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APPENDIX

APPENDIX A

Annual tendency of PM10 and total suspended particulates (TSP)
in Bangkok from 1994 - 2004

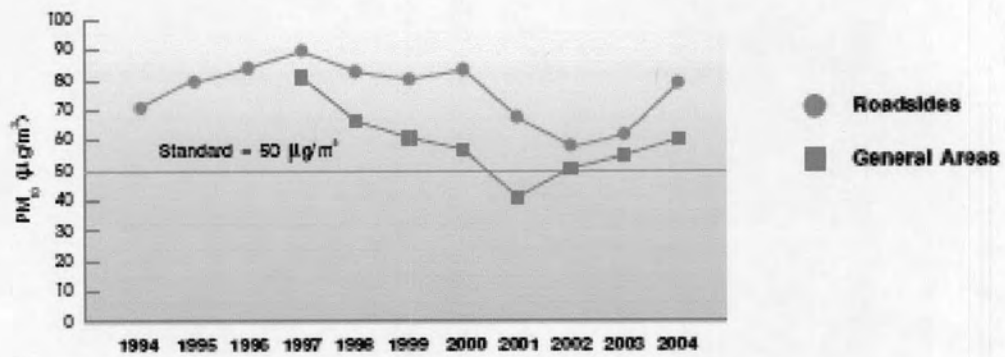


Figure A-1 Annual tendency of PM₁₀ in Bangkok from 1994-2004 (From Thailand state of pollution report 2004, Pollution Control Department, 2005)

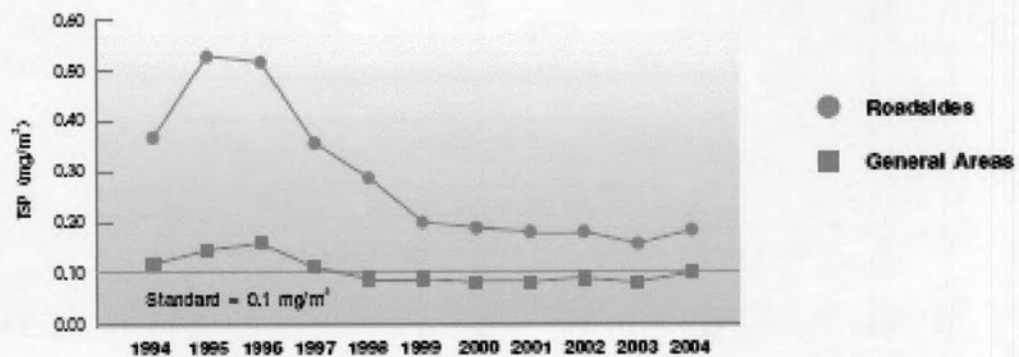


Figure A-2 Annual overall tendency of TSP in Bangkok from 1994-2004 (From Thailand state of pollution report 2004, Pollution Control Department, 2005)

APPENDIX B

Table shows refractive indices of various materials

Table B-1 Refractive indices of various materials.

Material	Density, g/cm ³	m	Wavelength
Vacuum	-	1.00	Visible light
Air	0.0012	1.0002981	Visible light
Alumina	3.9	1.67	Visible light
Ice	1.00	1.31	Visible light
Water	1.00	1.333	Visible light
H ₂ SO ₄	1.841	1.430	550 nm
Diamond	3.51	2.417	Visible light
Glass	2.45	1.52 - 2.00	Visible light
NaCl	1.33	1.5443	Visible light
(NH ₄) ₂ SO ₄	1.769	1.528	550 nm
NH ₄ HSO ₄	1.780	1.482	589 nm
NH ₄ NO ₃	1.725	1.559	550 nm
CaCO ₃	2.930	1.586	550 nm
SiO ₂	2.17-2.66	1.478	550 nm
Atmospheric aerosol		1.5 - 0.02i	Visible light
Urban aerosol	1.60	1.5 - 0.1i	Visible light
Soot aerosol	1.00	1.56 - 0.47i	Visible light

Data source: Parker C Reist; Aerosol science and technology, 1993.

APPENDIX C

Absorption spectra for various molecules

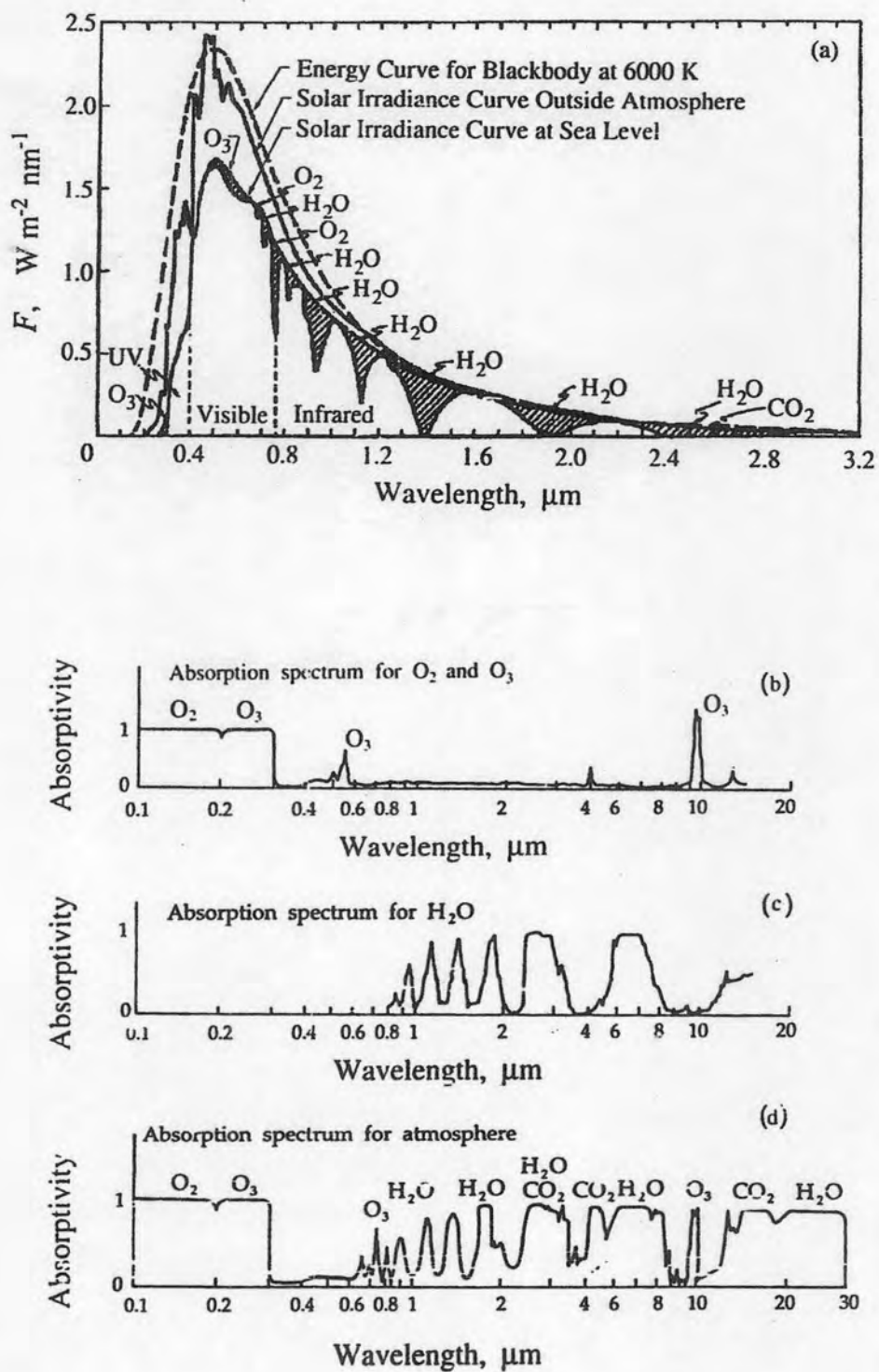


Figure C-1 (a) Solar spectral irradiance at the top of the atmosphere and at sea level. Shaded regions indicate the molecules responsible for absorption. Absorption spectra for (b) molecular oxygen and ozone, (c) water vapor and (d) the atmosphere, expressed on a scale of 0 to 1. (From Atmospheric chemistry and physics, Seinfeld and Pandis, 1997)

