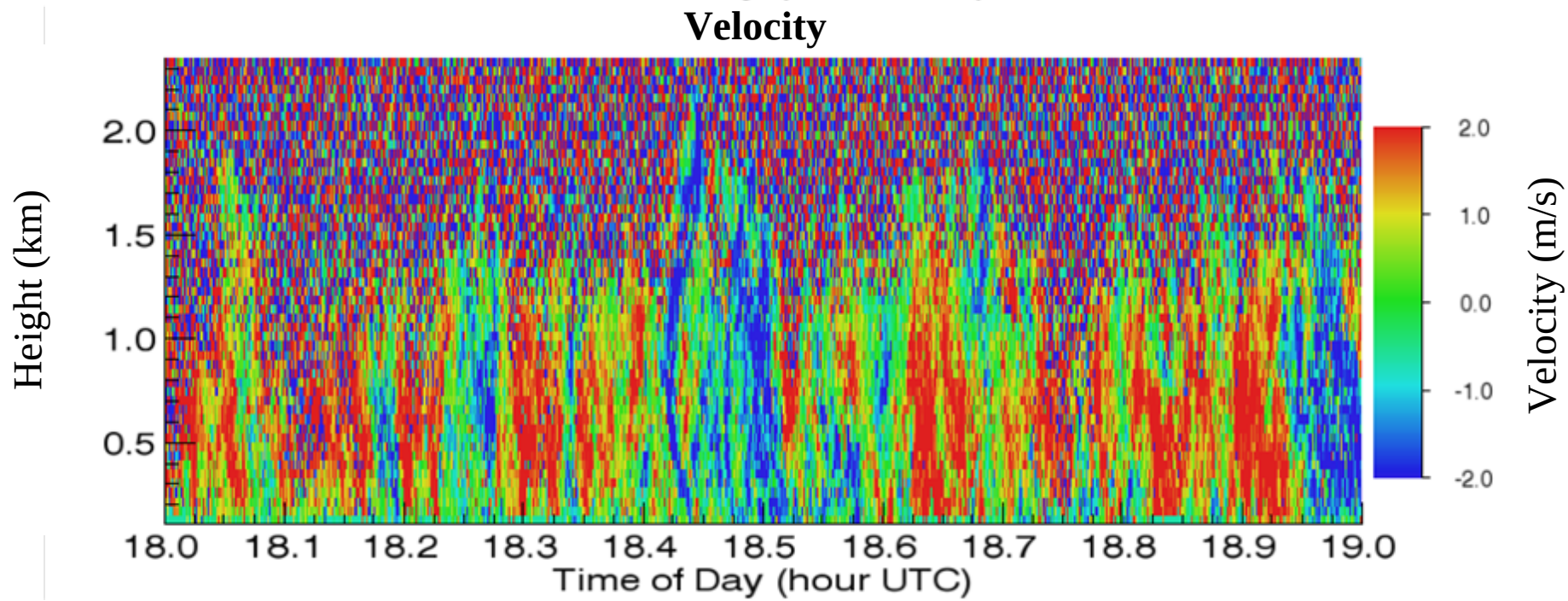
Steve Klein
LLNL


20060516
sgpmmcrmomC1.b1, Boundary Layer, Mode 1
Height AGL (km)
Reflectivity (dBZ)
Velocity (m/s)
Spectral Width (m/s)
Time (GMT)
00
03
06
09
12
15
18
21

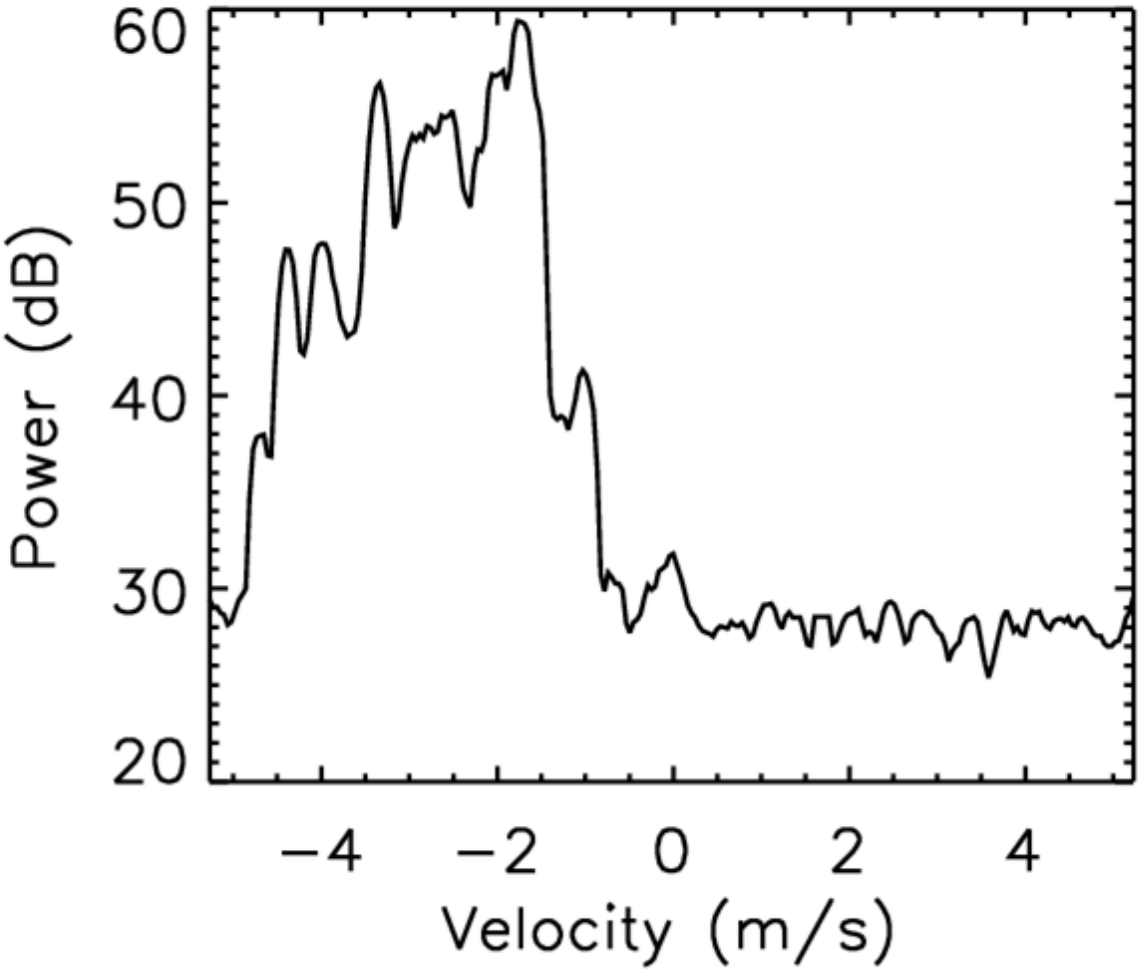

Height (km)
2.0
1.5
1.0
0.5
18.0
18.1
18.2
18.3
18.4
18.5
18.6
18.7
18.8
18.9
19.0
Time of Day (hour UTC)
2.0
1.0
0.0
-1.0
-2.0
Velocity (m/s)

