Supplementary materials

Figures S01–S30 represent HYSPLIT back trajectories simulated for 168 hours (7 days) for Kyiv site at 5 altitudes: 500 m, 1.5, 3, 4, and 5 km.

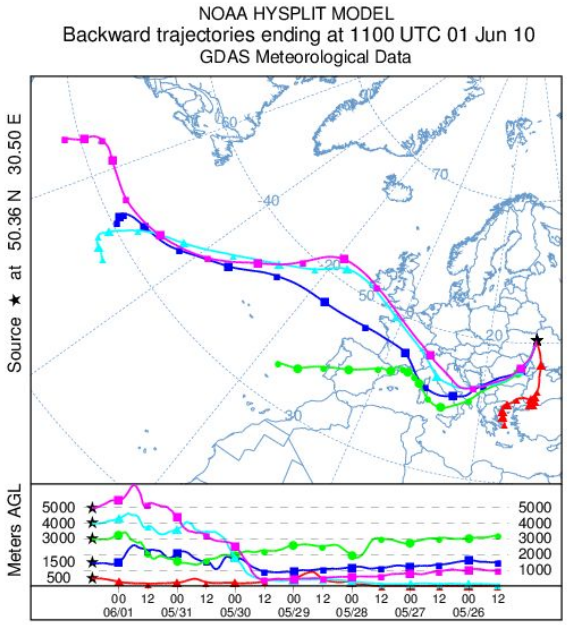


Figure S01. June 1, 2010

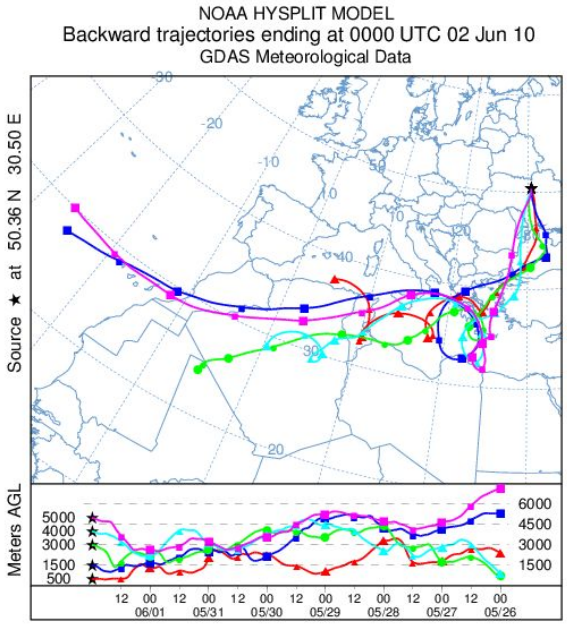


Figure S02. June 2, 2010

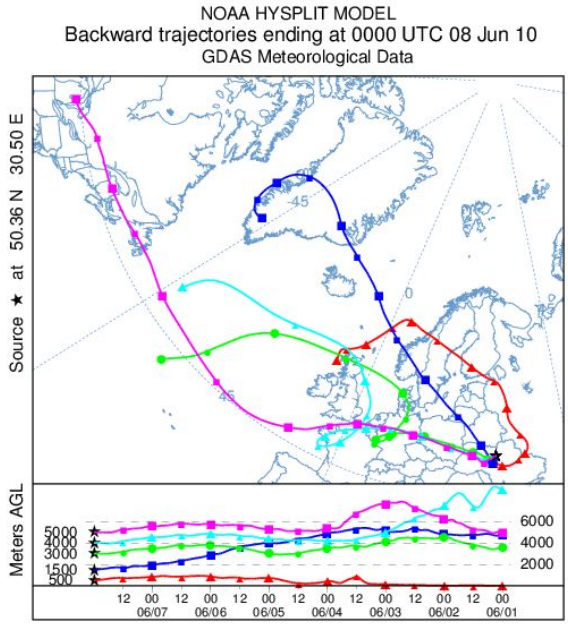


Figure S03. June 8, 2010

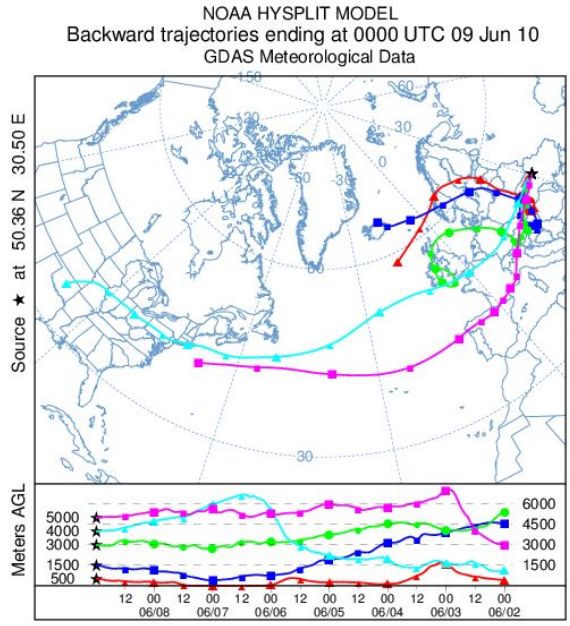


Figure S04. June 9, 2010

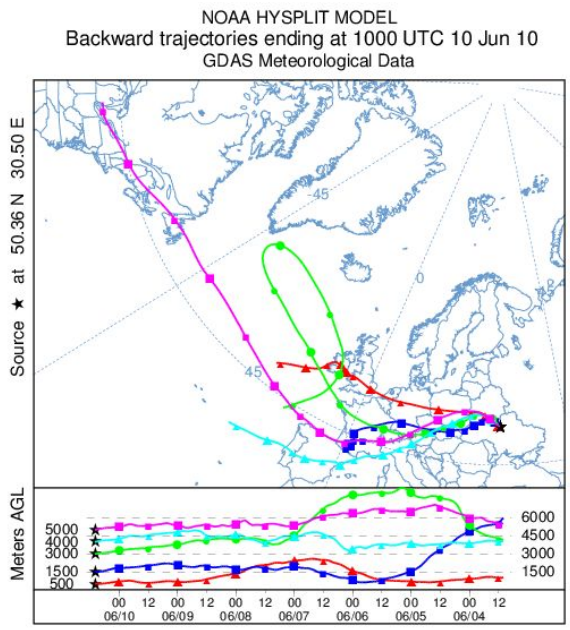


Figure S05. June 10, 2010

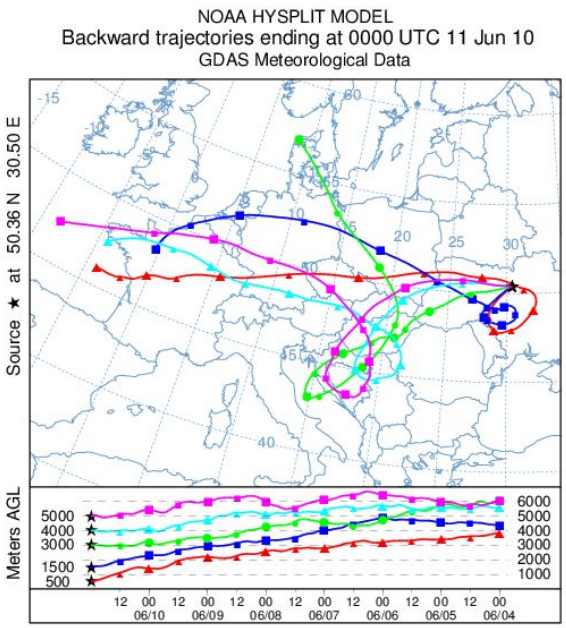


Figure S06. June 11, 2010

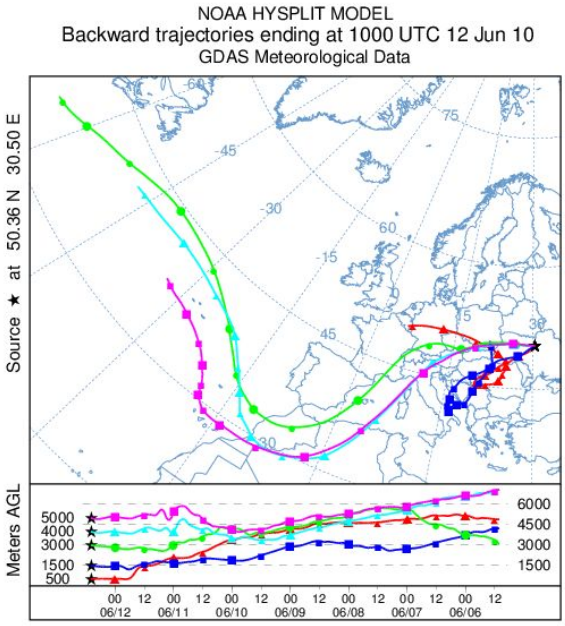


Figure S07. June 12, 2010

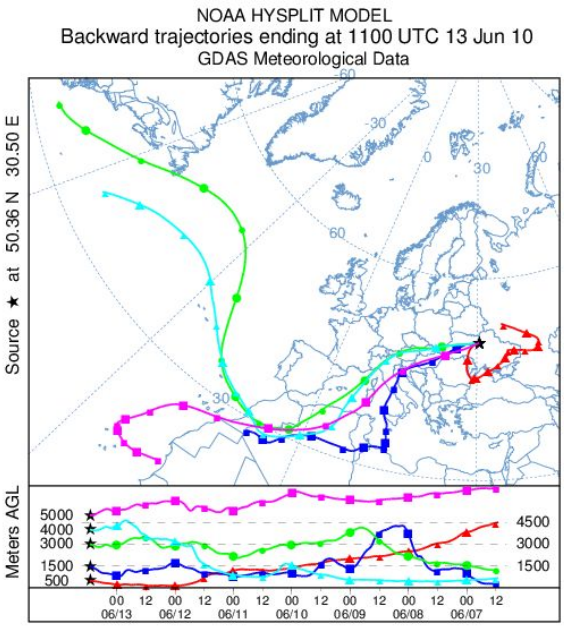


Figure 08. June 13, 2010

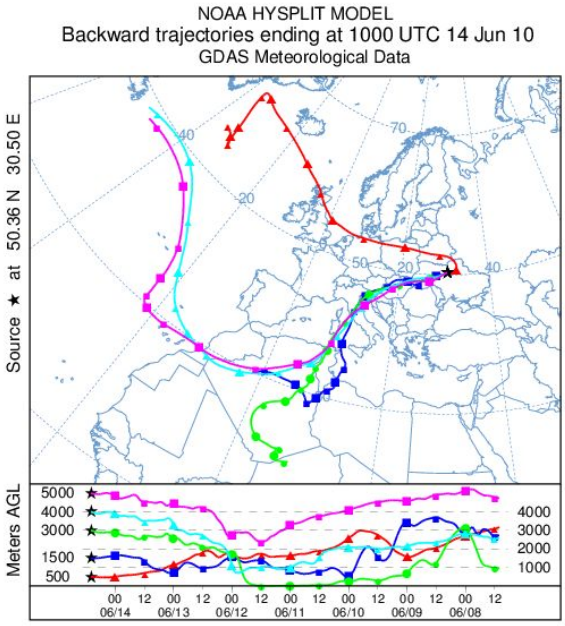


Figure S09. June 14, 2010

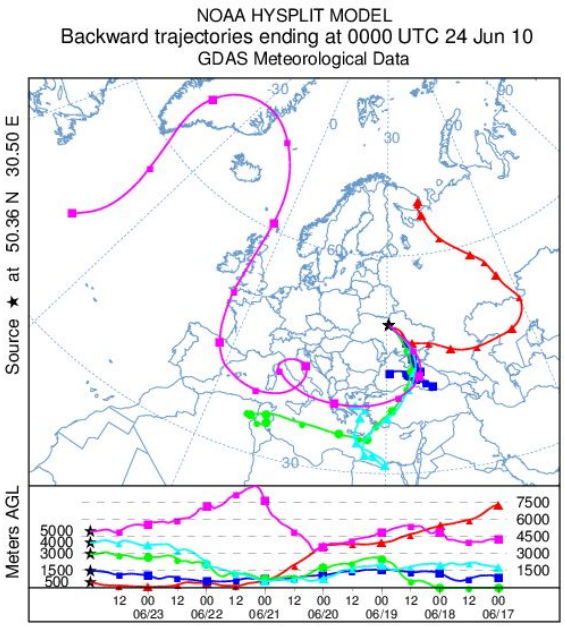


Figure S10. June 24, 2010

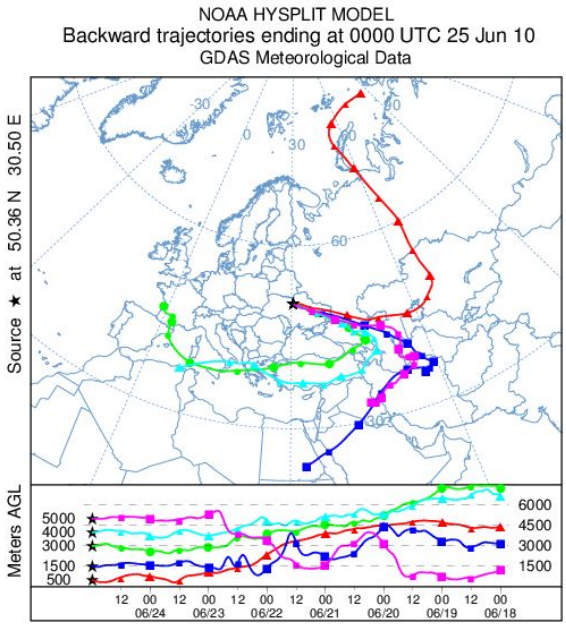


Figure S11. June 25, 2010

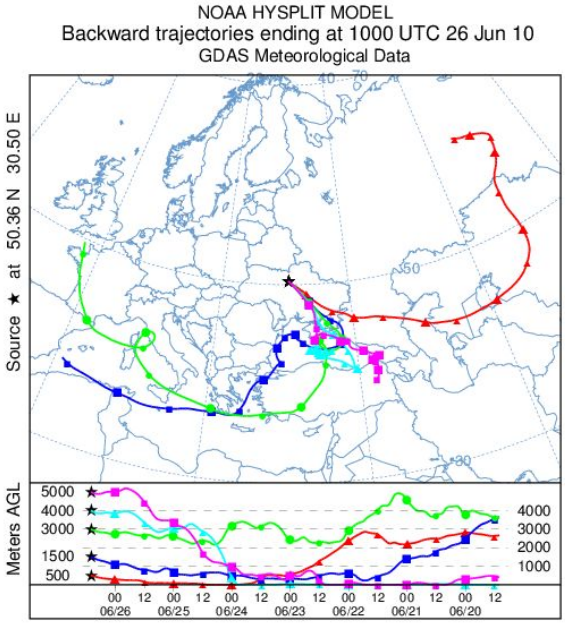


Figure S12. June 26, 2010

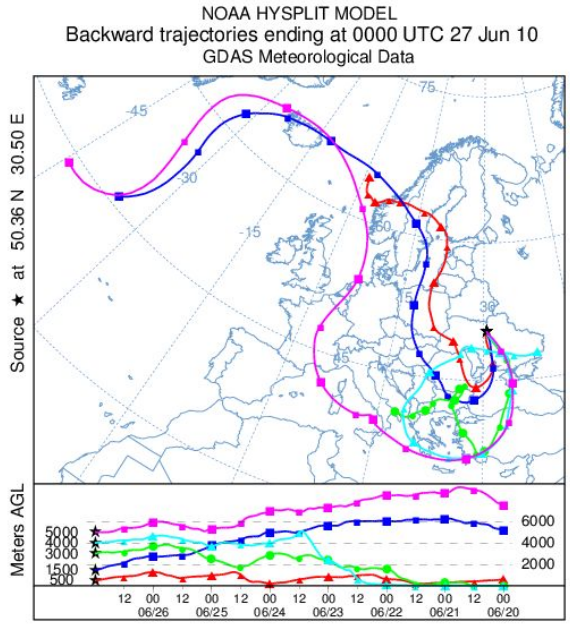


Figure S13. June 27, 2010

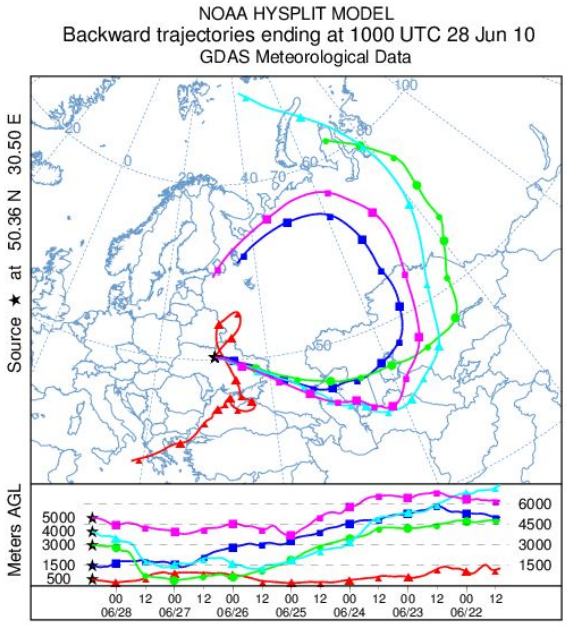


Figure S14. June 28, 2010

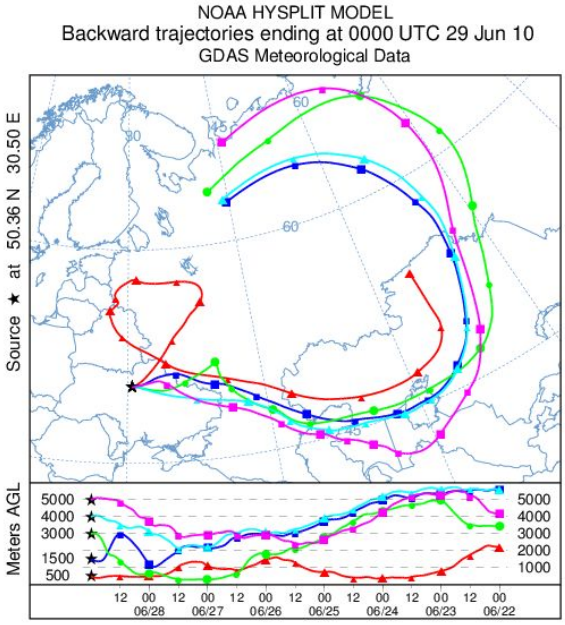


Figure S15. June 29, 2010

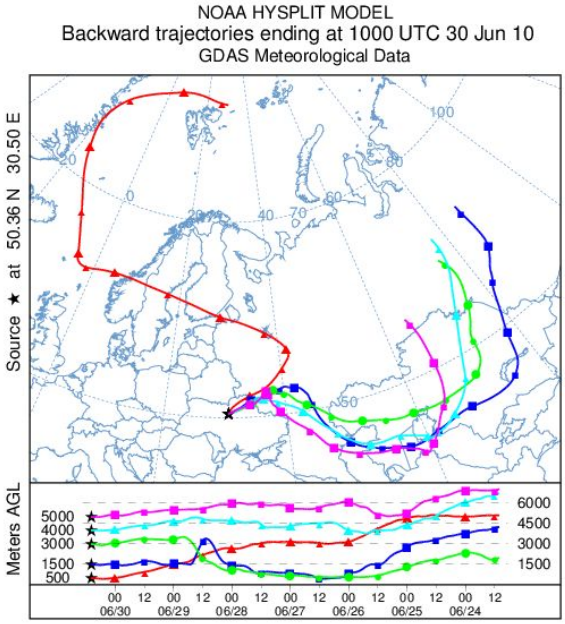


Figure S16. June 30, 2010

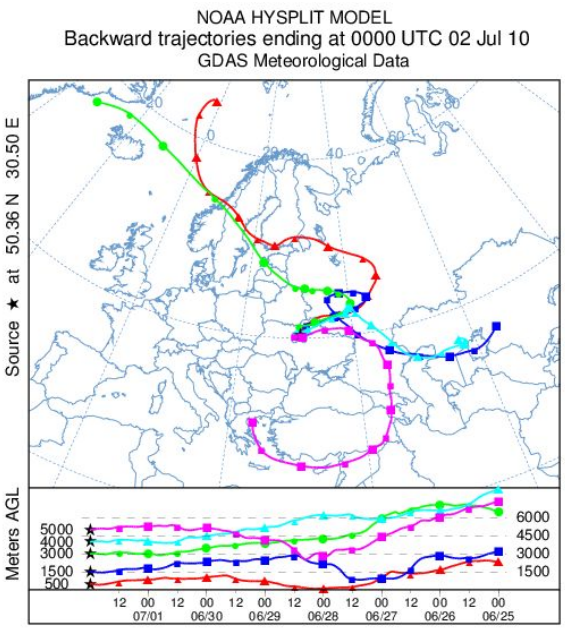


Figure S17. July 2, 2010