APPENDIX D

Seasonal average aerosol volume size distributions
at the other AERONET sites

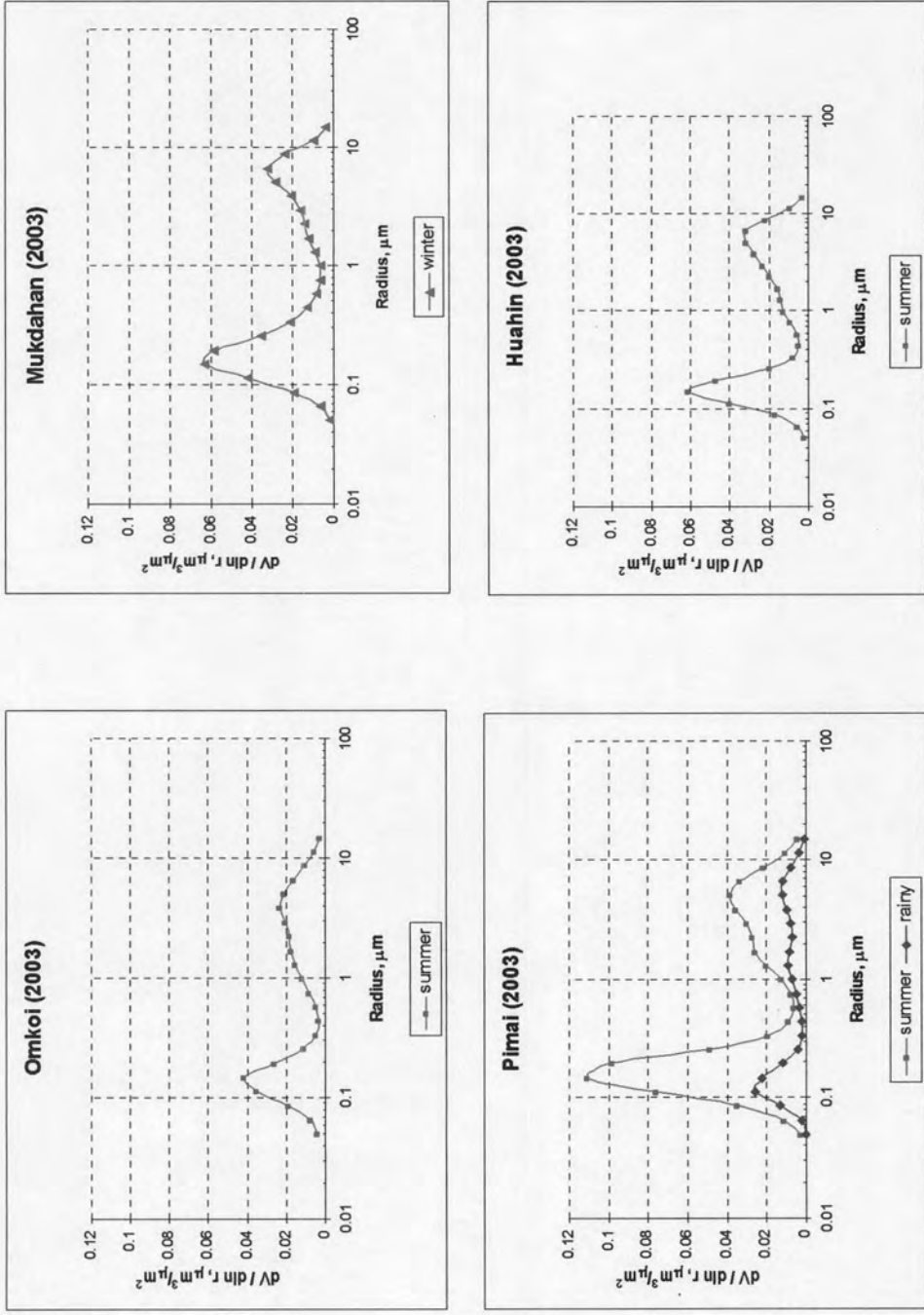


Figure D-1 Seasonal average aerosol volume size distributions at the other AERONET sites.

APPENDIX E

Table shows the forest fire area at Mukdahan in winter 2003 and summer 2004

Table E-1 Forest fire areas at Mukdahan in winter 2003 and summer 2004.

Amphor	Area (rai)	
	Winter 2003	Summer 2004
Dong Luang	305	1013
Mueang	137	715
Khamcha-i	27	645
Nong Sung		35
Nikhom Kham Soi	37	162
Don Tan	5	143

Data source: Department of National Park, Wildlife and Flora.

APPENDIX F

Back trajectory of Chulalongkorn sites

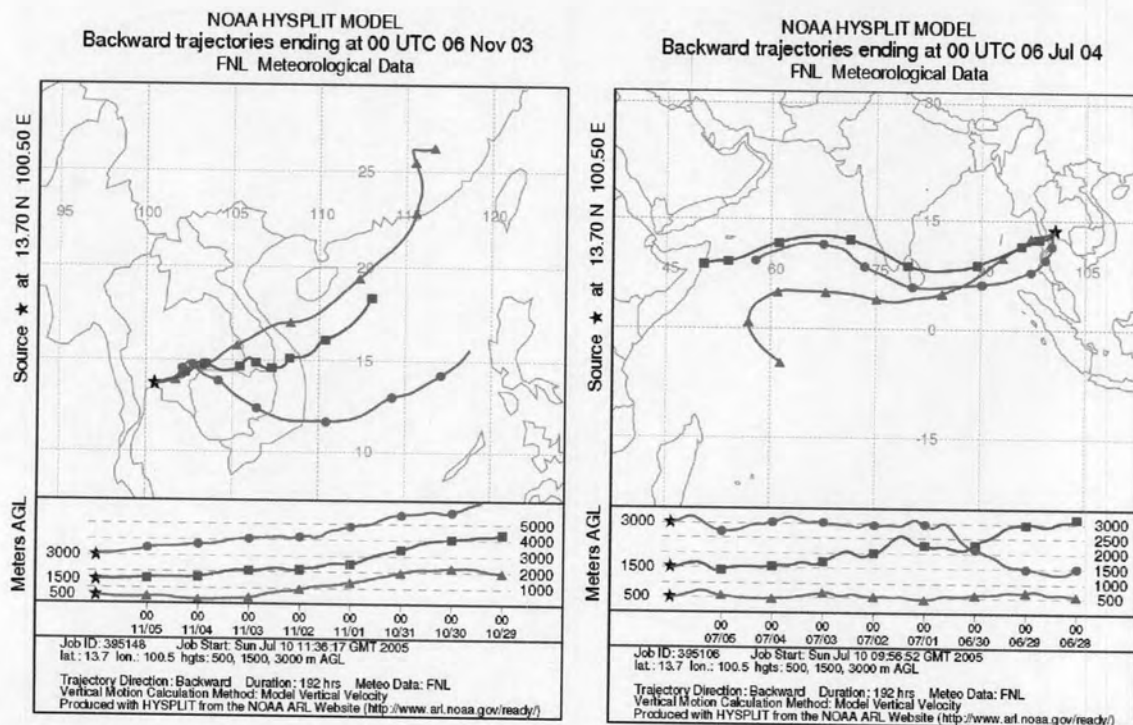


Figure F-1 Back trajectory of Chulalongkorn sites on 6 November 2003 and 6 July 2004.