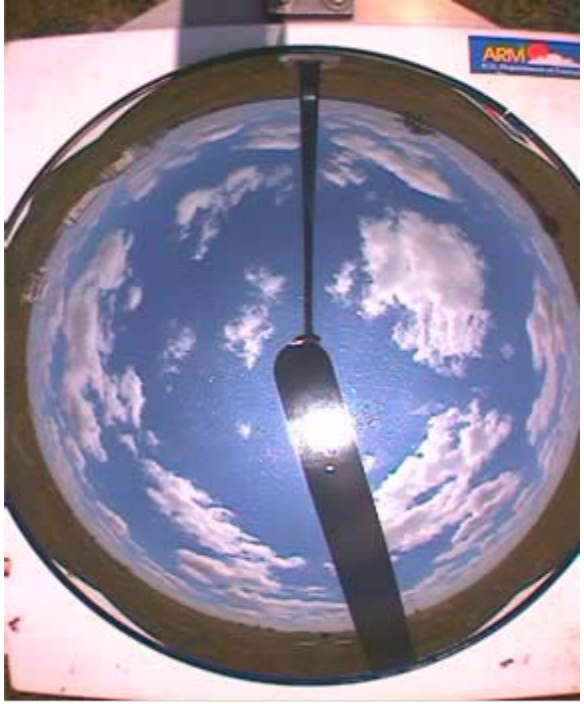

Cloud Base Height
Height (km AGL)
2.0
1.5
1.0
0.5
18.0
18.1
18.2
18.3
18.4
18.5
18.6
18.7
18.8
18.9
19.0
Time of Day (hour UTC)
Velocity
Height (km)
2.0
1.5
1.0
0.5
18.0
18.1
18.2
18.3
18.4
18.5
18.6
18.7
18.8
18.9
19.0
Time of Day (hour UTC)
2.0
1.0
0.0
-1.0
-2.0
Velocity (m/s)

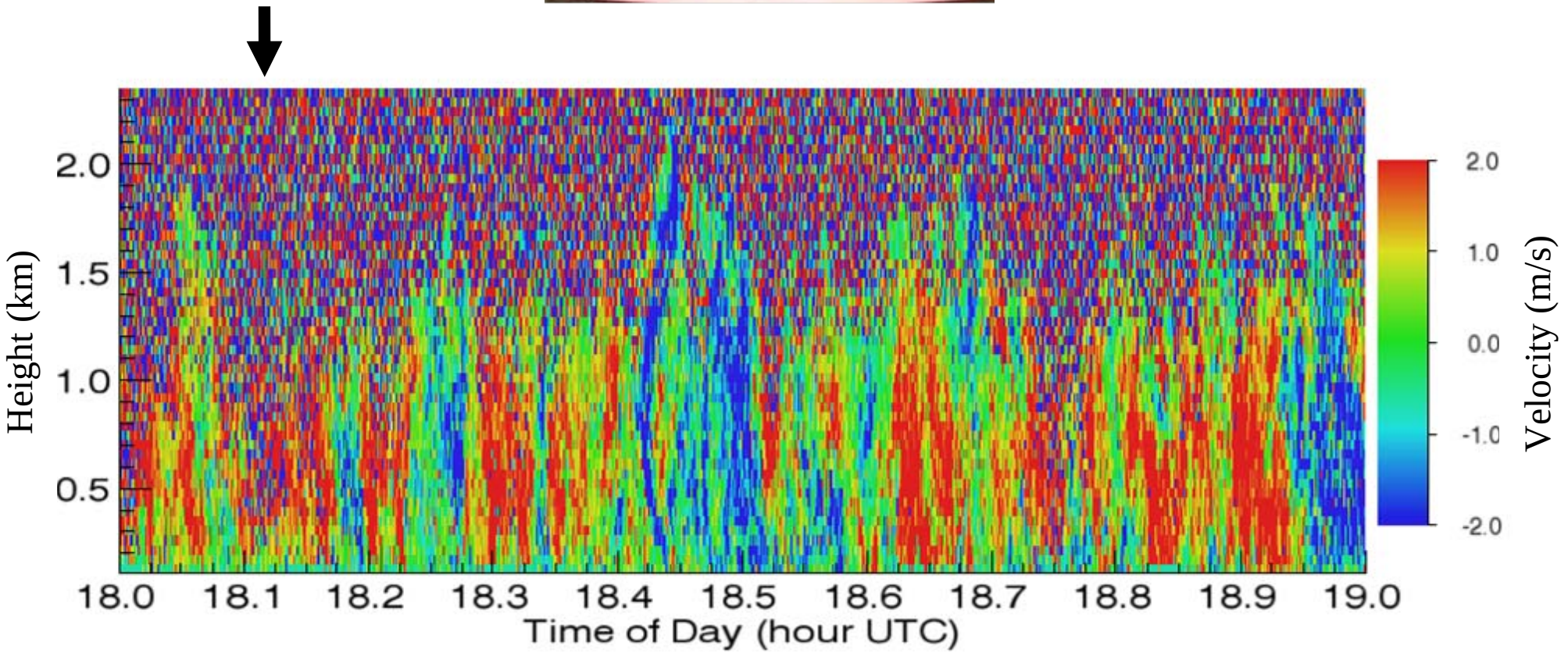

Velocity
-1.0 * Velocity (m/s)
4.0
2.0
0.0
-2.0
-4.0
18.0
18.1
18.2
18.3
18.4
18.5
18.6
18.7
18.8
18.9
19.0
Time of Day (hour UTC)
60.0
54.2
48.3
42.5
36.7
30.8
25.0
Power (dB)