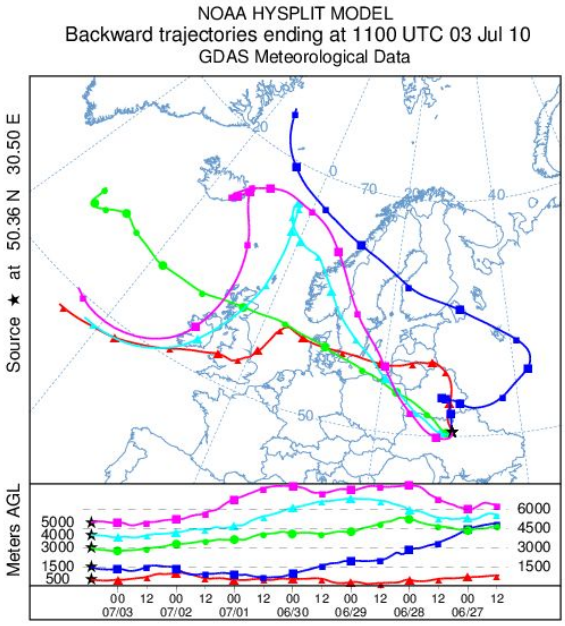


Figure S18. July 3, 2010

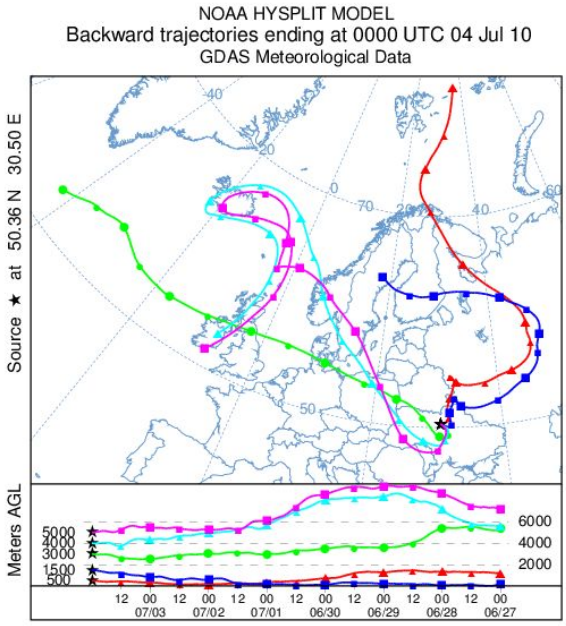


Figure S19. July 4, 2010

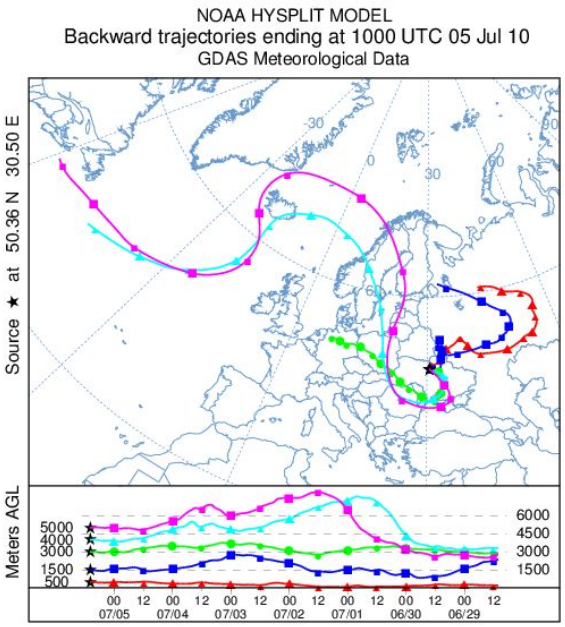


Figure S20. July 5, 2010

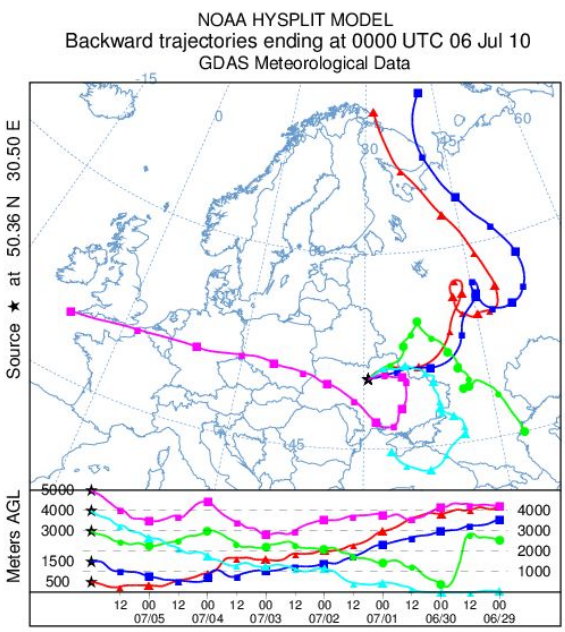


Figure S21. July 6, 2010

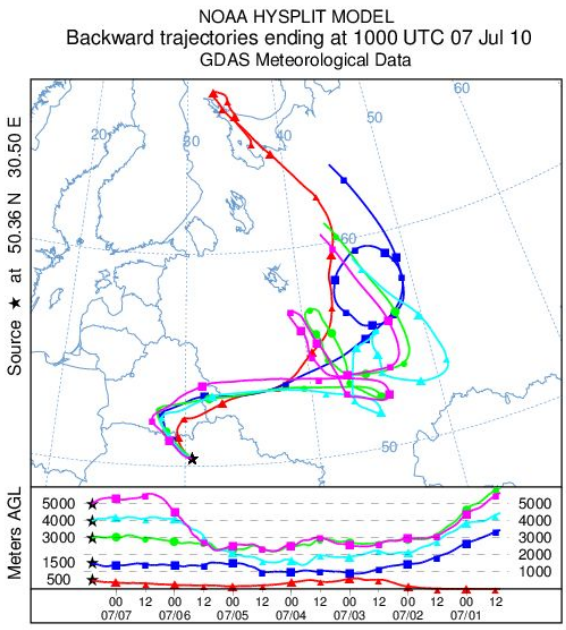


Figure S22. July 7, 2010

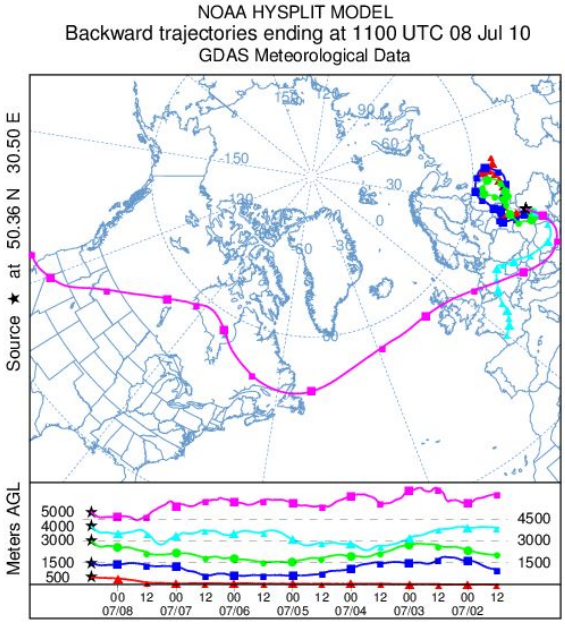


Figure S23. July 8, 2010

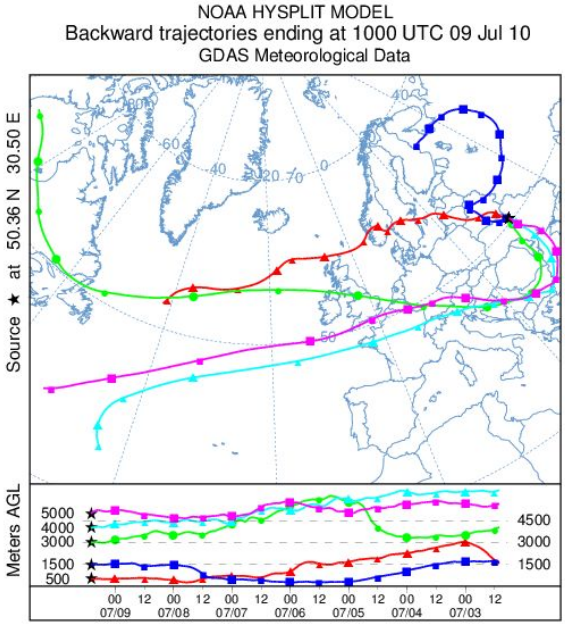


Figure S24. July 9, 2010

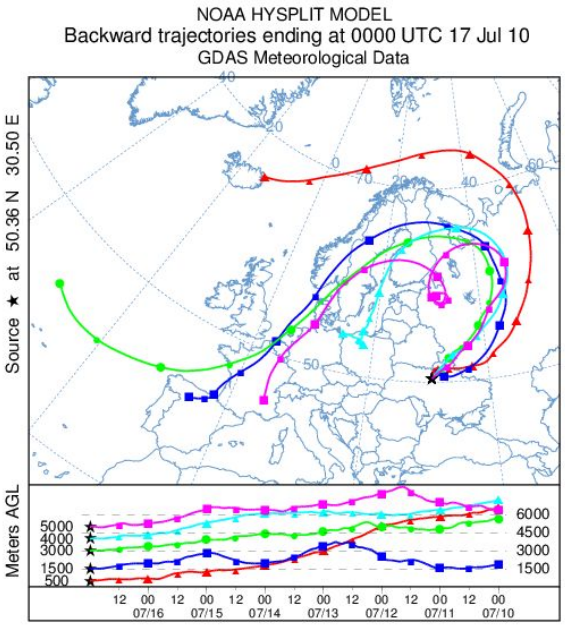


Figure S25. July 17, 2010

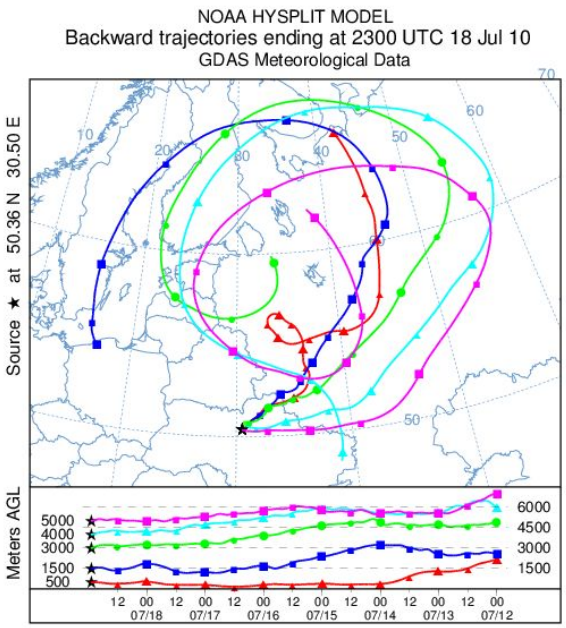


Figure S26. July 18, 2010

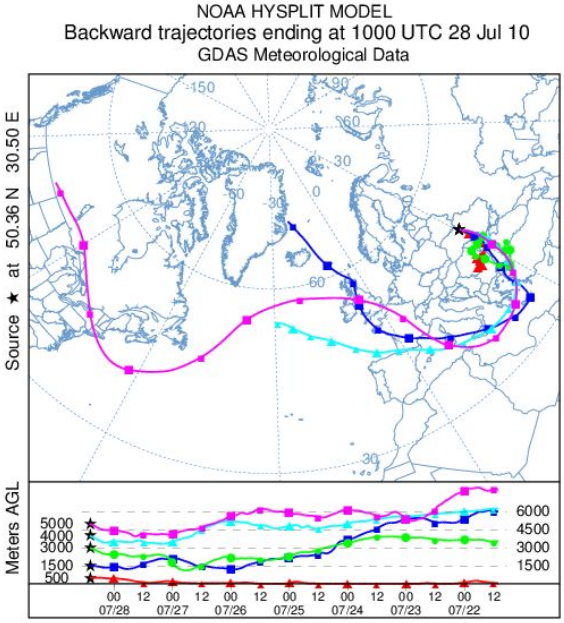


Figure S27. July 28, 2010

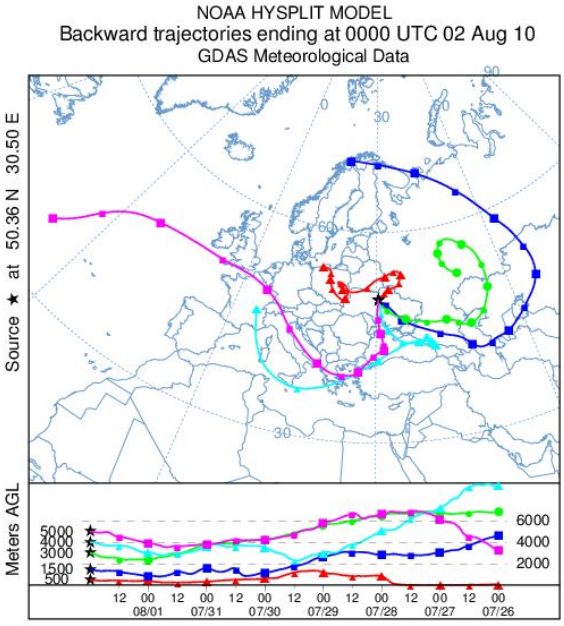


Figure S28. August 2, 2010

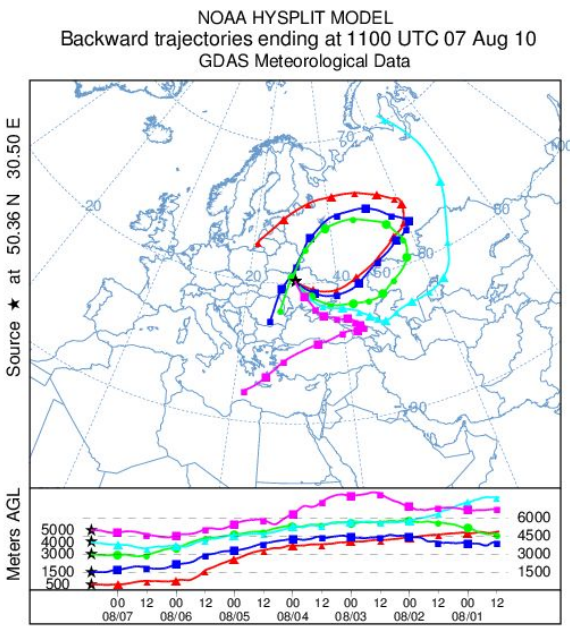


Figure S29. August 7, 2010

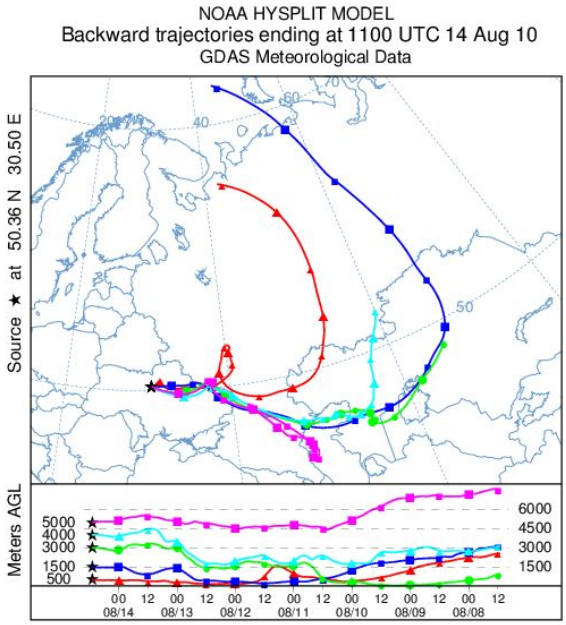


Figure S30. August 14, 2010

Figures S31– S88 represent extinction coefficient of aerosols obtained from CALIPSO for the period August 7-12, 2010. Additional information is added to each figure and was taken directly from the CALIPSO Aerosols Profile Product Level 2.0 Version 3.01 and 3.02 data base. This additional information consists of:

- Date and Time
- Location
- AOD 532 nm
- Extinction Coefficient (plotted on Figures)