(From <http://www.arl.noaa.gov/ready.html>)

APPENDIX G

Weather map

Weather Map

The weather map provides a generalized view of weather condition over a large area at a given time. The map shows mean sea-level pressure (isobars), surface fronts and weather information

Weather phenomena shown on the map are as follows;

- | | |
|-------------------------|----------------------------------|
| - temperature | - type and height of cloud base |
| - dew point | - present weather |
| - wind direction | - past weather (last 6 hours) |
| - wind speed | - pressure tendency |
| - pressure | - pressure change (last 3 hours) |
| - pressure cloud amount | - visibility |

These data are presented in coded or symbolic form from each weather station. The station model is shown on figure G-1. The basic weather symbols are shown on G-2.

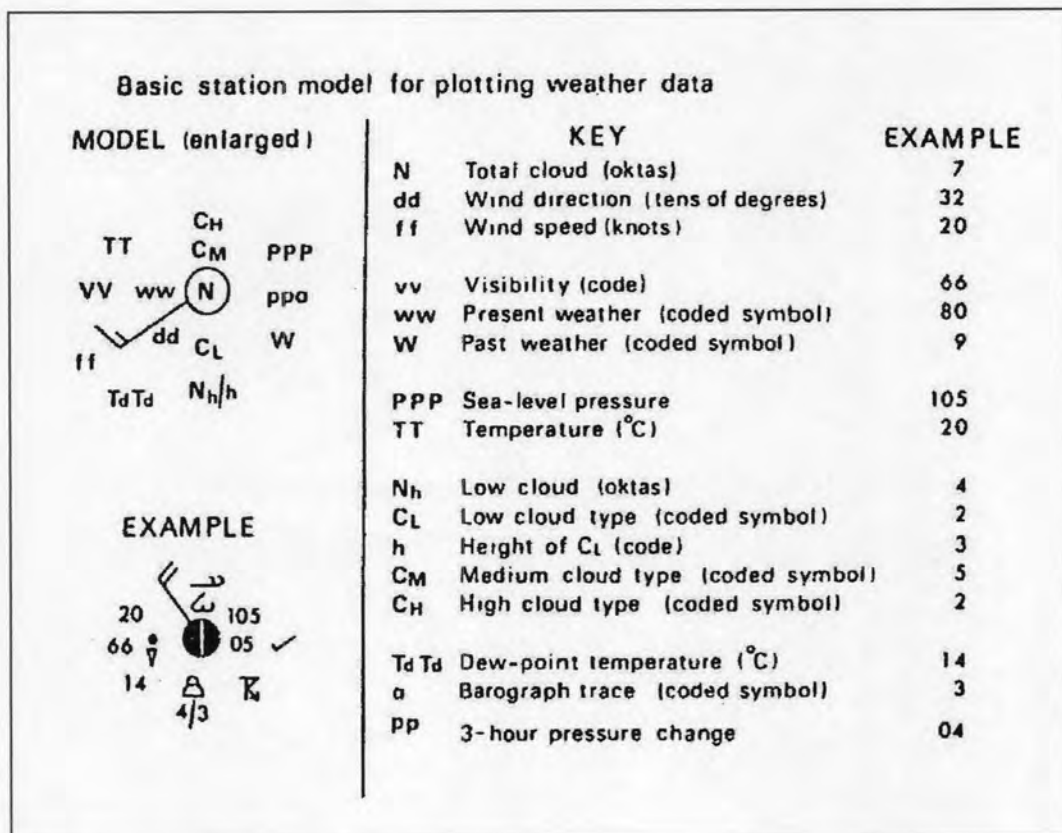


Figure G-1 Basic station model for plotting weather data (From atmosphere, weather and climate, Barry and Chorley, 1982)

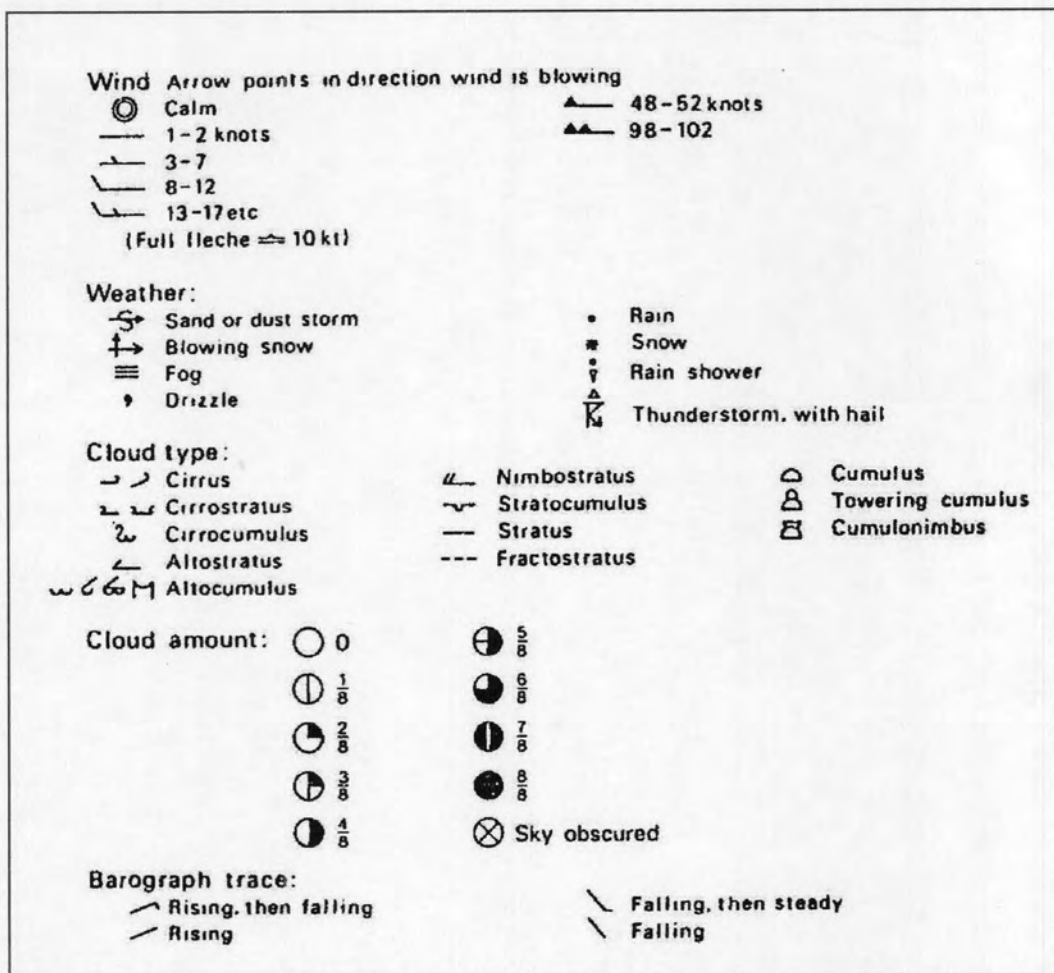


Figure G-2 Representative basic station symbols (From atmosphere, weather and climate, Barry and Chorley, 1982)