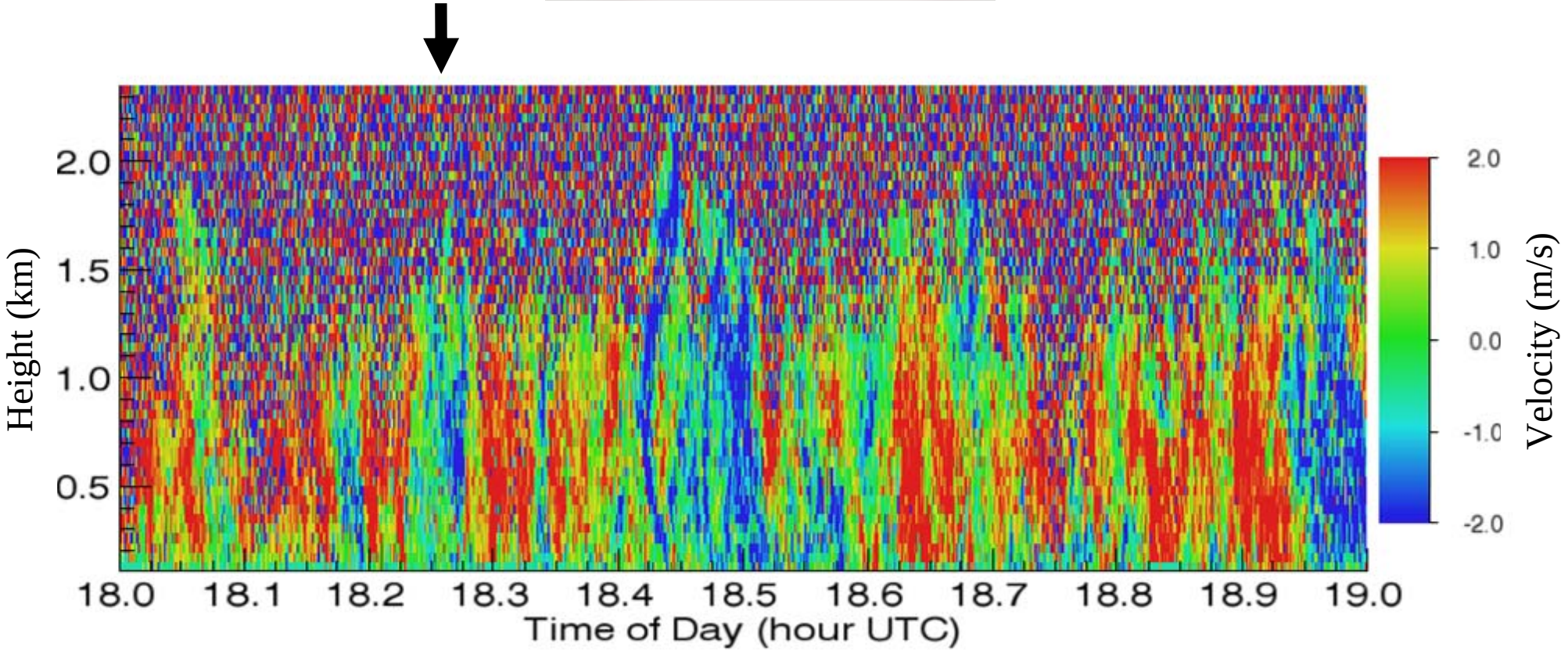

Velocity
Height (km)
2.0
1.5
1.0
0.5
18.0
18.1
18.2
18.3
18.4
18.5
18.6
18.7
18.8
18.9
19.0
Time of Day (hour UTC)
2.0
1.0
0.0
-1.0
-2.0
Velocity (m/s)