- Maximum of the Extinction Coefficient (Extinc.koef.max) and its uncertainty (Extinc.koef.max.Uncert)
- Average of the Extinction Coefficient (Extinc.koef.average)*
- Median of the Extinction Coefficient (Extinc.koef.median)
- Heights of top and bottom of integral aerosol layers (Layer Height max, Layer Height min correspondingly)
- Height of Extinction Coefficient maximum (Height of Extinc.koef.max)
- Effective height of aerosols layer (Effective Height of Layer)

* Average of the Extinction Coefficient (Extinc.koef.average) of integral aerosol layers were computed using data mentioned above.

Effective heights of integral aerosol layers were computed from Extinction Coefficient vertical profile data as

$$H_{Eff} = \frac{\int_{H_{Min}}^{H_{Max}} z \cdot C_{Ext}(z) \cdot dz}{\int_{H_{Min}}^{H_{Max}} C_{Ext}(z) \cdot dz},$$

where z is the vertical coordinate,
$C_{Ext}(z)$ is the Extinction Coefficient,
H_{Min}, H_{Max} are respectively the bottom and top bounds of the integral aerosol layer.

Figure S31.
Date: August 07, 2010
Time(GMT) = 0h 26m 30.8s
Latitude, deg = 51.3113
Longitude, deg = 29.9597
AOD 532 = 0.64
Extinc.koef.max = 0.36 km^{-1}
Extinc.koef.max.Uncert. = 0.26 km^{-1}
Extinc.koef.average = 0.14 km^{-1}
Extinc.koef.median = 0.11 km^{-1}
Layer Height max = 4.768 km
Layer Height min = 0.217 km
Height of Extinc.koef.max = 2.313 km
Effective Height of Layer = 2.321 km