APPENDIX H

Analysis of AOT and meteorological data at the AERONET sites

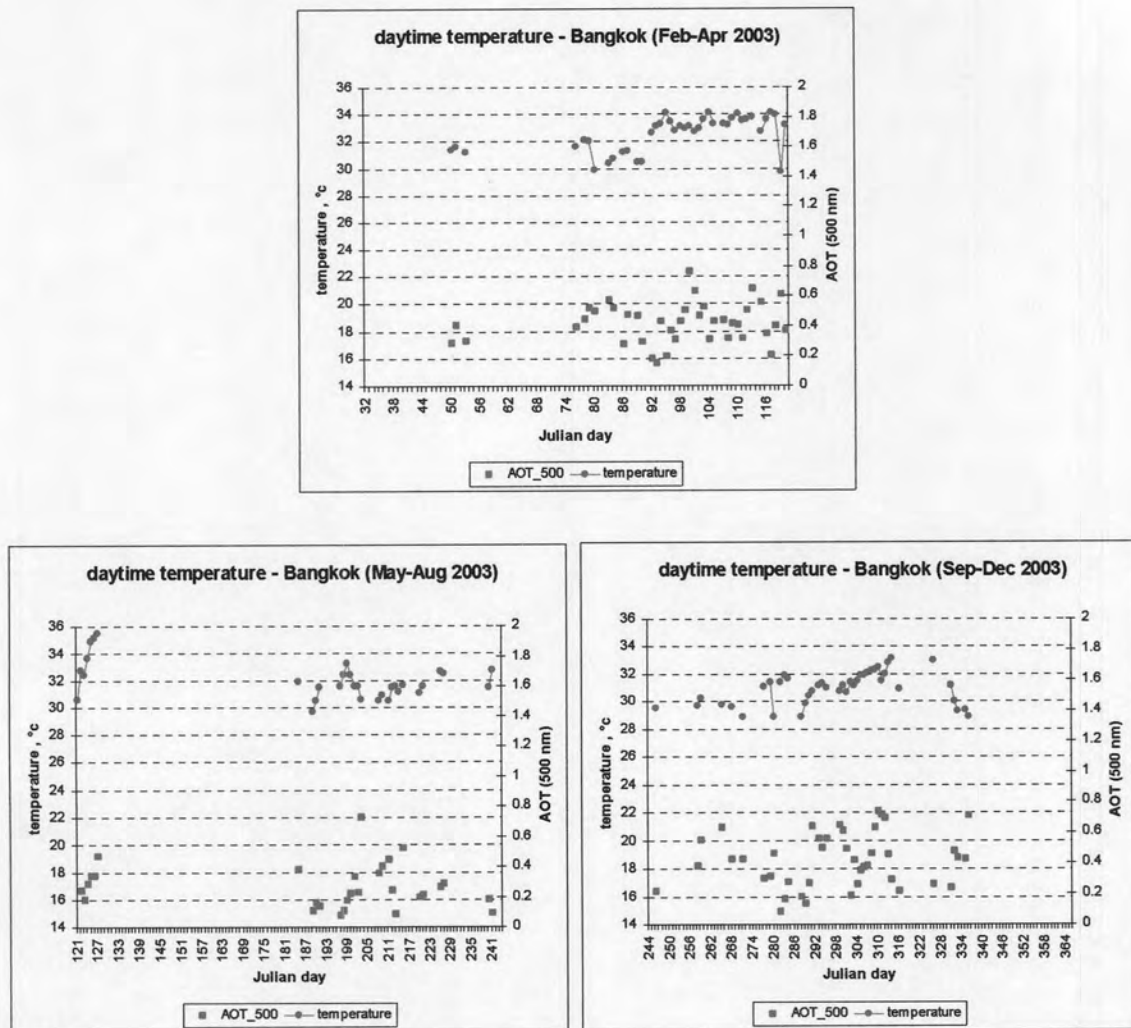


Figure H-1 Daily average values of AOT and daytime air temperature at Bangkok in 2003.

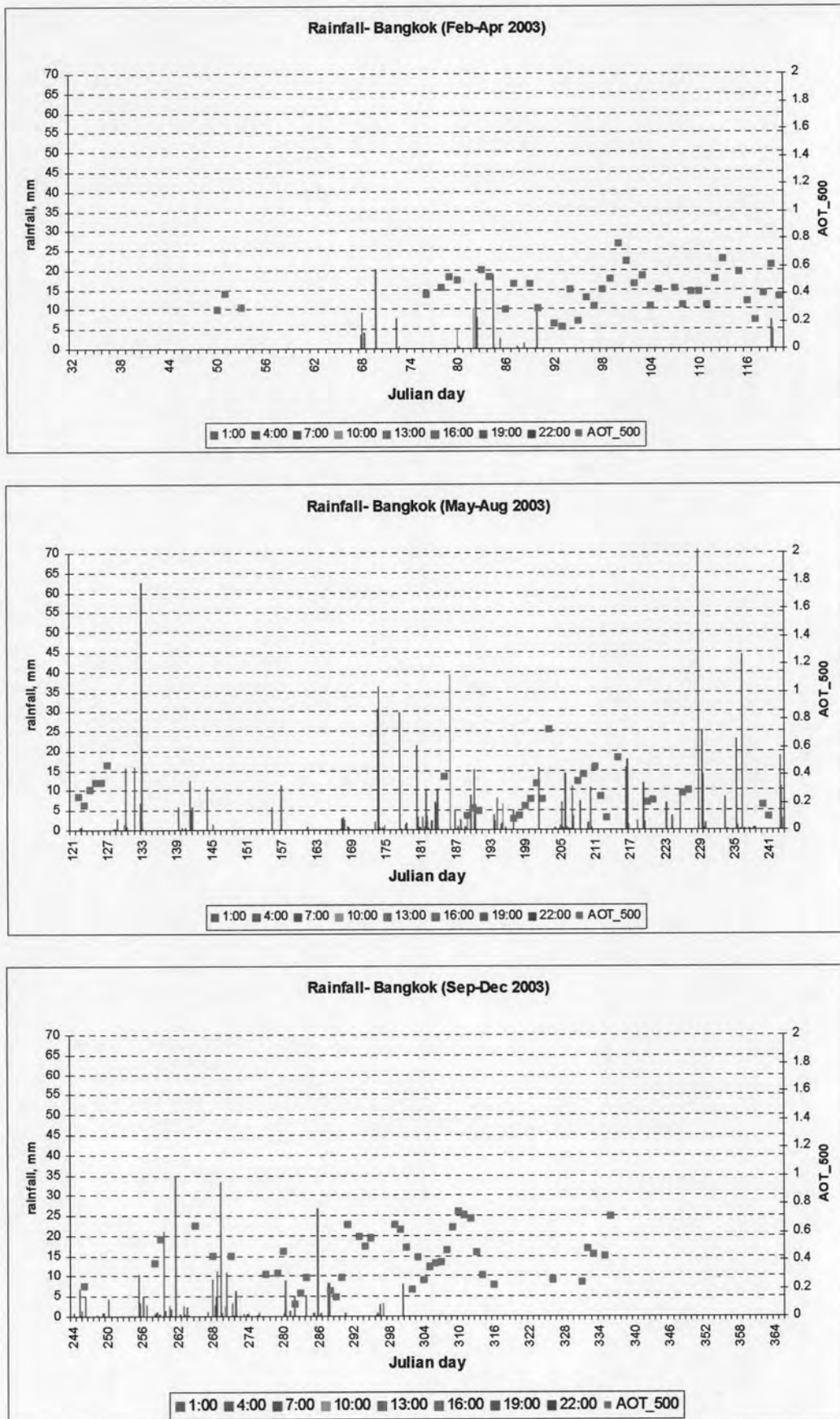


Figure H-2 Daily average values of AOT and 3 hours accumulated rainfall at Bangkok in 2003.