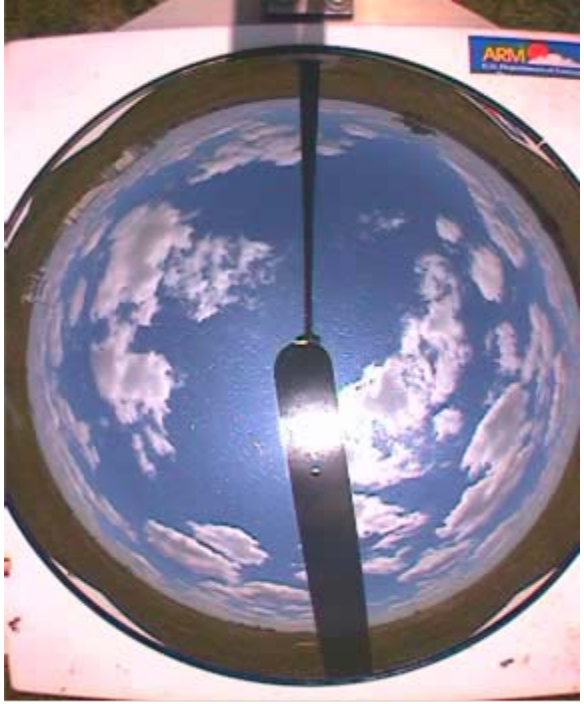
Updraft Insect Spectrum

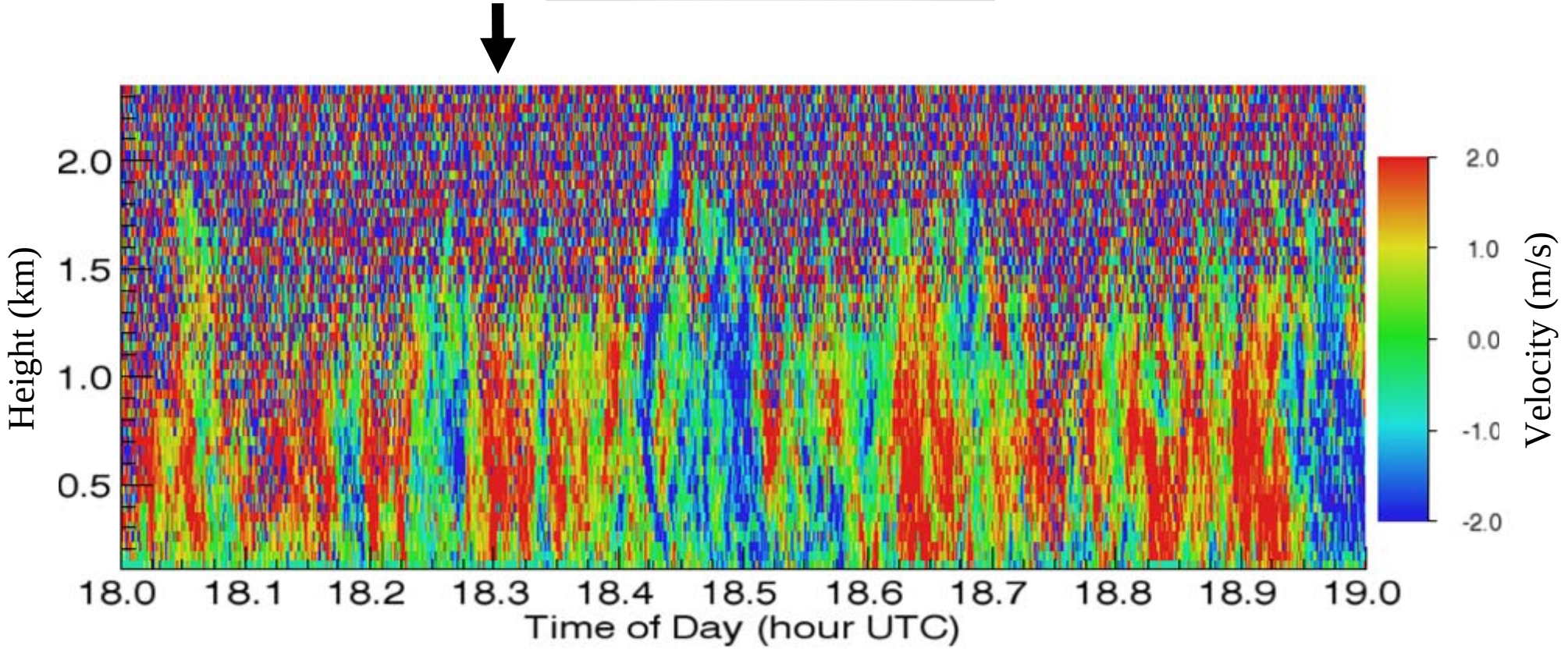


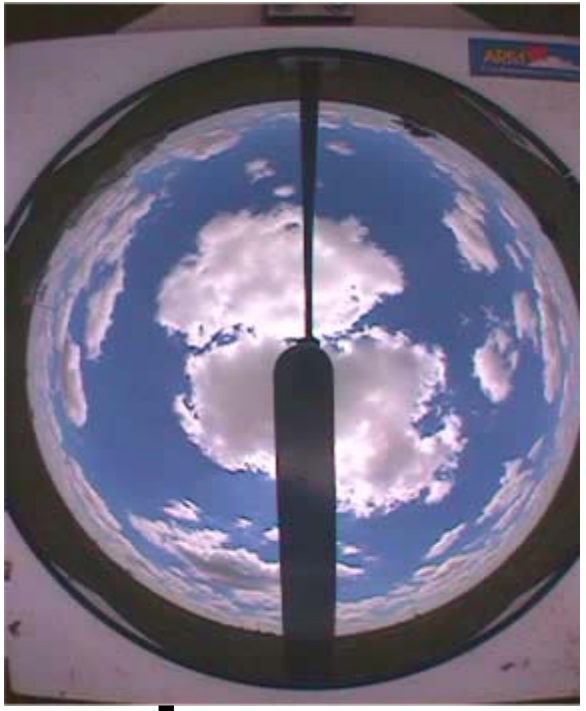


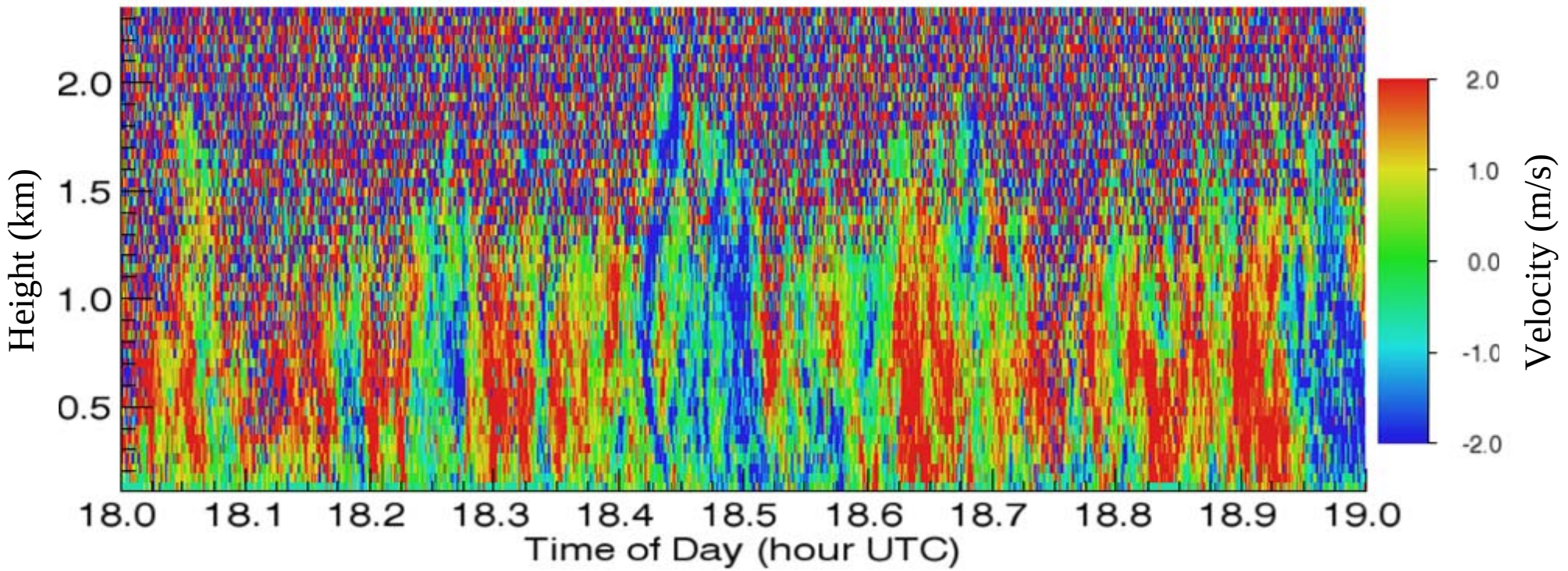

Height (km)
2.0
1.5
1.0
0.5
18.0
18.1
18.2
18.3
18.4
18.5
18.6
18.7
18.8
18.9
19.0
Time of Day (hour UTC)
2.0
1.0
0.0
-1.0
-2.0
Velocity (m/s)

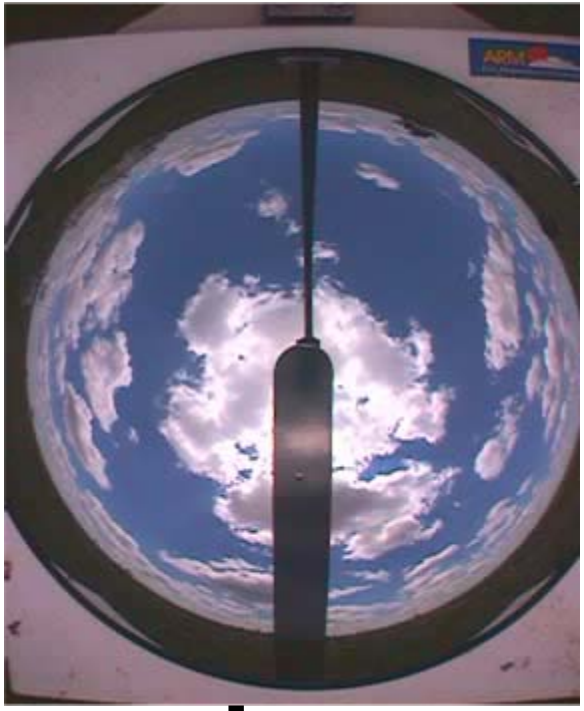

Height (km)
2.0
1.5
1.0
0.5
18.0
18.1
18.2
18.3
18.4
18.5
18.6
18.7
18.8
18.9
19.0
Time of Day (hour UTC)
2.0
1.0
0.0
-1.0
-2.0
Velocity (m/s)