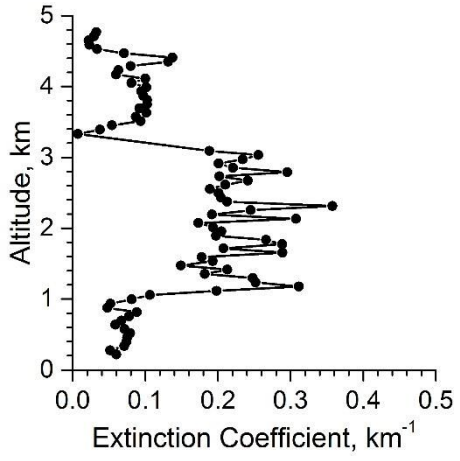


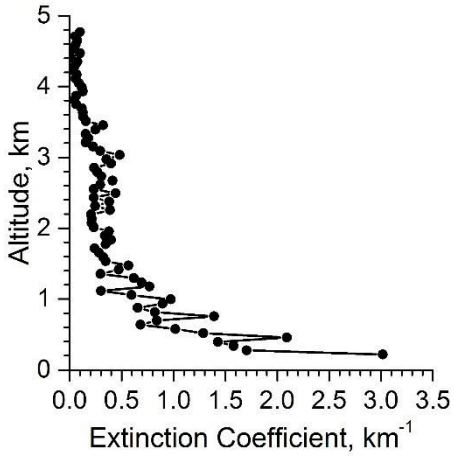
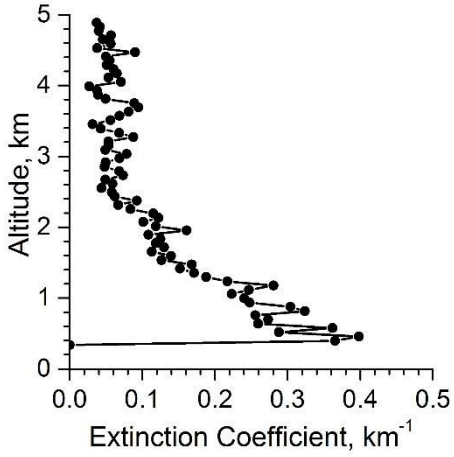
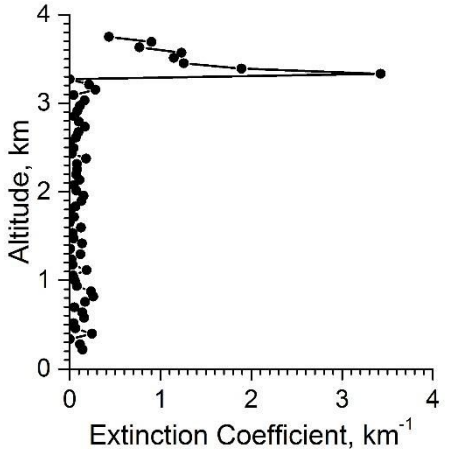
Figure S32. Date: August 07, 2010 Time(GMT) = 0h 26m 44.2s Latitude, deg = 50.5201 Longitude, deg = 29.6139 AOD 532 = 1.92 Extinc.koef.max = 3.02 km^{-1} Extinc.koef.max.Uncert. = 22.14 km^{-1} Extinc.koef.average = 0.42 km^{-1} Extinc.koef.median = 0.29 km^{-1} Layer Height max = 4.768 km Layer Height min = 0.217 km Height of Extinc.koef.max = 0.217 km Effective Height of Layer = 1.406 km	
Figure S33. Date: August 07, 2010 Time(GMT) = 0h 27m 19.9s Latitude, deg = 48.4042 Longitude, deg = 28.7376 AOD 532 = 0.55 Extinc.koef.max = 0.40 km^{-1} Extinc.koef.max.Uncert. = 0.31 km^{-1} Extinc.koef.average = 0.12 km^{-1} Extinc.koef.median = 0.08 km^{-1} Layer Height max = 4.888 km Layer Height min = 0.337 km Height of Extinc.koef.max = 0.457 km Effective Height of Layer = 1.793 km	
Figure S34. Date: August 08, 2010 Time(GMT) = 10h 41m 8.9s Latitude, deg = 47.6677 Longitude, deg = 36.9564 AOD 532 = 1.01 Extinc.koef.max = 3.42 km^{-1} Extinc.koef.max.Uncert. = 5.64 km^{-1} Extinc.koef.average = 0.29 km^{-1} Extinc.koef.median = 0.10 km^{-1} Layer Height max = 3.750 km Layer Height min = 0.217 km Height of Extinc.koef.max = 3.331 km Effective Height of Layer = 2.930 km	

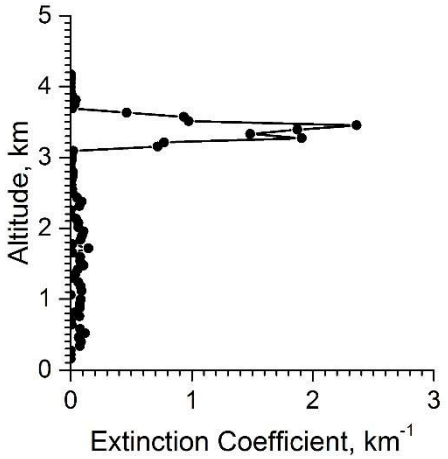
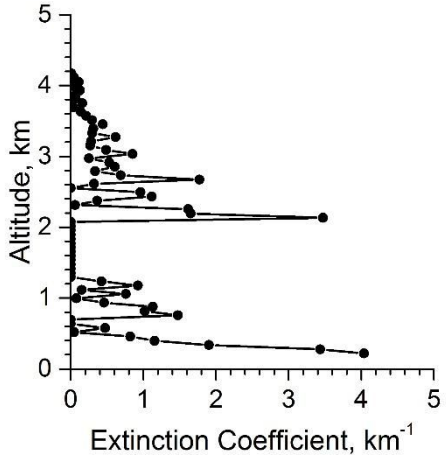
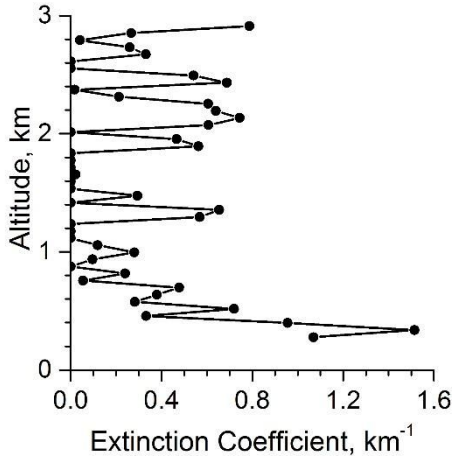
Figure S35. Date: August 08, 2010 Time(GMT) = 10h 41m 19.3s Latitude, deg = 48.2863 Longitude, deg = 36.7132 AOD 532 = 0.84 Extinc.koef.max = 2.36 km^{-1} Extinc.koef.max.Uncert. = 1.59 km^{-1} Extinc.koef.average = 0.21 km^{-1} Extinc.koef.median = 0.05 km^{-1} Layer Height max = 4.169 km Layer Height min = 0.158 km Height of Extinc.koef.max = 3.451 km Effective Height of Layer = 3.065 km	
Figure S36. Date: August 08, 2010 Time(GMT) = 10h 41m 55.0s Latitude, deg = 50.4036 Longitude, deg = 35.8398 AOD 532 = 2.14 Extinc.koef.max = 4.04 km^{-1} Extinc.koef.max.Uncert. = 99.99 km^{-1} Extinc.koef.average = 0.54 km^{-1} Extinc.koef.median = 0.27 km^{-1} Layer Height max = 4.169 km Layer Height min = 0.217km Height of Extinc.koef.max = 0.217 km Effective Height of Layer = 1.690 km	
Figure S37. Date: August 08, 2010 Time(GMT) = 10h 42m 12.2s Latitude, deg = 51.4143 Longitude, deg = 35.3986 AOD532 = 0.82 Extinc.koef.max = 1.51 km^{-1} Extinc.koef.max.Uncert. = 2.91 km^{-1} Extinc.koef.average = 0.31 km^{-1} Extinc.koef.median = 0.27 km^{-1} Layer Height max = 2.912 km Layer Height min = 0.277 km Height of Extinc.koef.max = 0.337 km Effective Height of Layer = 1.418 km	

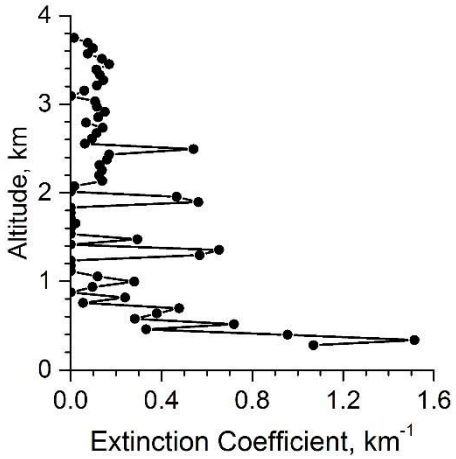
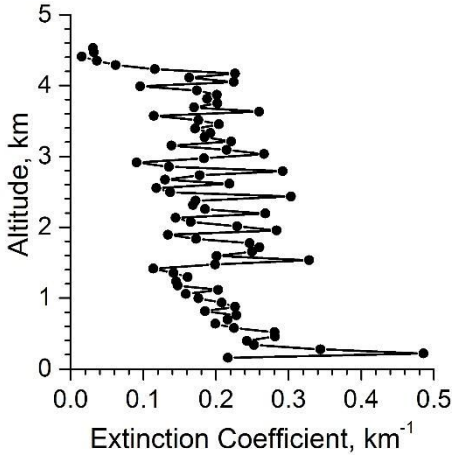
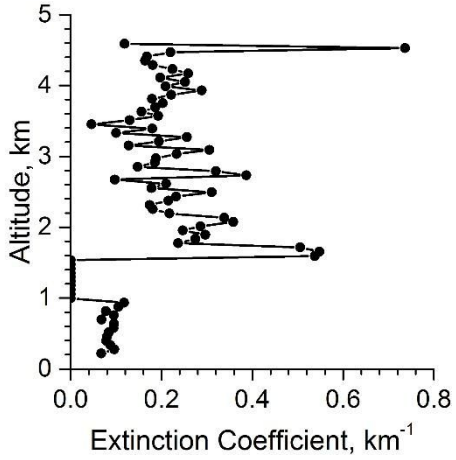
Figure S38. Date: August 08, 2010 Time(GMT) = 10h 42m 22.0s Latitude, deg = 51.9867 Longitude, deg = 35.1411 AOD 532 = 0.72 Extinc.koef.max = 1.51 km^{-1} Extinc.koef.max.Uncert. = 2.91 km^{-1} Extinc.koef.average = 0.21 km^{-1} Extinc.koef.median = 0.12 km^{-1} Layer Height max = 3.750 km Layer Height min = 0.277 km Height of Extinc.koef.max = 0.337 km Effective Height of Layer = 1.398 km	
Figure S39. Date: August 09, 2010 Time(GMT) = 0h 14m 4.5s Latitude, deg = 51.5390 Longitude, deg = 33.1510 AOD 532 = 0.84 Extinc.koef.max = 0.49 km^{-1} Extinc.koef.max.Uncert. = 0.19 km^{-1} Extinc.koef.average = 0.19 km^{-1} Extinc.koef.median = 0.19 km^{-1} Layer Height max = 4.529 km Layer Height min = 0.158 km Height of Extinc.koef.max = 0.217 km Effective Height of Layer = 2.083 km	
Figure S40. Date: August 09, 2010 Time(GMT) = 0h 14m 23.1s Latitude, deg = 50.4398 Longitude, deg = 32.6701 AOD 532 = 0.81 Extinc.koef.max = 0.74 km^{-1} Extinc.koef.max.Uncert. = 0.32 km^{-1} Extinc.koef.average = 0.19 km^{-1} Extinc.koef.median = 0.18 km^{-1} Layer Height max = 4.588 km Layer Height min = 0.217 km Height of Extinc.koef.max = 4.528 km Effective Height of Layer = 2.797 km	

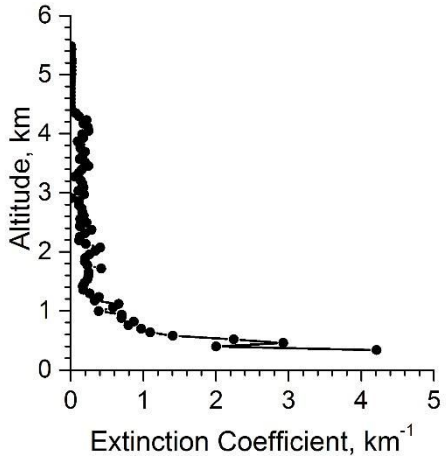
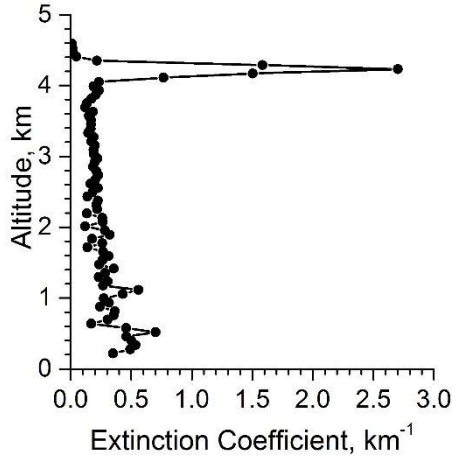
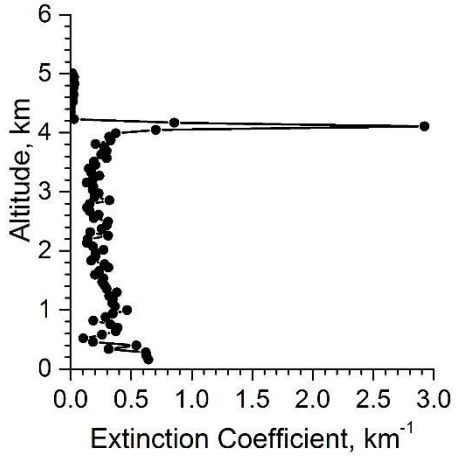
Figure S41. Date: August 09, 2010 Time(GMT) = 0h 14m 49.9s Latitude, deg = 48.8535 Longitude, deg = 32.0089 AOD 532 = 1.63 Extinc.koef.max = 4.21 km^{-1} Extinc.koef.max.Uncert. = 4.08 km^{-1} Extinc.koef.average = 0.32 km^{-1} Extinc.koef.median = 0.17 km^{-1} Layer Height max = 5.487 km Layer Height min = 0.337 km Height of Extinc.koef.max = 0.34 km Effective Height of Layer = 1.380 km	
Figure S42. Date: August 09, 2010 Time(GMT) = 0h 15m 9.2s Latitude, deg = 47.7046 Longitude, deg = 31.5519 AOD 532 = 1.41 Extinc.koef.max = 2.70 km^{-1} Extinc.koef.max.Uncert. = 1.29 km^{-1} Extinc.koef.average = 0.32 km^{-1} Extinc.koef.median = 0.23 km^{-1} Layer Height max = 4.588 km Layer Height min = 0.217 km Height of Extinc.koef.max = 4.229 km Effective Height of Layer = 2.487 km	
Figure S43. Date: August 09, 2010 Time(GMT) = 0h 15m 20.4s Latitude, deg = 47.0423 Longitude, deg = 31.2962 AOD 532 = 1.32 Extinc.koef.max = 2.92 km^{-1} Extinc.koef.max.Uncert. = 1.15 km^{-1} Extinc.koef.average = 0.27 km^{-1} Extinc.koef.median = 0.24 km^{-1} Layer Height max = 5.008 km Layer Height min = 0.159 km Height of Extinc.koef.max = 4.109 km Effective Height of Layer = 2.372 km	