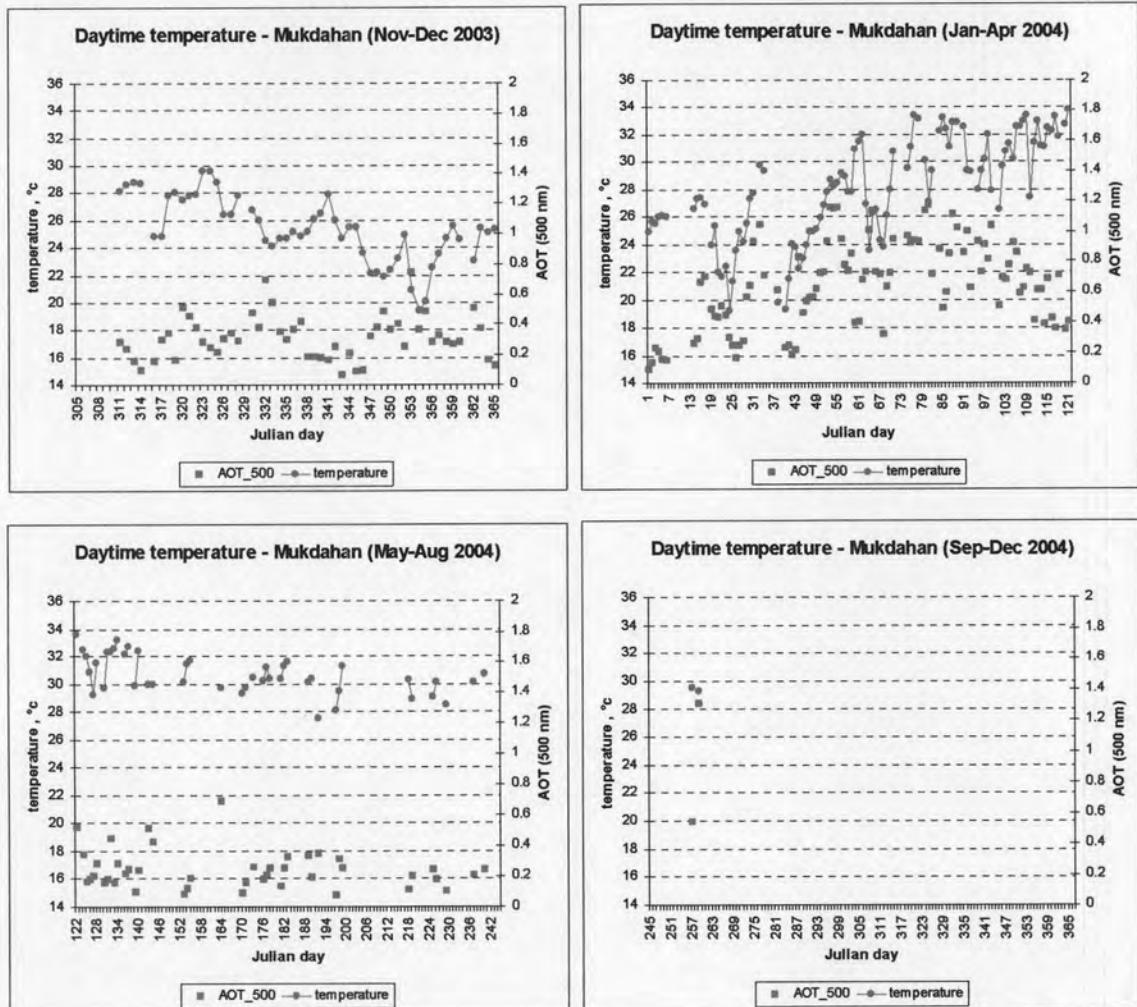


Figure H-3 Daily average values of AOT and daytime air temperature at Mukdahan site.