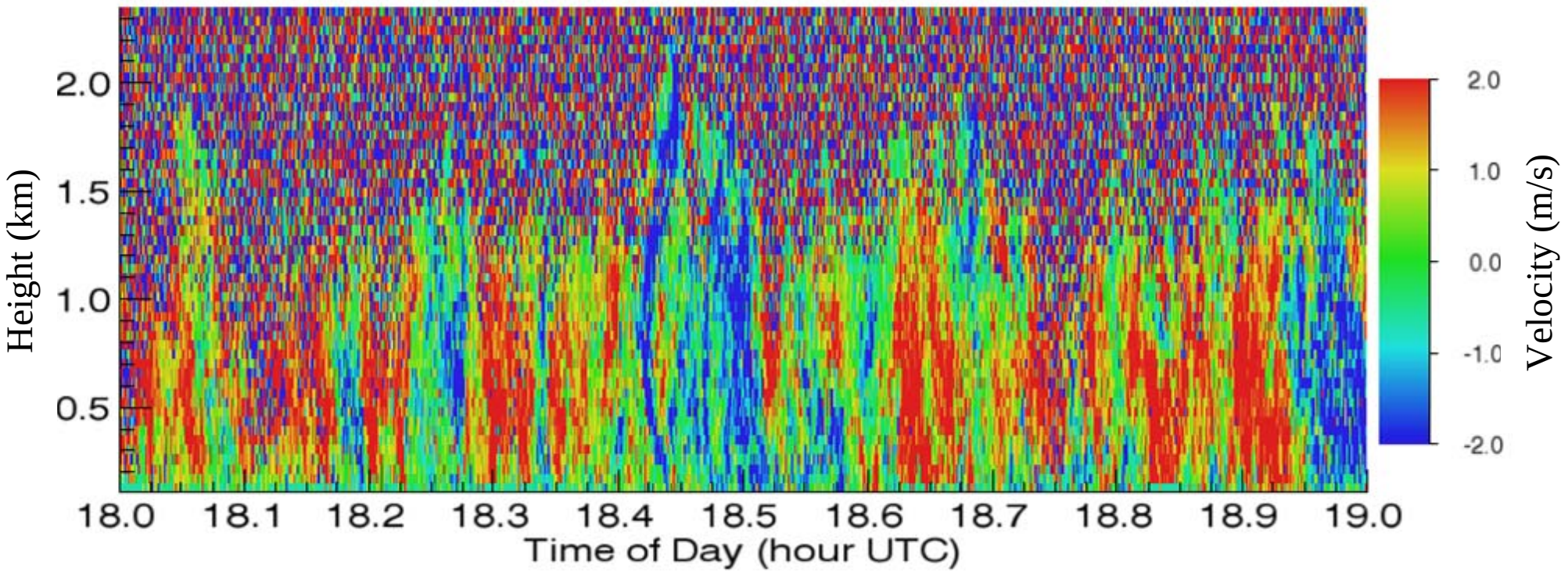



Height (km)
2.0
1.5
1.0
0.5
18.0
18.1
18.2
18.3
18.4
18.5
18.6
18.7
18.8
18.9
19.0
Time of Day (hour UTC)
2.0
1.0
0.0
-1.0
-2.0
Velocity (m/s)




Height (km)
2.0
1.5
1.0
0.5
18.0
18.1
18.2
18.3
18.4
18.5
18.6
18.7
18.8
18.9
19.0
Time of Day (hour UTC)
2.0
1.0
0.0
-1.0
-2.0
Velocity (m/s)




Height (km)
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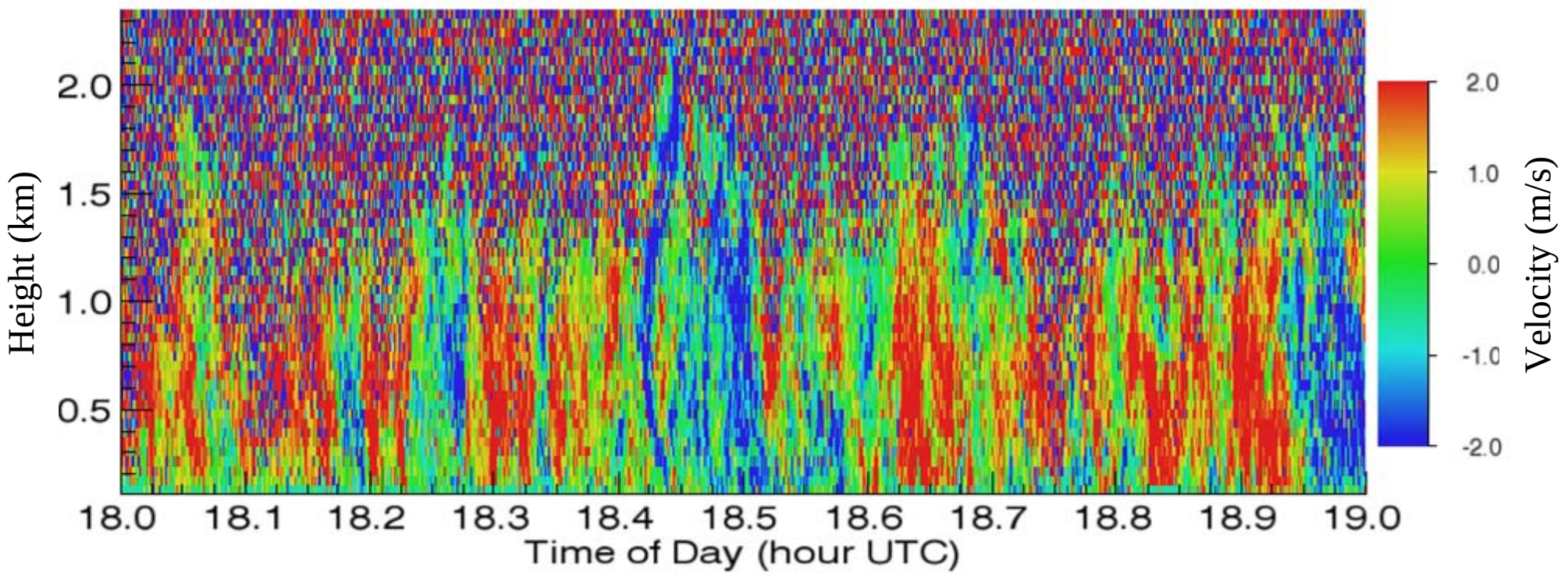
1.5
1.0
0.5
18.0
18.1
18.2
18.3
18.4
18.5
18.6
18.7
18.8
18.9
19.0
Time of Day (hour UTC)
2.0
1.0
0.0
-1.0
-2.0
Velocity (m/s)