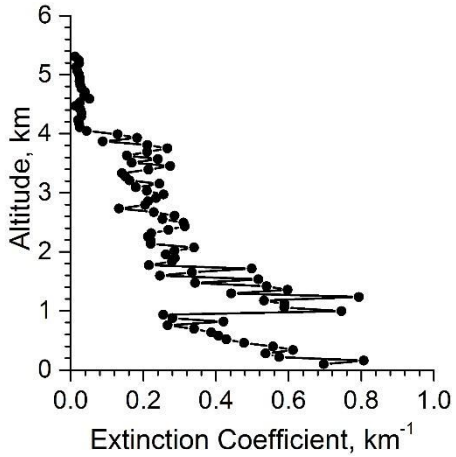
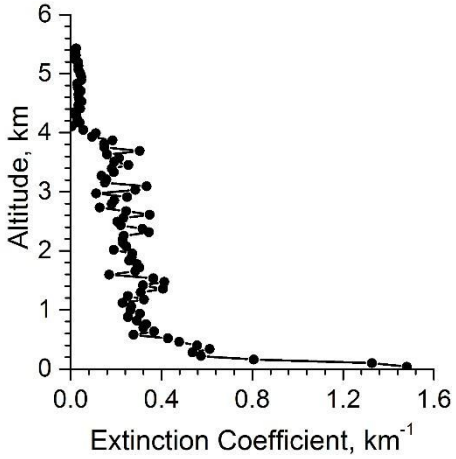
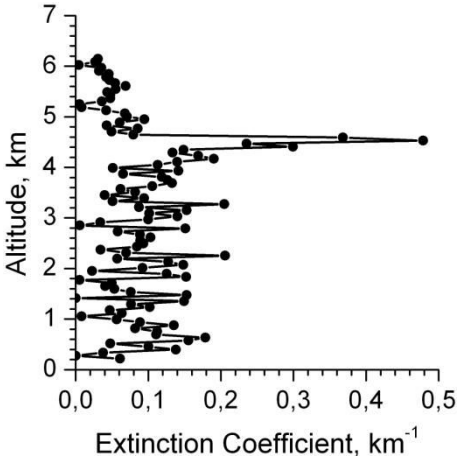
Figure S44. Date: August 09, 2010 Time(GMT) = 0h 15m 27.1s Latitude, deg = 46.6447 Longitude, deg = 31.1451 AOD 532 = 1.36 Extinc.koef.max = 0.81 km^{-1} Extinc.koef.max.Uncert. = 0.30 km^{-1} Extinc.koef.average = 0.26 km^{-1} Extinc.koef.median = 0.24 km^{-1} Layer Height max = 5.307 km Layer Height min = 0.098 km Height of Extinc.koef.max = 0.158 km Effective Height of Layer = 1.693 km	
Figure S45. Date: August 09, 2010 Time(GMT) = 0h 15m 33.8s Latitude, deg = 46.2468 Longitude, deg = 30.9956 AOD 532 = 1.27 Extinc.koef.max = 1.48 km^{-1} Extinc.koef.max.Uncert. = 0.61 km^{-1} Extinc.koef.average = 0.24 km^{-1} Extinc.koef.median = 0.23 km^{-1} Layer Height max = 5.427 km Layer Height min = 0.038 km Height of Extinc.koef.max = 0.038 km Effective Height of Layer = 1.648 km	
Figure S46. Date: August 11, 2010 Time(GMT) = 0h 1m 48.7s Latitude, deg = 51.1403 Longitude, deg = 36.0654 AOD 532 = 0.56 Extinc.koef.max = 0.48 km^{-1} Extinc.koef.max.Uncert. = 0.24 km^{-1} Extinc.koef.average = 0.09 km^{-1} Extinc.koef.median = 0.08 km^{-1} Layer Height max = 6.145 km Layer Height min = 0.217 km Height of Extinc.koef.max = 4.529 km Effective Height of Layer = 3.121 km	

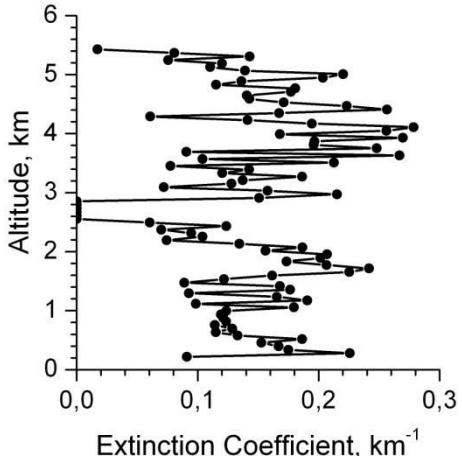
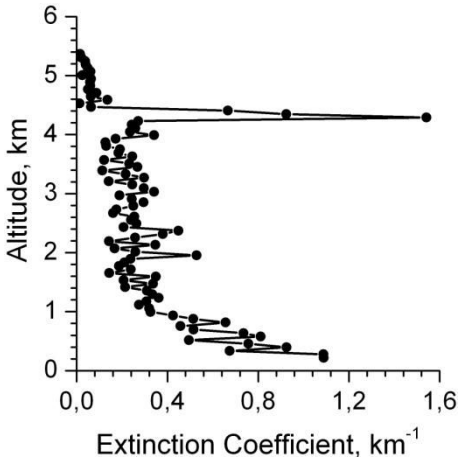
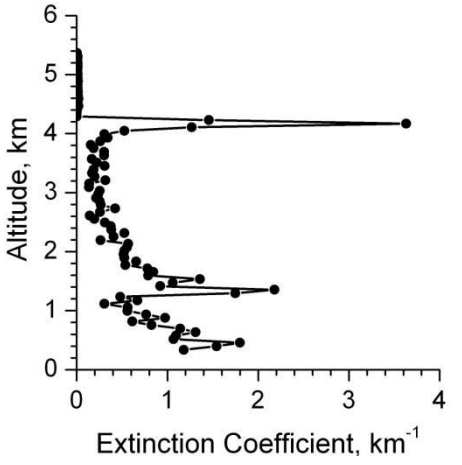
Figure S47. Date: August 11, 2010 Time(GMT) = 0h 2m 17.7s Latitude, deg = 49.4225 Longitude, deg = 35.3326 AOD 532 = 0.75 Extinc.koef.max = 0.28 km^{-1} Extinc.koef.max.Uncert. = 0.21 km^{-1} Extinc.koef.average = 0.14 km^{-1} Extinc.koef.median = 0.14 km^{-1} Layer Height max = 5.427 km Layer Height min = 0.217 km Height of Extinc.koef.max = 4.109 km Effective Height of Layer = 2.850 km	
Figure S48. Date: August 11, 2010 Time(GMT) = 0h 2m 28.1s Latitude, deg = 48.8064 Longitude, deg = 35.0803 AOD 532 = 1.58 Extinc.koef.max = 1.54 km^{-1} Extinc.koef.max.Uncert. = 0.57 km^{-1} Extinc.koef.average = 0.31 km^{-1} Extinc.koef.median = 0.24 km^{-1} Layer Height max = 5.367 km Layer Height min = 0.217 km Height of Extinc.koef.max = 4.289 km Effective Height of Layer = 2.144 km	
Figure S49. Date: August 11, 2010 Time(GMT) = 0h 2m 38.5s Latitude, deg = 48.1884 Longitude, deg = 34.8330 AOD 532 = 2.55 Extinc.koef.max = 3.63 km^{-1} Extinc.koef.max.Uncert. = 1.37 km^{-1} Extinc.koef.average = 0.51 km^{-1} Extinc.koef.median = 0.31 km^{-1} Layer Height max = 5.367 km Layer Height min = 0.337 km Height of Extinc.koef.max = 4.169 km Effective Height of Layer = 1.983 km	

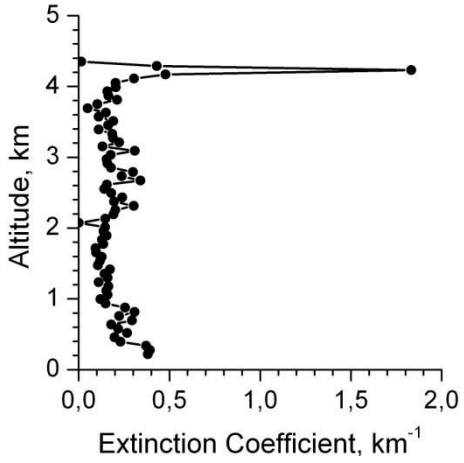
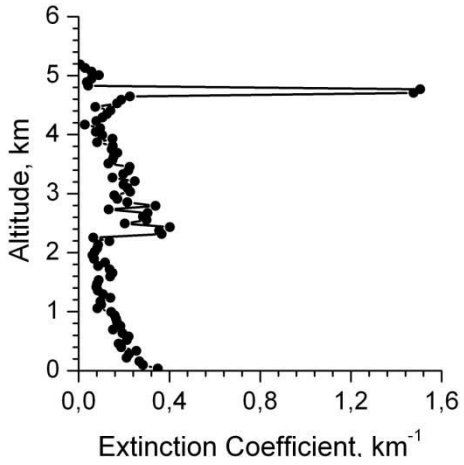
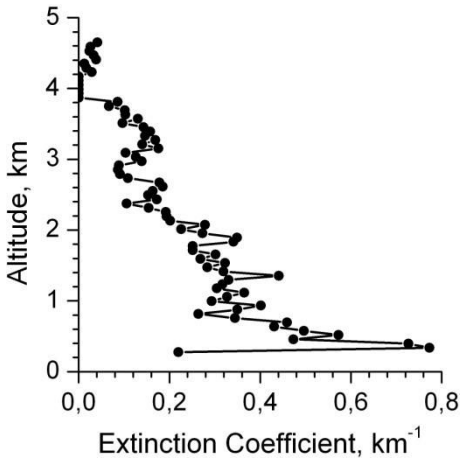
Figure S50. Date: August 11, 2010 Time(GMT) = 0h 2m 48.2s Latitude, deg = 47.6141 Longitude, deg = 34.6072 AOD 532 = 0.869 Extinc.koef.max = 1.83 km^{-1} Extinc.koef.max.Uncert. = 0.66 km^{-1} Extinc.koef.average = 0.21 km^{-1} Extinc.koef.median = 0.18 km^{-1} Layer Height max = 4.349 km Layer Height min = 0.217 km Height of Extinc.koef.max = 4.229 km Effective Height of Layer = 2.423 km	
Figure S51. Date: August 11, 2010 Time(GMT) = 0h 3m 13.5s Latitude, deg = 46.1114 Longitude, deg = 34.0359 AOD 532 = 0.99 Extinc.koef.max = 1.51 km^{-1} Extinc.koef.max.Uncert. = 0.58 km^{-1} Extinc.koef.average = 0.19 km^{-1} Extinc.koef.median = 0.15 km^{-1} Layer Height max = 5.187 km Layer Height min = 0.038 km Height of Extinc.koef.max = 4.768 km Effective Height of Layer = 2.790 km	
Figure S52. Date: August 11, 2010 Time(GMT) = 11h 12m 5.0s Latitude, deg = 47.8663 Longitude, deg = 29.1510 AOD 532 = 0.93 Extinc.koef.max = 0.78 km^{-1} Extinc.koef.average = 0.21 km^{-1} Extinc.koef.median = 0.18 km^{-1} Layer Height max = 4.648 km Layer Height min = 0.277 km Height of Extinc.koef.max = 0.337 km Effective Height of Layer = 1.573 km	

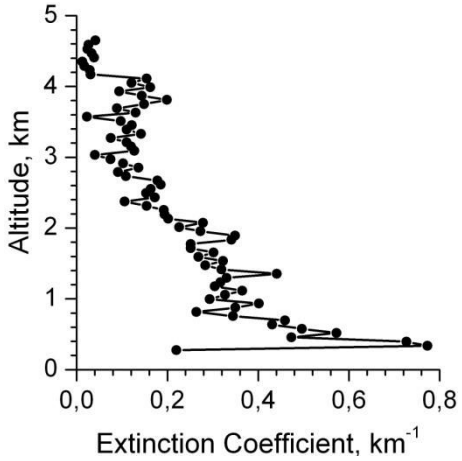
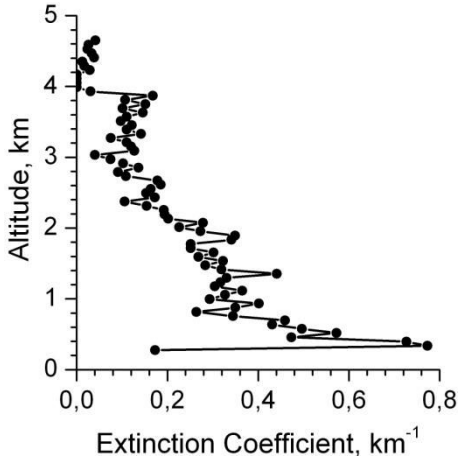
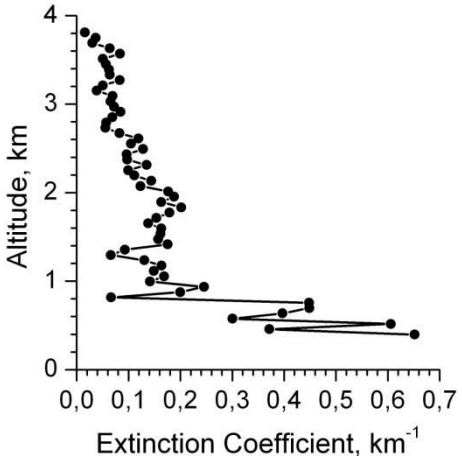
Figure S53. Date: August 11, 2010 Time(GMT) = 11h 12m 8.6s Latitude, deg = 48.0868 Longitude, deg = 29.0639 AOD 532 = 0.96 Extinc.koef.max = 0.77 km^{-1} Extinc.koef.average = 0.22 km^{-1} Extinc.koef.median = 0.18 km^{-1} Layer Height max = 4.648 km Layer Height min = 0.277 km Height of Extinc.koef.max = 0.337 km Effective Height of Layer = 1.666 km	
Figure S54. Date: August 11, 2010 Time(GMT) = 11h 12m 12.6s Latitude, deg = 48.3082 Longitude, deg = 28.9766 AOD 532 = 0.93 Extinc.koef.max = 0.77 km^{-1} Extinc.koef.average = 0.21 km^{-1} Extinc.koef.median = 0.17 km^{-1} Layer Height max = 4.648 km Layer Height min = 0.277 km Height of Extinc.koef.max = 0.337 km Effective Height of Layer = 1.591 km	
Figure S55. Date: August 11, 2010 Time(GMT) = 11h 12m 25.9s Latitude, deg = 49.1026 Longitude, deg = 28.6557 AOD 532 = 0.50 Extinc.koef.max = 0.65 km^{-1} Extinc.koef.average = 0.15 km^{-1} Extinc.koef.median = 0.12 km^{-1} Layer Height max = 3.810 km Layer Height min = 0.397 km Height of Extinc.koef.max = 0.397 km Effective Height of Layer = 1.536 km	