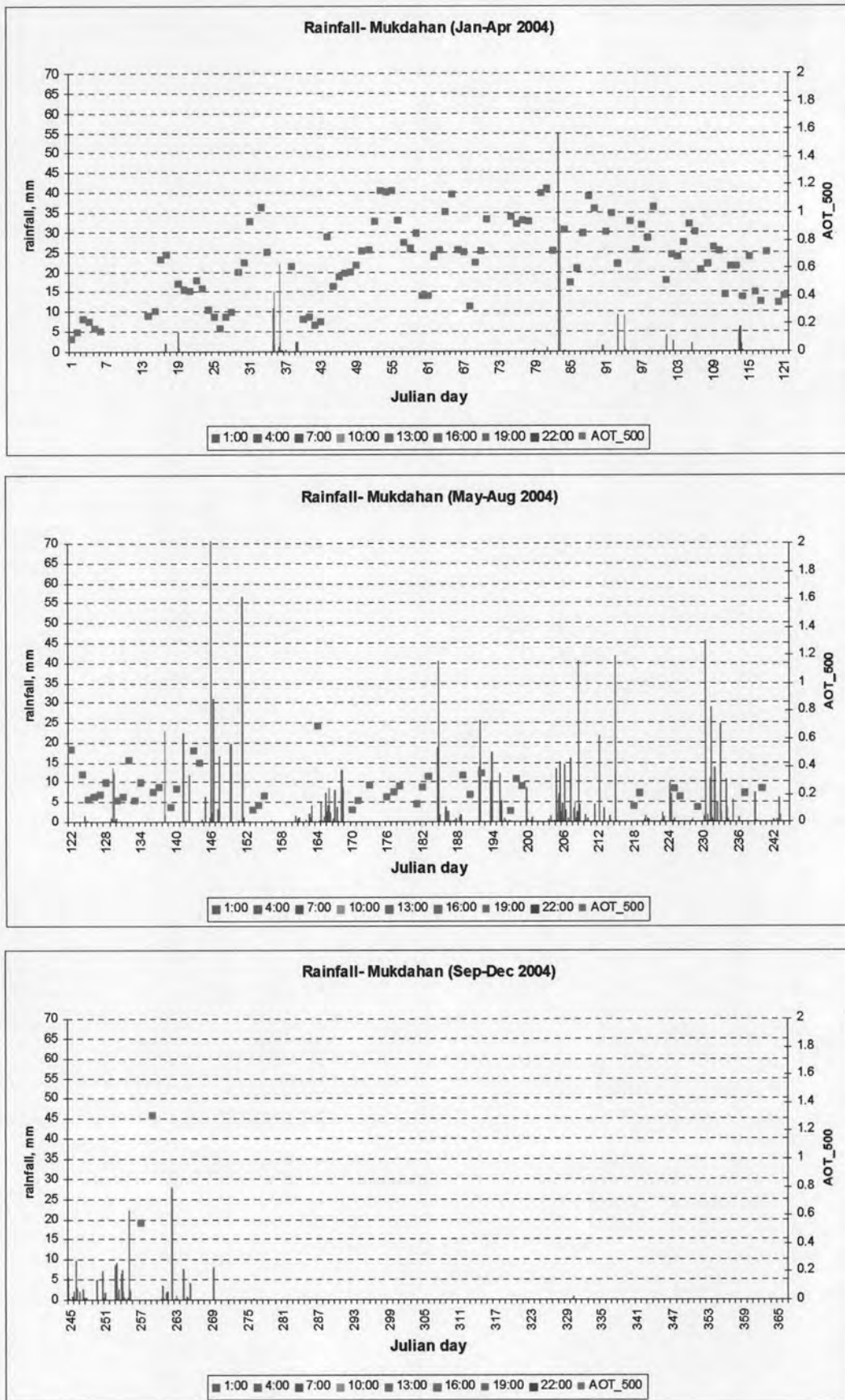


Figure H-4 Daily average values of AOT and 3 hours accumulated rainfall at Mukdahan site in 2004.

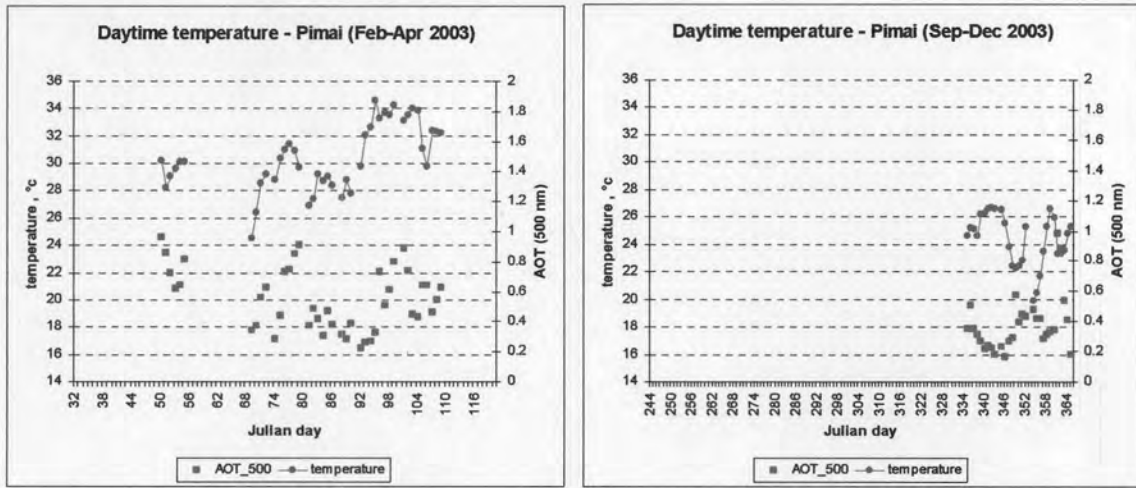


Figure H-5 Daily average values of AOT and daytime air temperature at Pimai site in 2003.

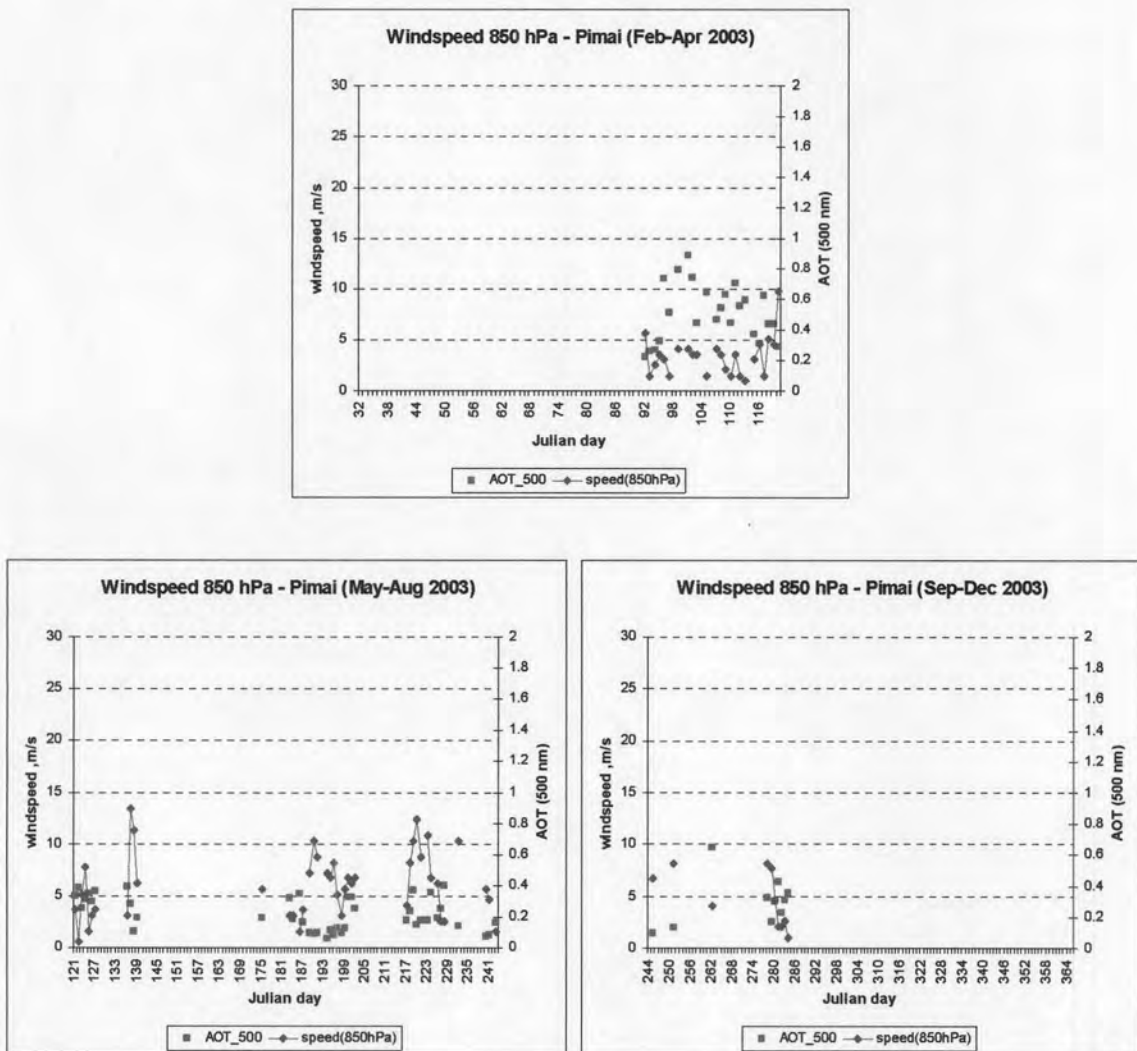


Figure H-6 Daily average values of AOT and wind speed at 850 hPa at Pimai site in 2003.