Height (km)
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1.5
1.0
0.5
18.0
18.1
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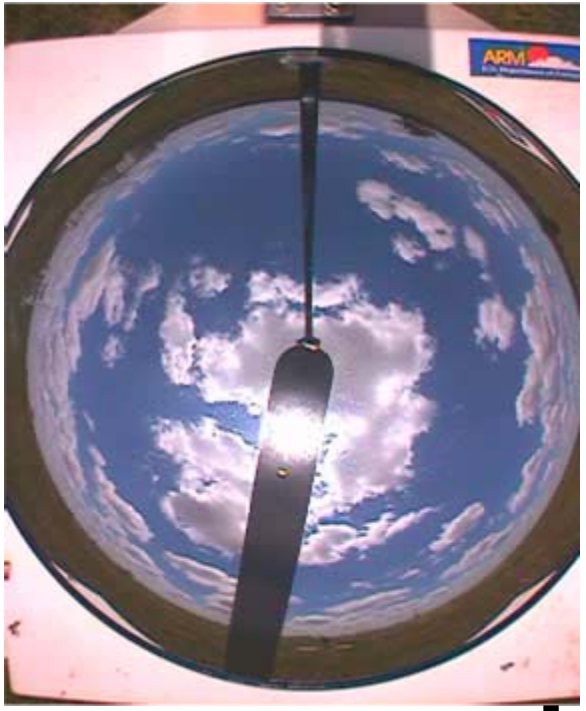
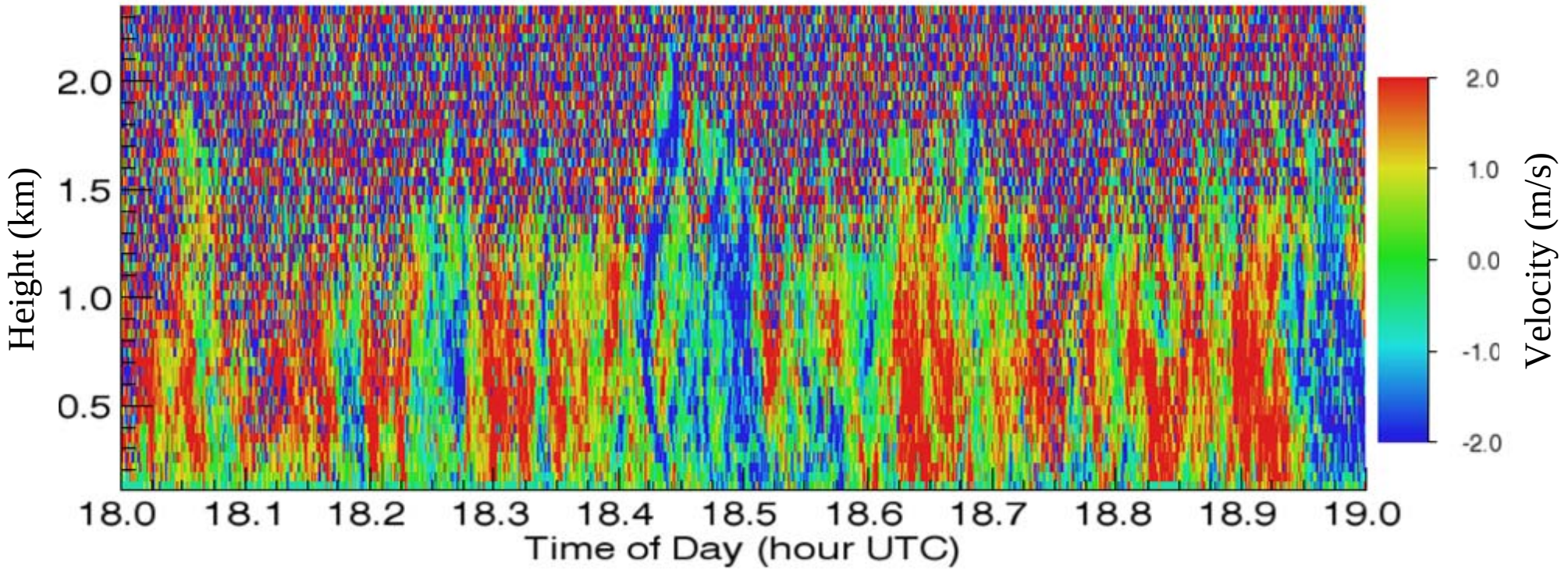
18.6
18.7
18.8
18.9
19.0
Time of Day (hour UTC)
2.0
1.0
0.0
-1.0
-2.0
Velocity (m/s)




Height (km)
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0.5
18.0
18.1
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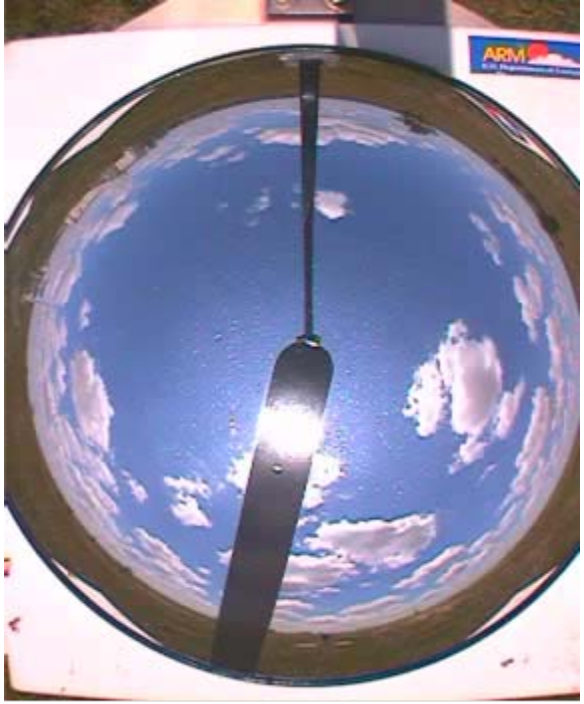
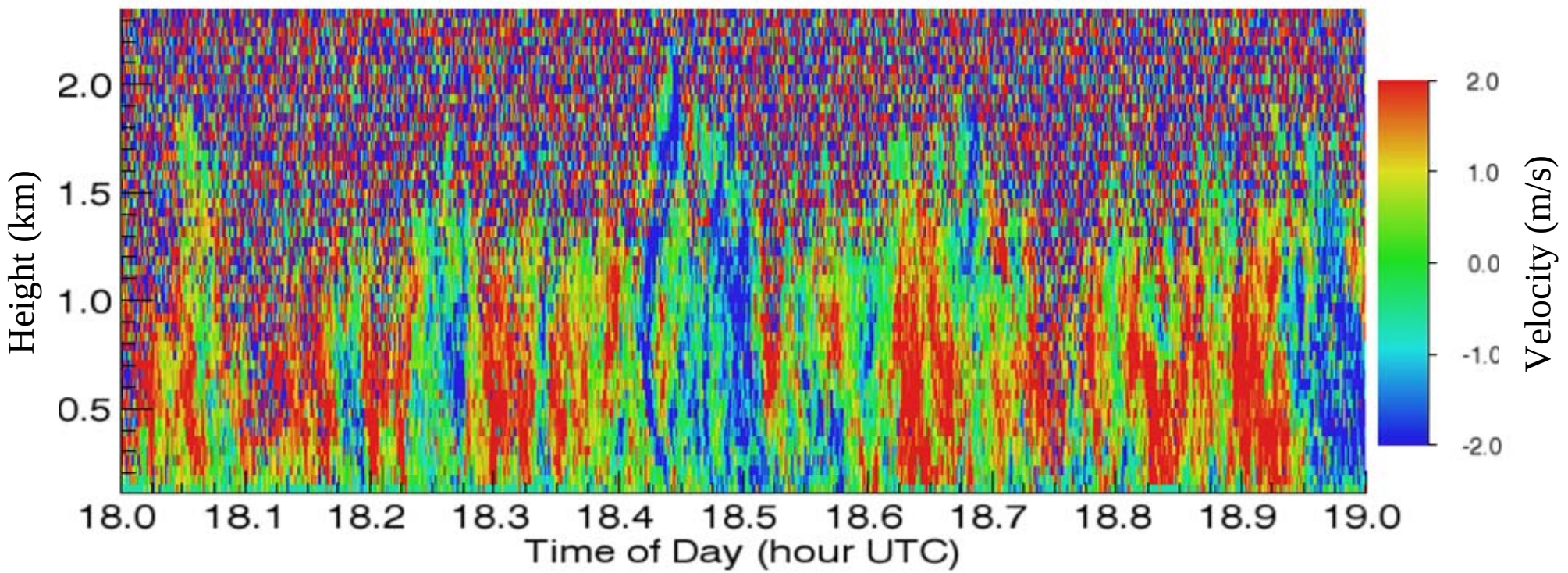
18.6
18.7
18.8
18.9
19.0
Time of Day (hour UTC)
2.0
1.0
0.0
-1.0
-2.0
Velocity (m/s)