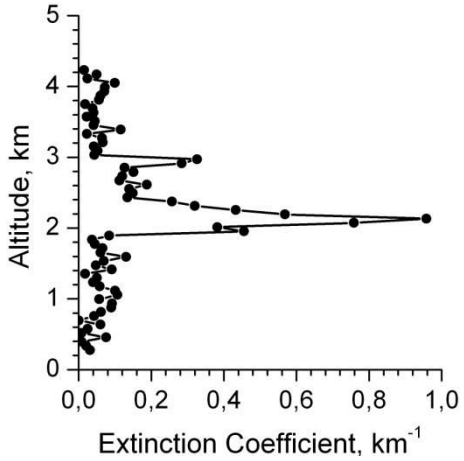
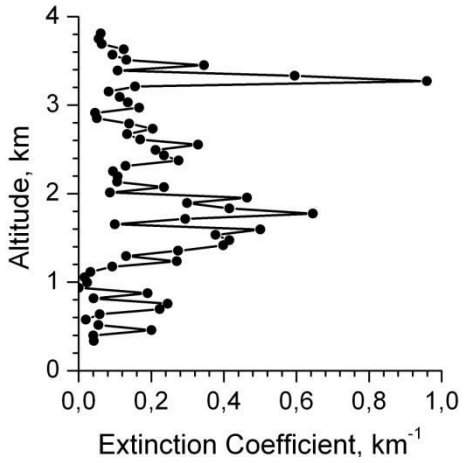
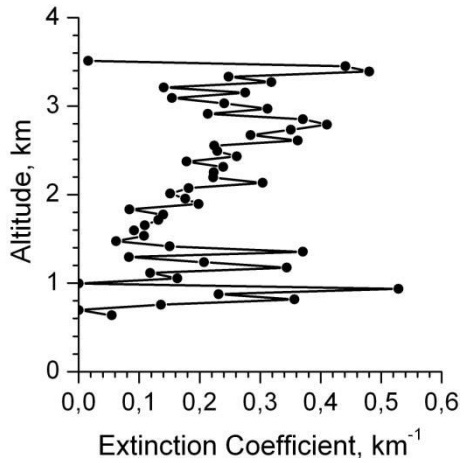
Figure S56. Date: August 12, 2010 Time(GMT) = 0h 44m 50.9s Latitude, deg = 51.9065 Longitude, deg = 25.5926 AOD 532 = 0.51 Extinc.koef.max = 0.96 km^{-1} Extinc.koef.average = 0.13 km^{-1} Extinc.koef.median = 0.06 km^{-1} Layer Height max = 4.22913 km Layer Height min = 0.277296 km Height of Extinc.koef.max = 2.133 km Effective Height of Layer = 2.273 km	
Figure S57. Date: August 12, 2010 Time(GMT) = 0h 45m 13.9s Latitude, deg = 50.5437 Longitude, deg = 24.9904 AOD 532 = 0.68 Extinc.koef.max = 0.96 km^{-1} Extinc.koef.average = 0.20 km^{-1} Extinc.koef.median = 0.13 km^{-1} Layer Height max = 3.810 km Layer Height min = 0.337 km Height of Extinc.koef.max = 3.271 km Effective Height of Layer = 2.182 km	
Figure S58. Date: August 12, 2010 Time(GMT) = 0h 45m 42.2s Latitude, deg = 48.8696 Longitude, deg = 24.2911 AOD 532 = 0.65 Extinc.koef.max = 0.53 km^{-1} Extinc.koef.average = 0.23 km^{-1} Extinc.koef.median = 0.21 km^{-1} Layer Height max = 3.511 km Layer Height min = 0.637 km Height of Extinc.koef.max = 0.936 km Effective Height of Layer = 2.211 km	

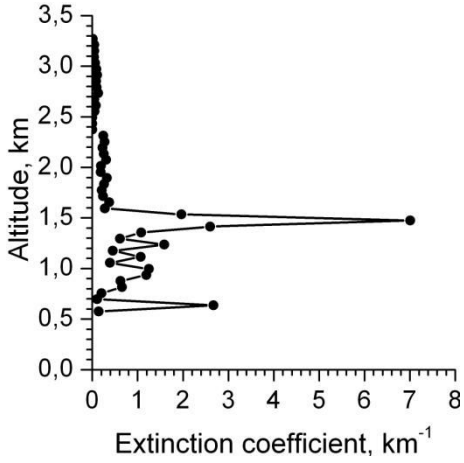
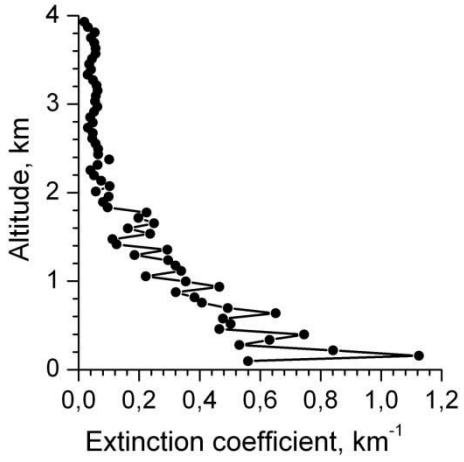
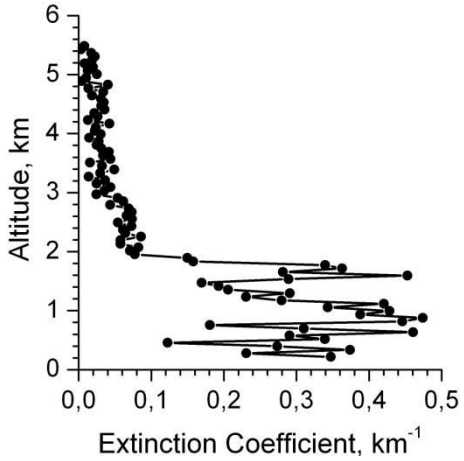
Figure S59. Date: August 12, 2010 Time(GMT) = 0h 46m 3.8s Latitude, deg = 47.5893 Longitude, deg = 23.7827 AOD 532 = 1.65 Extinc.koef.max = 7.01 km^{-1} Extinc.koef.average = 0.61 km^{-1} Extinc.koef.median = 0.24 km^{-1} Layer Height max = 3.271 km Layer Height min = 0.577 km Height of Extinc.koef.max = 1.475 km Effective Height of Layer = 1.342 km	
Figure S60. Date: August 12, 2010 Time(GMT) = 0h 46m 53.6s Latitude, deg = 44.6243 Longitude, deg = 22.6808 AOD 532 = 0.83 Extinc.koef.max = 1.12 km^{-1} Extinc.koef.average = 0.22 km^{-1} Extinc.koef.median = 0.10 km^{-1} Layer Height max = 3.930 km Layer Height min = 0.098 km Height of Extinc.koef.max = 0.158 km Effective Height of Layer = 1.000 km	
Figure S61. Date: August 12, 2010 Time(GMT) = 23h 49m 11.3s Latitude, deg = 52.0120 Longitude, deg = 39.5455 AOD 532 = 0.65 Extinc.koef.max = 0.47 km^{-1} Extinc.koef.average = 0.12 km^{-1} Extinc.koef.median = 0.05 km^{-1} Layer Height max = 5.487 km Layer Height min = 0.217 km Height of Extinc.koef.max = 0.876 km Effective Height of Layer = 1.477 km	

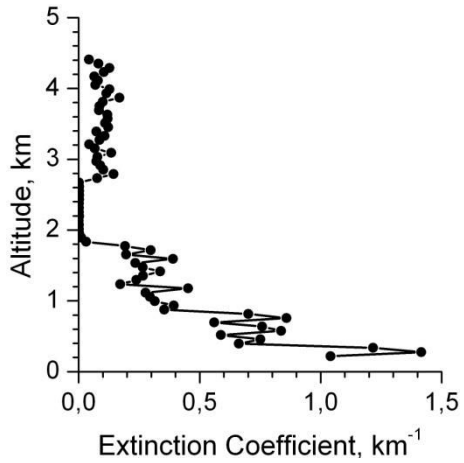
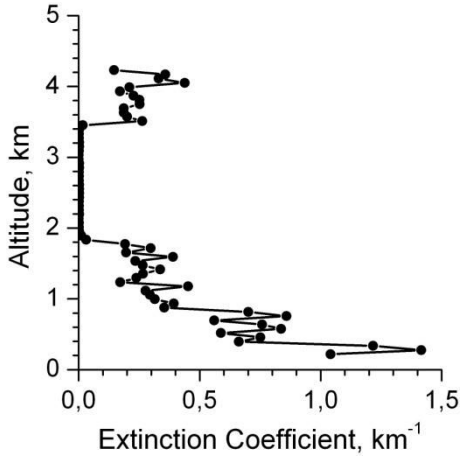
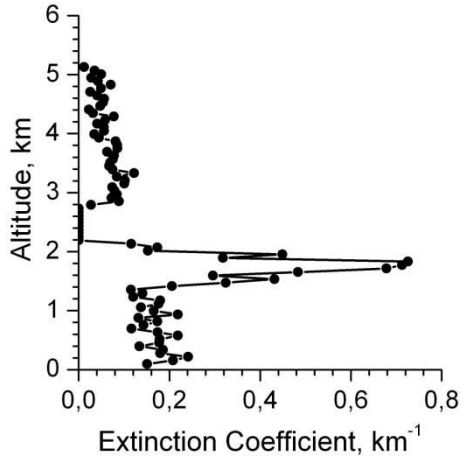
Figure S62. Date: August 12, 2010 Time(GMT) = 23h 49m 44.8s Latitude, deg = 50.0322 Longitude, deg = 38.6777 AOD 532 = 0.98 Extinc.koef.max = 1.42 km^{-1} Extinc.koef.average = 0.23 km^{-1} Extinc.koef.median = 0.11 km^{-1} Layer Height max = 4.409 km Layer Height min = 0.217 km Height of Extinc.koef.max = 0.277 km Effective Height of Layer = 1.256 km	
Figure S63. Date: August 12, 2010 Time(GMT) = 23h 49m 55.9s Latitude, deg = 49.3706 Longitude, deg = 38.4015 AOD 532 = 1.0 Extinc.koef.max = 1.42 km^{-1} Extinc.koef.average = 0.25 km^{-1} Extinc.koef.median = 0.20 km^{-1} Layer Height max = 4.229 km Layer Height min = 0.217 km Height of Extinc.koef.max = 0.277 km Effective Height of Layer = 1.380 km	
Figure S64. Date: August 13, 2010 Time(GMT) = 10h 59m 17.9s Latitude, deg = 46.4181 Longitude, deg = 32.7968 AOD 532 = 0.67 Extinc.koef.max = 0.73 km^{-1} Extinc.koef.average = 0.13 km^{-1} Extinc.koef.median = 0.08 km^{-1} Layer Height max = 5.127 km Layer Height min = 0.098 km Height of Extinc.koef.max = 1.834 km Effective Height of Layer = 1.862 km	