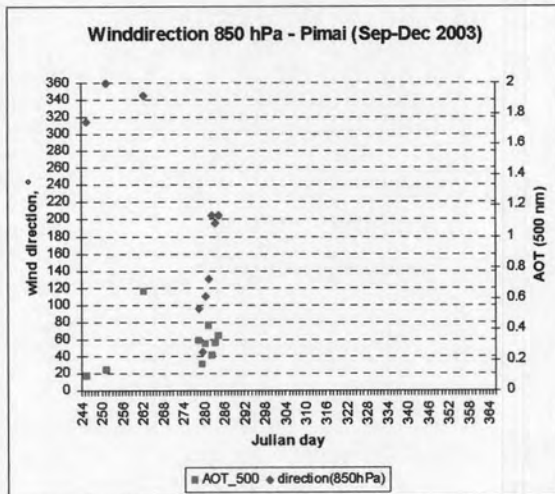
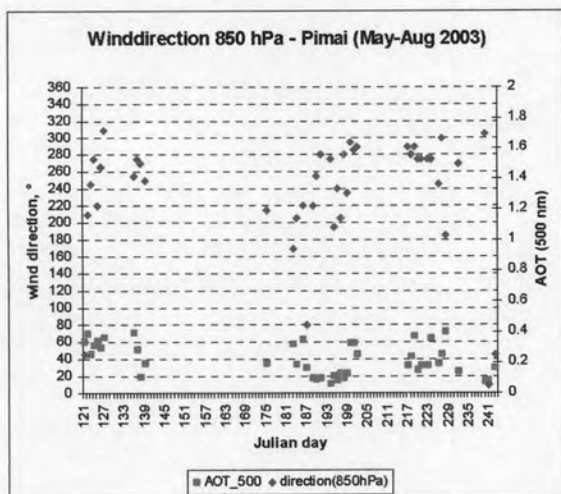
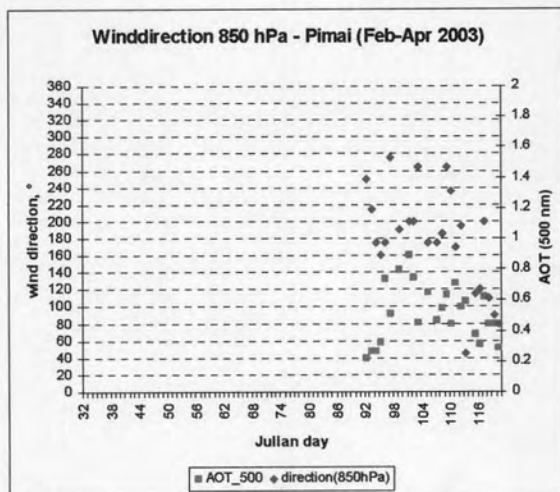


Figure H-7 Daily average values of AOT and wind direction at 850 hPa at Pimai site in 2003.

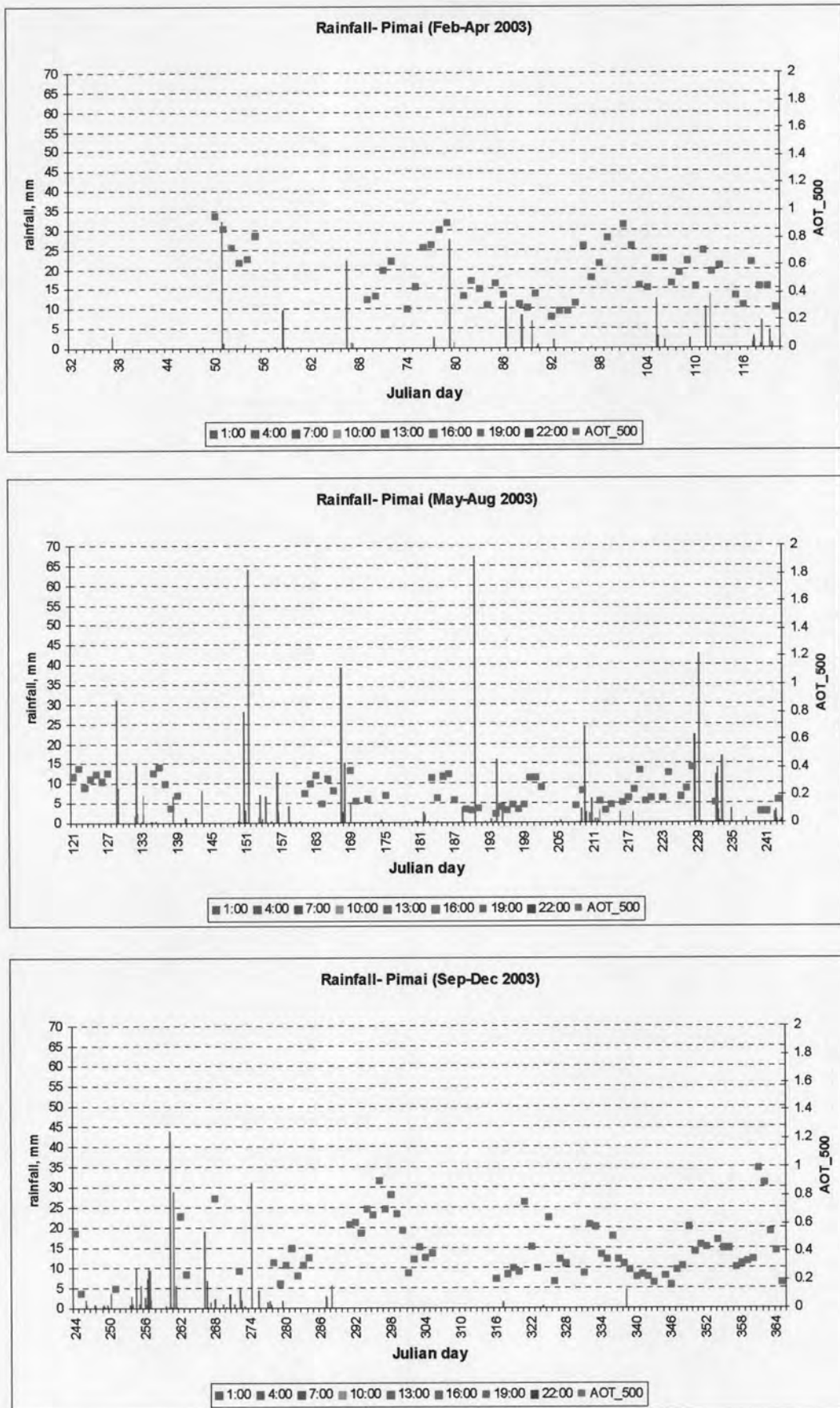


Figure H-8 Daily average values of AOT and 3 hours accumulated rainfall at Pimai site in 2003.

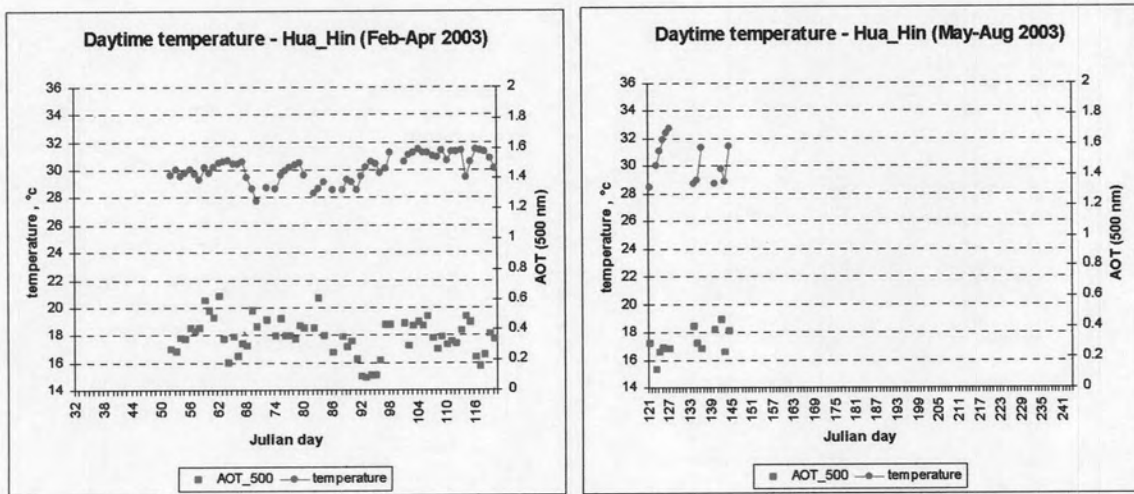


Figure H-9 Daily average values of AOT and daytime air temperature at Hua_Hin site.