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Time of Day (hour UTC)
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-1.0
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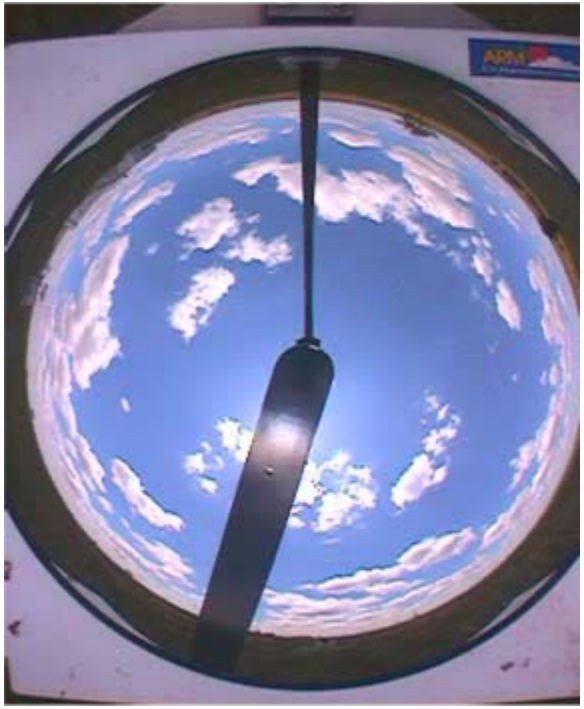
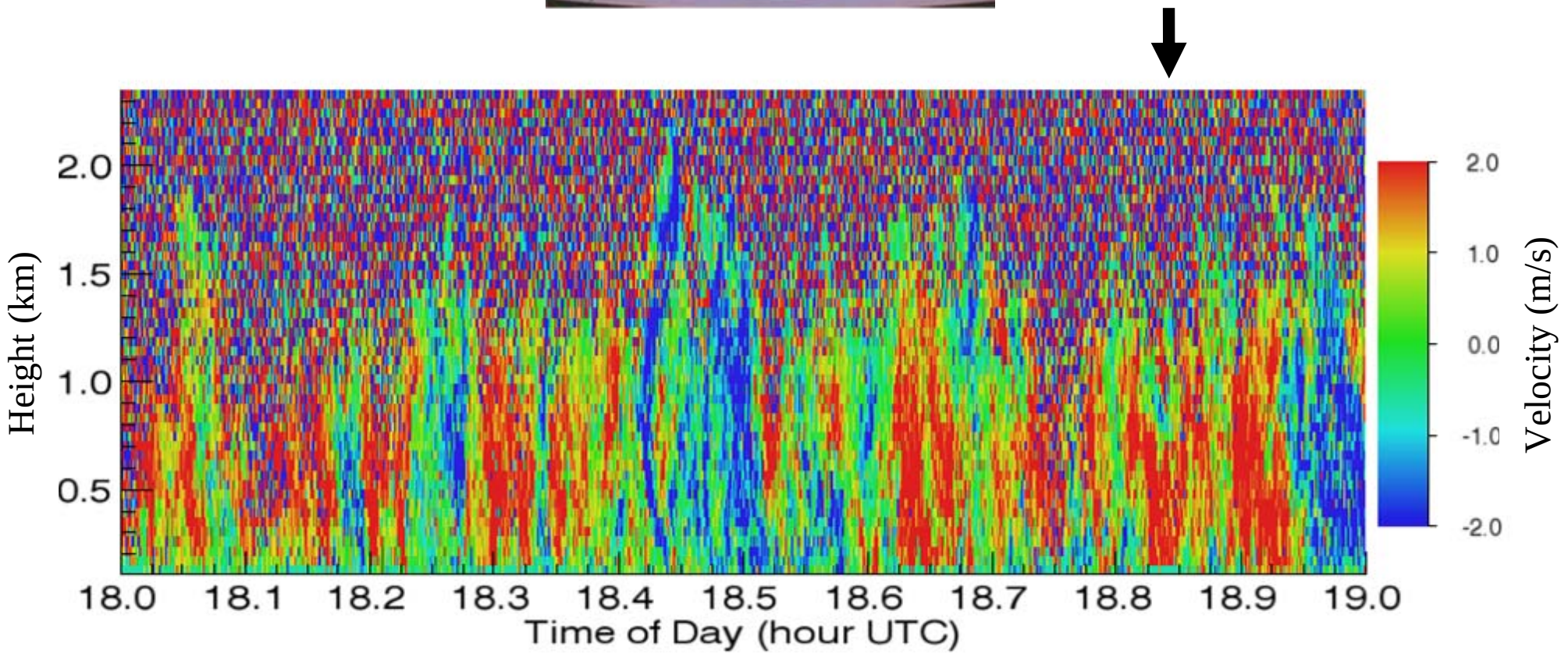
Velocity (m/s)