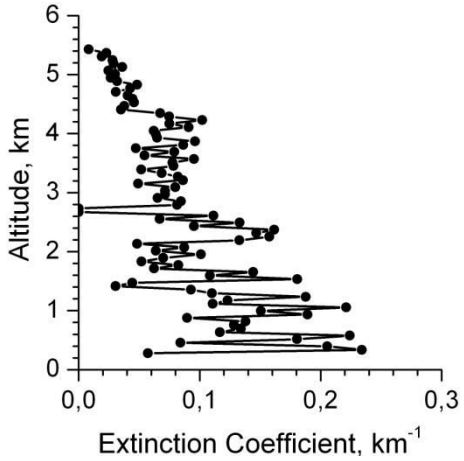
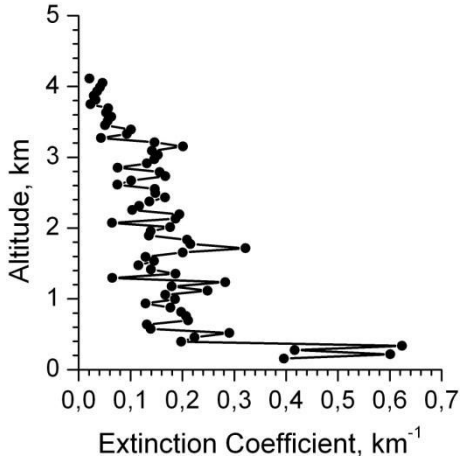
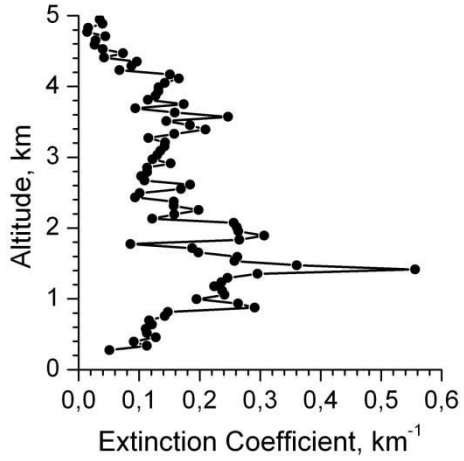
Figure S65. Date: August 13, 2010 Time(GMT) = 11h 0m 5.8s Latitude, deg = 49.2469 Longitude, deg = 31.6873 AOD 532 = 0.44 Extinc.koef.max = 0.23 km^{-1} Extinc.koef.average = 0.09 km^{-1} Extinc.koef.median = 0.08 km^{-1} Layer Height max = 5.427 km Layer Height min = 0.277 km Height of Extinc.koef.max = 0.337 km Effective Height of Layer = 2.205 km	
Figure S66. Date: August 14, 2010 Time(GMT) = 0h 32m 24.0s Latitude, deg = 52.1579 Longitude, deg = 28.7969 AOD 532 = 0.64 Extinc.koef.max = 0.63 km^{-1} Extinc.koef.average = 0.16 km^{-1} Extinc.koef.median = 0.15 km^{-1} Layer Height max = 4.109 km Layer Height min = 0.158 km Height of Extinc.koef.max = 0.337 km Effective Height of Layer = 1.568 km	
Figure S67. Date: August 14, 2010 Time(GMT) = 0h 32m 48.5s Latitude, deg = 50.7072 Longitude, deg = 28.1514 AOD 532 = 0.73 Extinc.koef.max = 0.56 km^{-1} Extinc.koef.average = 0.16 km^{-1} Extinc.koef.median = 0.14 km^{-1} Layer Height max = 4.948 km Layer Height min = 0.277 km Height of Extinc.koef.max = 1.415 km Effective Height of Layer = 2.229 km	

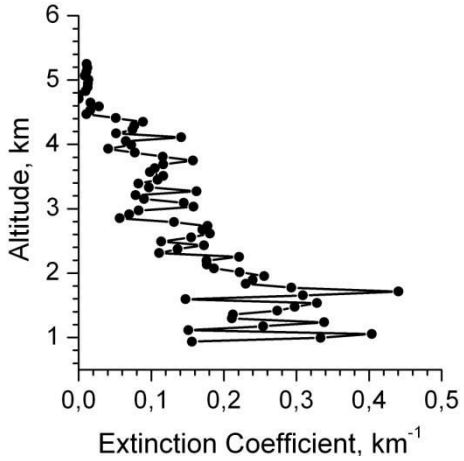
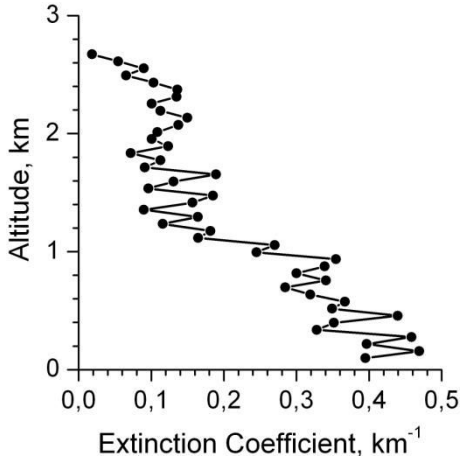
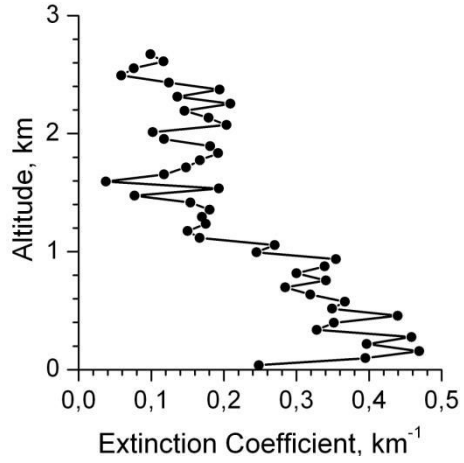
Figure S68. Date: August 14, 2010 Time(GMT) = 0h 32m 55.2s Latitude, deg = 50.3112 Longitude, deg = 27.9810 AOD 532 = 0.59 Extinc.koef.max = 0.44 km^{-1} Extinc.koef.average = 0.14 km^{-1} Extinc.koef.median = 0.12 km^{-1} Layer Height max = 5.247 km Layer Height min = 0.936 km Height of Extinc.koef.max = 1.714 km Effective Height of Layer = 2.308 km	
Figure S69. Date: August 17, 2010 Time(GMT) = 10h 34m 34.7s Latitude, deg = 46.5620 Longitude, deg = 38.9265 AOD 532 = 0.54 Extinc.koef.max = 0.47 km^{-1} Extinc.koef.average = 0.209 km^{-1} Extinc.koef.median = 0.16 km^{-1} Layer Height max = 2.672 km Layer Height min = 0.098 km Height of Extinc.koef.max = 0.158 km Effective Height of Layer = 0.987 km	
Figure S70. Date: August 17, 2010 Time(GMT) = 10h 34m 37.6s Latitude, deg = 46.7382 Longitude, deg = 38.8598 AOD 532 = 0.60 Extinc.koef.max = 0.47 km^{-1} Extinc.koef.average = 0.23 km^{-1} Extinc.koef.median = 0.19 km^{-1} Layer Height max = 2.672 km Layer Height min = 0.038 km Height of Extinc.koef.max = 0.158 km Effective Height of Layer = 1.044 km	

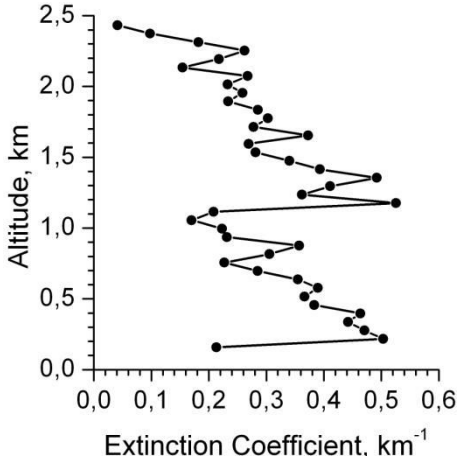
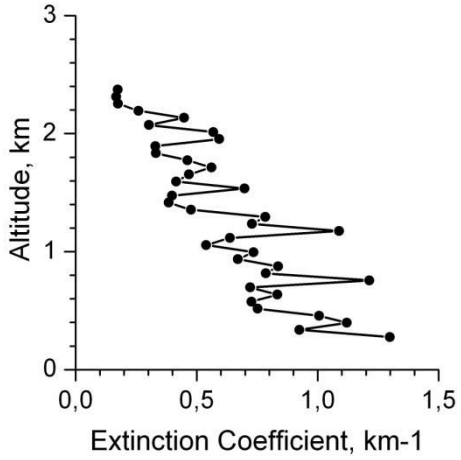
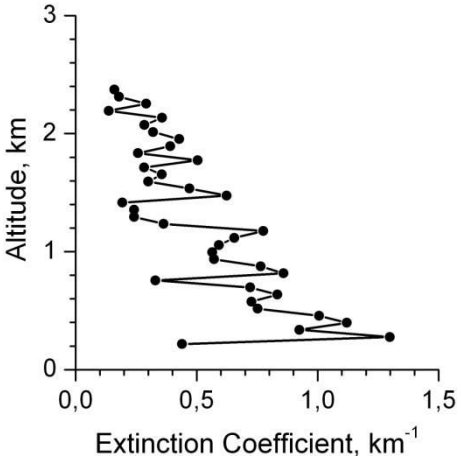
Figure S71. Date: August 17, 2010 Time(GMT) = 10h 34m 55.6s Latitude, deg = 47.7997 Longitude, deg = 38.4518 AOD 532 = 0.70 Extinc.koef.max = 0.53 km-1 Extinc.koef.average = 0.31 km-1 Extinc.koef.median = 0.29 km-1 Layer Height max = 2.433 km Layer Height min = 0.157 Height of Extinc.koef.max = 1.175 km Effective Height of Layer = 1.154 km	
Figure S72. Date: August 17, 2010 Time(GMT) = 10h 34m 59.9s Latitude, deg = 48.0657 Longitude, deg = 38.3472 AOD 532 = 1.29 Extinc.koef.max = 1.298 km^{-1} Extinc.koef.average = 0.62 km^{-1} Extinc.koef.median = 0.64 km^{-1} Layer Height max = 2.373 km Layer Height min = 0.277 km Height of Extinc.koef.max = 0.278 km Effective Height of Layer = 1.106 km	
Figure S73. Date: August 17, 2010 Time(GMT) = 10h 35m 7.4s Latitude, deg = 48.5061 Longitude, deg = 38.1715 AOD 532 = 1.13 Extinc.koef.max = 1.30 km^{-1} Extinc.koef.average = 0.53 km^{-1} Extinc.koef.median = 0.44 km^{-1} Layer Height max = 2.373 km Layer Height min = 0.217 km Height of Extinc.koef.max = 0.277 km Effective Height of Layer = 1.006 km	

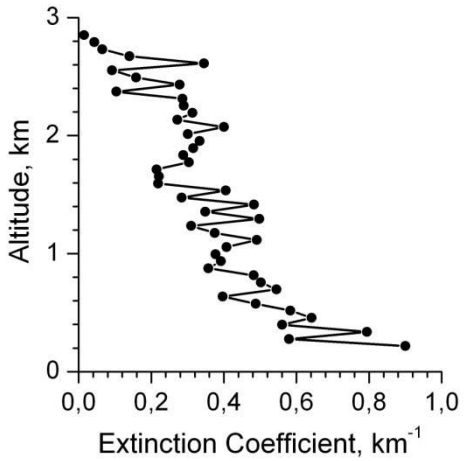
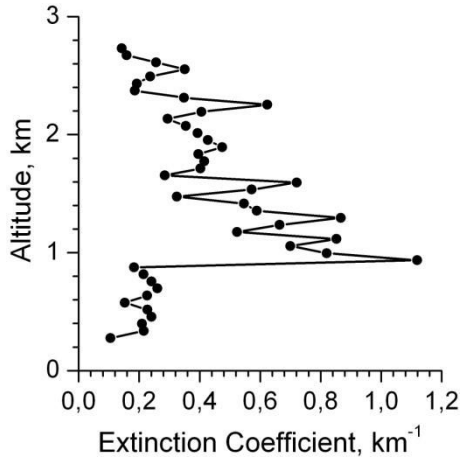
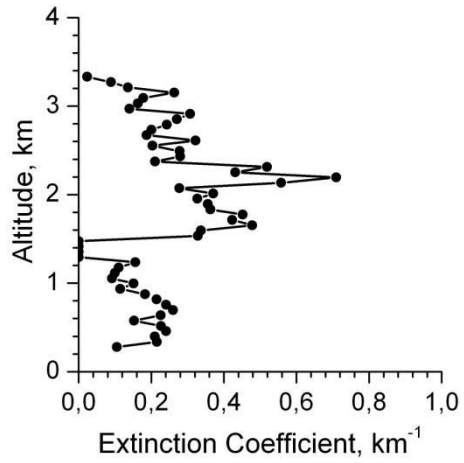
Figure S74. Date: August 17, 2010 Time(GMT) = 10h 35m 31.2s Latitude, deg = 49.9175 Longitude, deg = 37.5923 AOD 532 = 0.92 Extinc.koef.max = 0.90 km^{-1} Extinc.koef.average = 0.35 km^{-1} Extinc.koef.median = 0.34 km^{-1} Layer Height max = 2.852 km Layer Height min = 0.217 km Height of Extinc.koef.max = 0.217 km Effective Height of Layer = 1.239 km	
Figure S75. Date: August 17, 2010 Time(GMT) = 10h 35m 46.3s Latitude, deg = 50.7986 Longitude, deg = 37.2157 AOD 532 = 1.00 Extinc.koef.max = 1.12 km^{-1} Extinc.koef.average = 0.41 km^{-1} Extinc.koef.median = 0.35 km^{-1} Layer Height max = 2.732 km Layer Height min = 0.277 km Height of Extinc.koef.max = 0.936 km Effective Height of Layer = 1.480 km	
Figure S76. Date: August 17, 2010 Time(GMT) = 10h 35m 53.5s Latitude, deg = 51.2378 Longitude, deg = 37.0233 AOD 532 = 0.75 Extinc.koef.max = 0.71 km^{-1} Extinc.koef.average = 0.24 km^{-1} Extinc.koef.median = 0.23 km^{-1} Layer Height max = 3.331 km Layer Height min = 0.277 km Height of Extinc.koef.max = 2.193 km Effective Height of Layer = 1.900 km	