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18.7
18.8
18.9
19.0
Time of Day (hour UTC)
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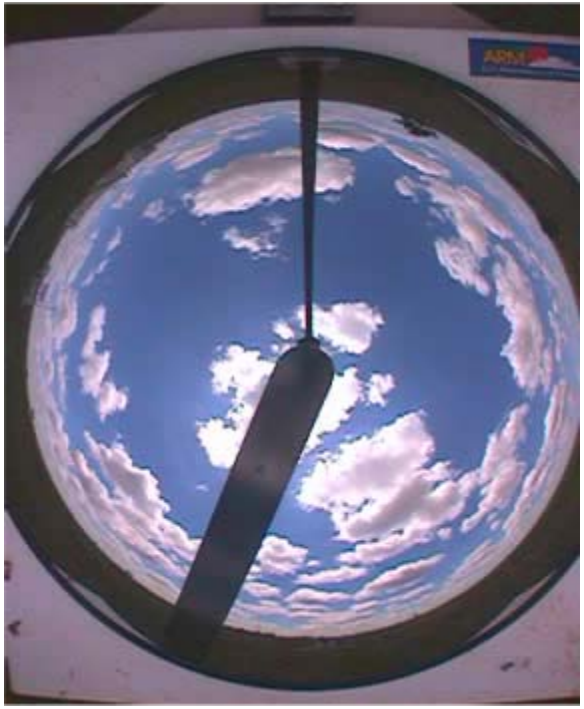
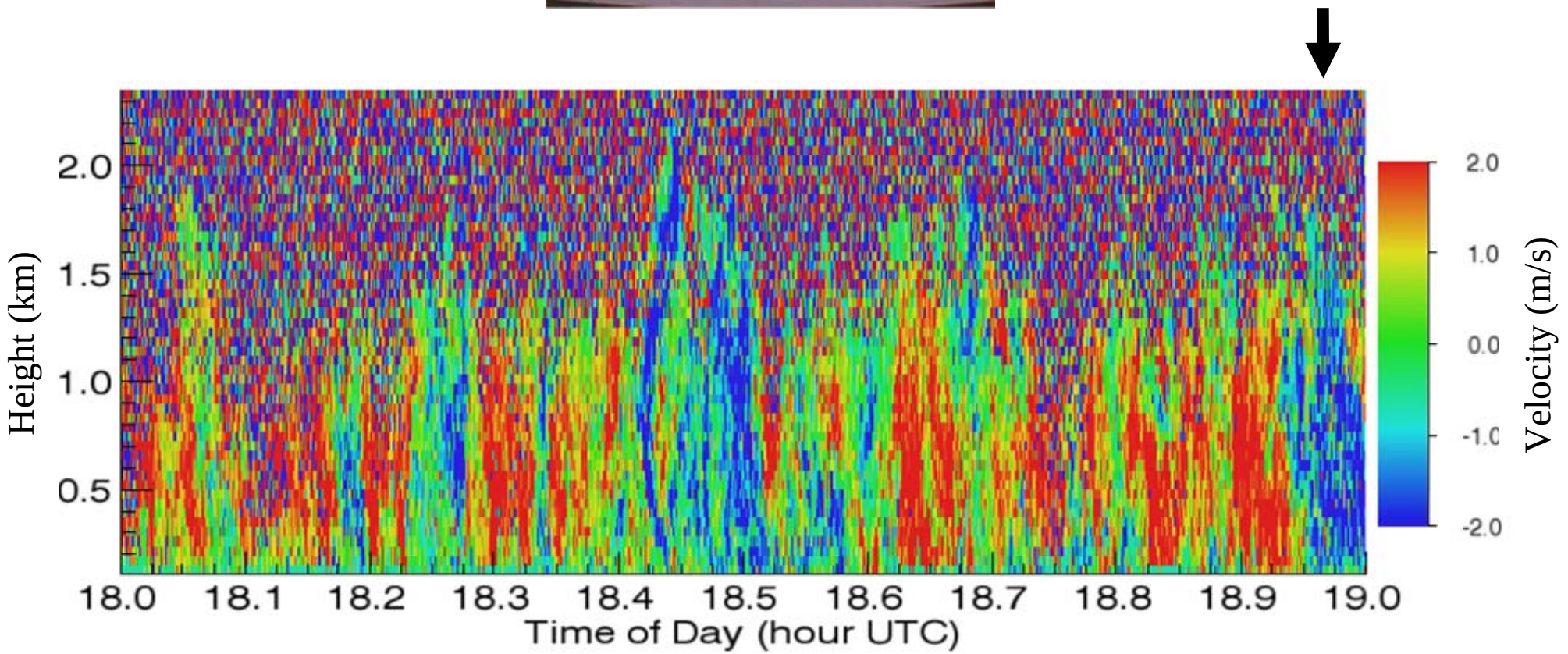
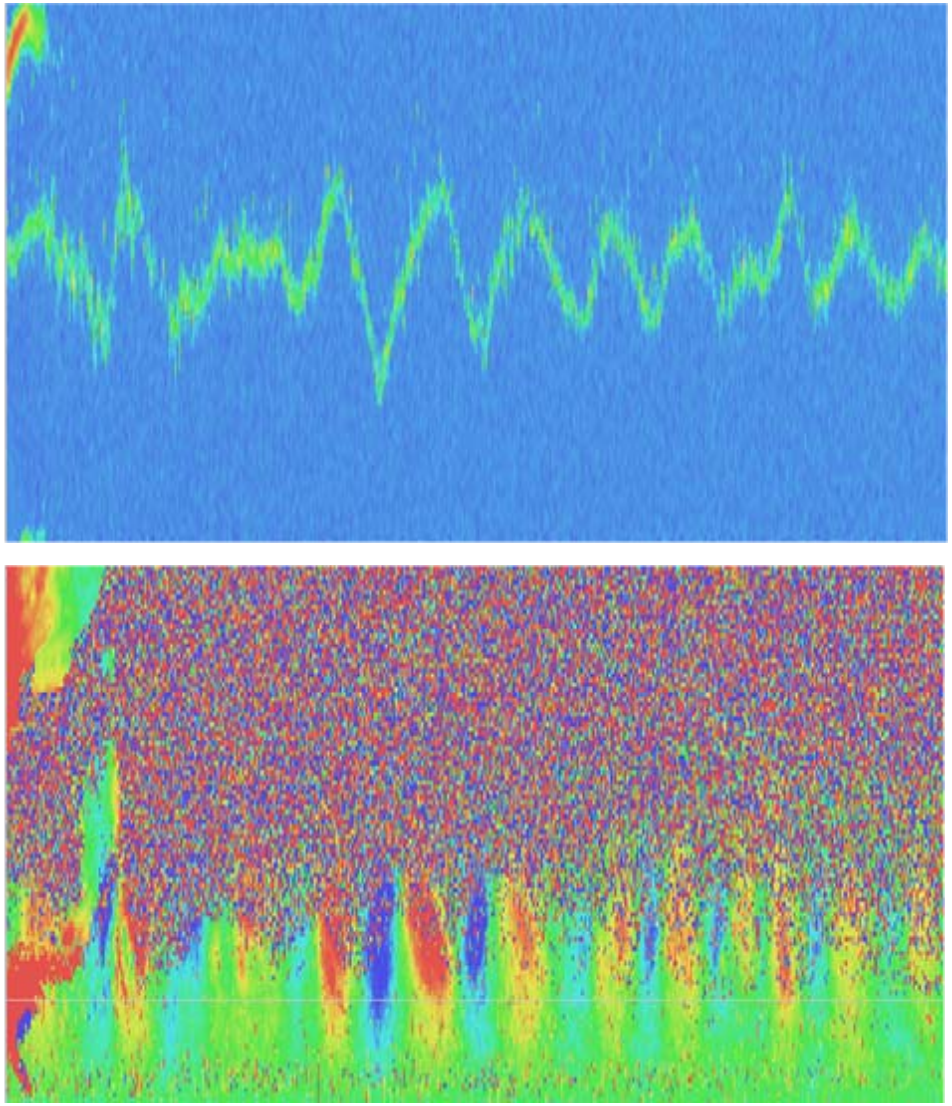
-2.0
Velocity (m/s)




Height (km)
2.0
1.5
1.0
0.5
18.0
18.1
18.2
18.3
18.4
18.5
18.6
18.7
18.8
18.9
19.0
Time of Day (hour UTC)
2.0
1.0
0.0
-1.0
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Velocity (m/s)