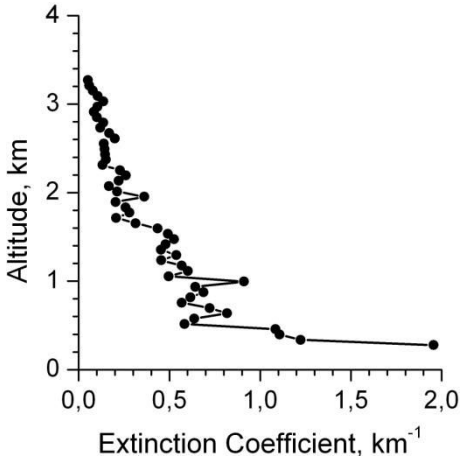
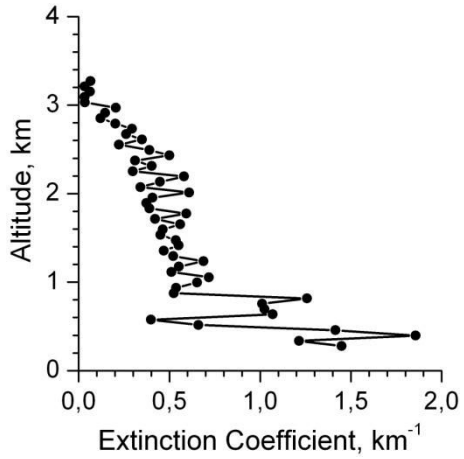
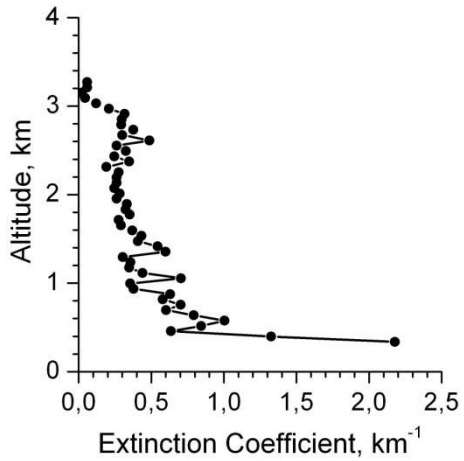
Figure S77. Date: August 17, 2010 Time(GMT) = 10h 35m 58.2s Latitude, deg = 51.5019 Longitude, deg = 36.9061 AOD 532 = 1.21 Extinc.koef.max = 1.95 km^{-1} Extinc.koef.average = 0.41 km^{-1} Extinc.koef.median = 0.28 km^{-1} Layer Height max = 3.271 km Layer Height min = 0.277 km Height of Extinc.koef.max = 0.277 km Effective Height of Layer = 1.170 km	
Figure S78. Date: August 17, 2010 Time(GMT) = 10h 36m 11.5s Latitude, deg = 52.2944 Longitude, deg = 36.5470 AOD 532 = 1.6 Extinc.koef.max = 1.86 km^{-1} Extinc.koef.average = 0.52 km^{-1} Extinc.koef.median = 0.46 km^{-1} Layer Height max = 3.271 km Layer Height min = 0.277 km Height of Extinc.koef.max = 0.397 km Effective Height of Layer = 1.280 km	
Figure S79. Date: August 18, 2010 Time(GMT) = 0h 7m 36.2s Latitude, deg = 52.2810 Longitude, deg = 35.0353 AOD 532 = 1.22 Extinc.koef.max = 2.18 km^{-1} Extinc.koef.average = 0.42 km^{-1} Extinc.koef.median = 0.35 km^{-1} Layer Height max = 3.271 km Layer Height min = 0.337 km Height of Extinc.koef.max = 0.337 km Effective Height of Layer = 1.355 km	

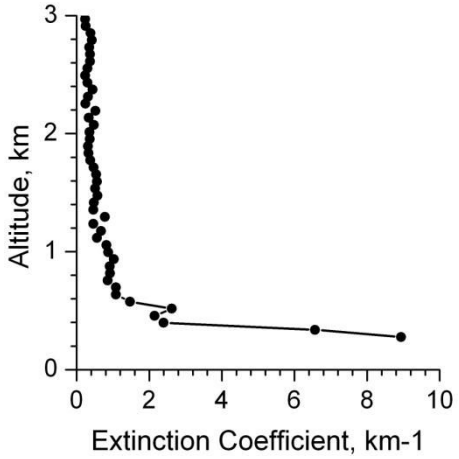
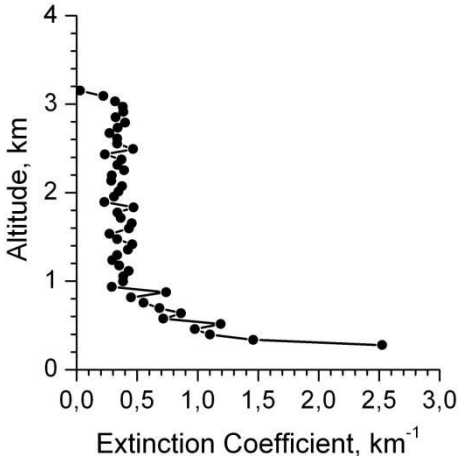
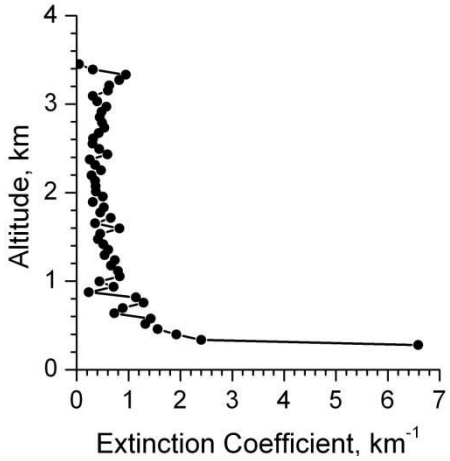
Figure S80. Date: August 18, 2010 Time(GMT) = 0h 7m 40.7s Latitude, deg = 52.0174 Longitude, deg = 34.9148 AOD 532 = 2.47 Extinc.koef.max = 8.94 km^{-1} Extinc.koef.average = 0.88 km^{-1} Extinc.koef.median = 0.47 km^{-1} Layer Height max = 3.091 km Layer Height min = 0.277 km Height of Extinc.koef.max = 0.277 km Effective Height of Layer = 0.986 km	
Figure S81. Date: August 18, 2010 Time(GMT) = 0h 7m 44.4s Latitude, deg = 51.7977 Longitude, deg = 34.8150 AOD 532 = 1.34 Extinc.koef.max = 2.53 km^{-1} Extinc.koef.average = 0.47 km^{-1} Extinc.koef.median = 0.37 km^{-1} Layer Height max = 3.15 km^{-1} Layer Height min = 0.277 km Height of Extinc.koef.max = 0.277 km Effective Height of Layer = 1.374 km	
Figure S82. Date: August 18, 2010 Time(GMT) = 0h 8m 3.0s Latitude, deg = 50.6980 Longitude, deg = 34.3292 AOD 532 = 2.22 Extinc.koef.max = 6.59 km^{-1} Extinc.koef.average = 0.70 km^{-1} Extinc.koef.median = 0.52 km^{-1} Layer Height max = 3.451 km Layer Height min = 0.277 km Height of Extinc.koef.max = 0.277 km Effective Height of Layer = 1.432 km	

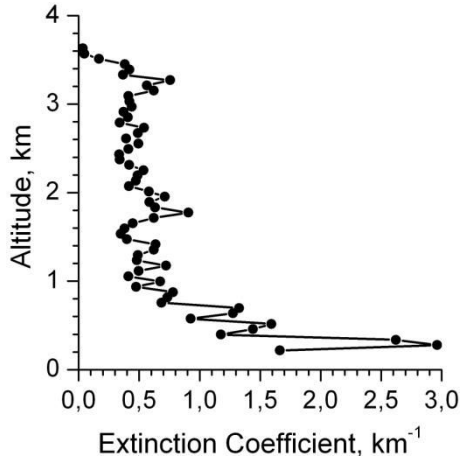
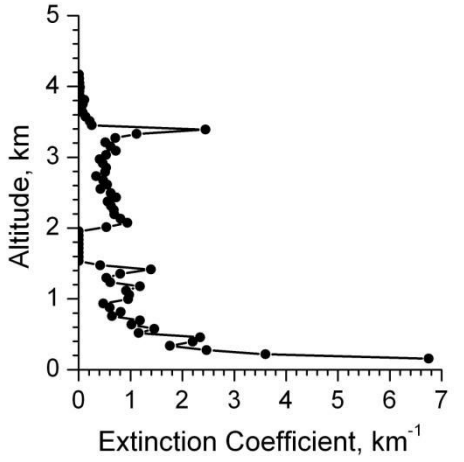
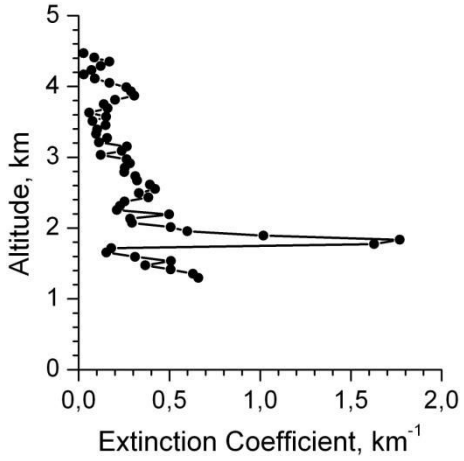
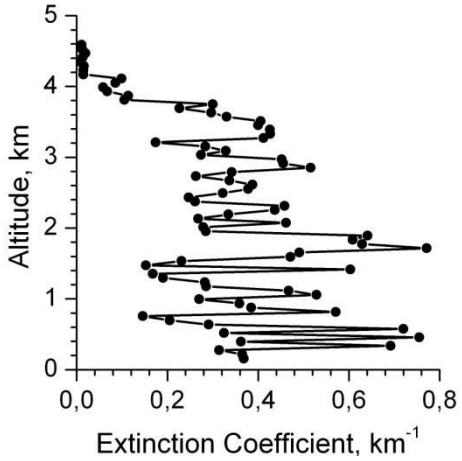
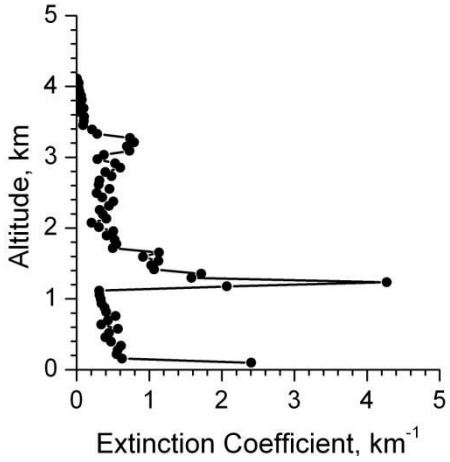
Figure S83. Date: August 18, 2010 Time(GMT) = 0h 8m 13.4s Latitude, deg = 50.0819 Longitude, deg = 34.0654 AOD 532 = 2.28 Extinc.koef.max = 2.96 km^{-1} Extinc.koef.average = 0.67 km^{-1} Extinc.koef.median = 0.49 km^{-1} Layer Height max = 3.630 km Layer Height min = 0.217 km Height of Extinc.koef.max = 0.277 km Effective Height of Layer = 1.432 km	
Figure S84. Date: August 18, 2010 Time(GMT) = 0h 8m 26.1s Latitude, deg = 49.3315 Longitude, deg = 33.7523 AOD 532 = 2.93 Extinc.koef.max = 6.75 km^{-1} Extinc.koef.average = 0.73 km^{-1} Extinc.koef.median = 0.55 km^{-1} Layer Height max = 4.169 km Layer Height min = 0.158 km Height of Extinc.koef.max = 0.158 km Effective Height of Layer = 1.439 km	
Figure S85. Date: August 18, 2010 Time(GMT) = 0h 8m 47.6s Latitude, deg = 48.0531 Longitude, deg = 33.2365 AOD 532 = 1.01 Extinc.koef.max = 1.77 km^{-1} Extinc.koef.average = 0.32 km^{-1} Extinc.koef.median = 0.25 km^{-1} Layer Height max = 4.469 km Layer Height min = 1.295 km Height of Extinc.koef.max = 1.834 km Effective Height of Layer = 2.369 km	

Figure S86. Date: August 18, 2010 Time(GMT) = 0h 8m 55.1s Latitude, deg = 47.6110 Longitude, deg = 33.0633 AOD 532 = 1.46 Extinc.koef.max = 0.77 km^{-1} Extinc.koef.average = 0.33 km^{-1} Extinc.koef.median = 0.32 km^{-1} Layer Height max = 4.588 km Layer Height min = 0.158 km Height of Extinc.koef.max = 1.714 km Effective Height of Layer = 1.918 km	
Figure S87. Date: August 18, 2010 Time(GMT) = 0h 9m 9.9s Latitude, deg = 46.7278 Longitude, deg = 32.7242 AOD 532 = 2.24 Extinc.koef.max = 4.27 km^{-1} Extinc.koef.average = 0.56 km^{-1} Extinc.koef.median = 0.41 km^{-1} Layer Height max = 4.109 km Layer Height min = 0.098 km Height of Extinc.koef.max = 1.235 km Effective Height of Layer = 1.635 km	
Figure S88. Date: August 18, 2010 Time(GMT) = 0h 9m 15.9s Latitude, deg = 46.3741 Longitude, deg = 32.5909 AOD 532 = 1.17 Extinc.koef.max = 1.14 km^{-1} Extinc.koef.average = 0.53 km^{-1} Extinc.koef.median = 0.52 km^{-1} Layer Height max = 3.630 km Layer Height min = 1.415 km Height of Extinc.koef.max = 1.654 km Effective Height of Layer = 2.305 km