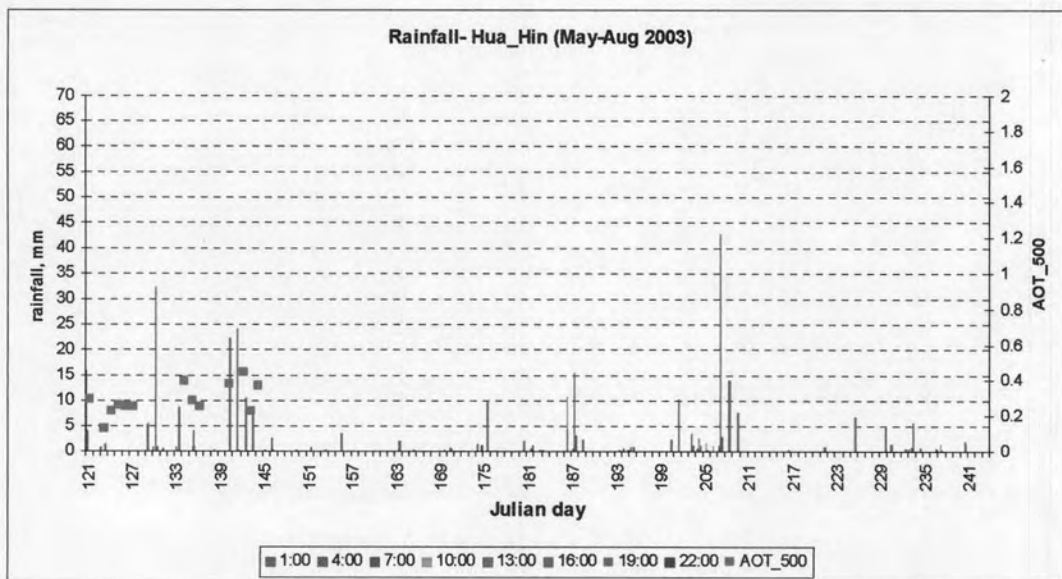
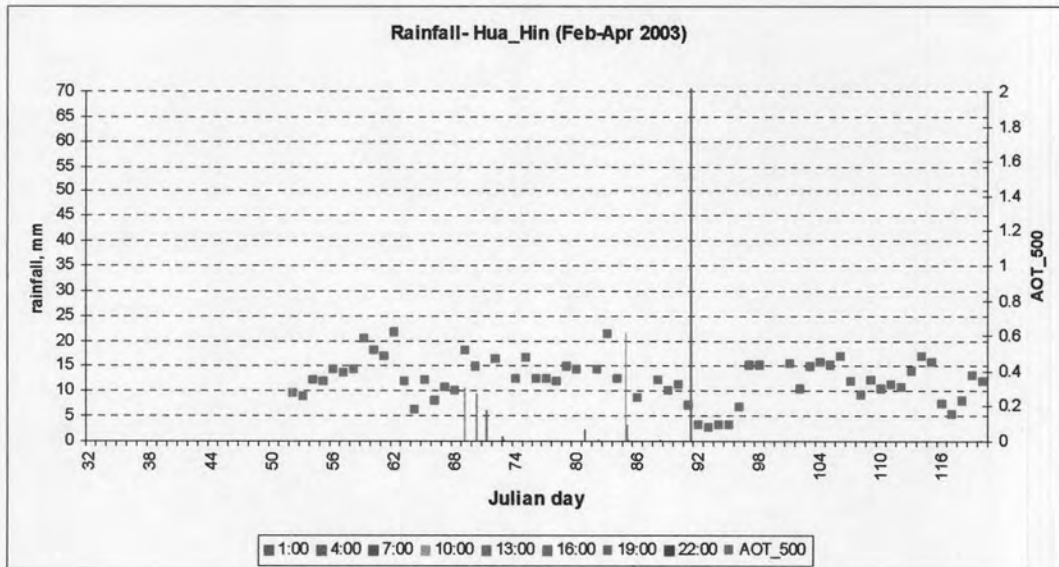


Figure H-10 Daily average values of AOT and 3 hours accumulated rainfall at Hua_Hin site.

APPENDIX I

Table shows Time for particles to fall 1 Km. by sedimentation

Table I-1 Time for particles to fall 1 Km. by sedimentation.

Diameter (μm)	Time to fall 1 km
0.02	228 yr
0.1	36 yr
0.5	3.2 yr
1	328 days
5	14.5 days
10	3.6 days
20	23 h
100	1.1 h
1000	4 min

Data source: Mark Z Jacobson; Fundamentals of Atmospheric Modeling, 1998.

APPENDIX J

Daily average values of AOT and PM10 at Bangkok in 2003

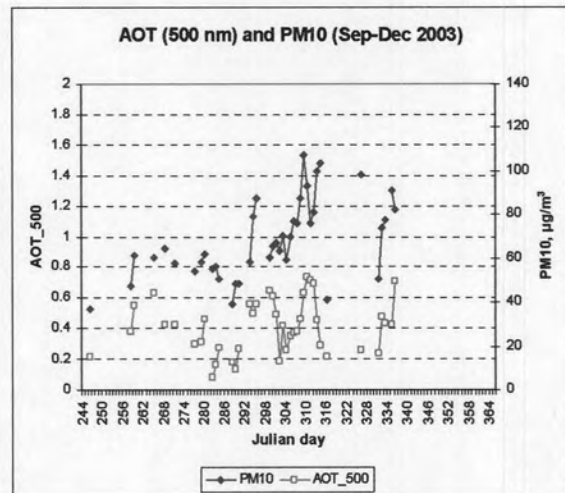
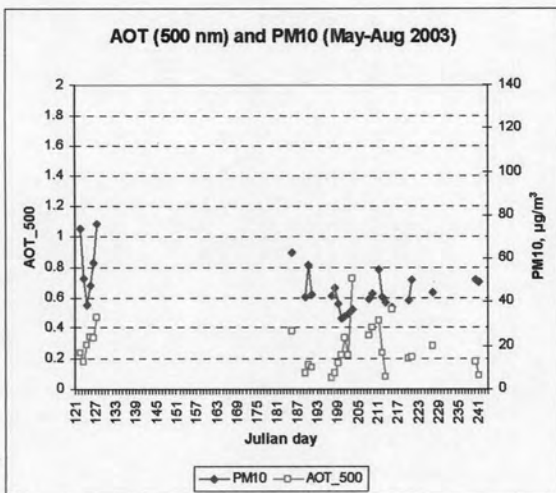
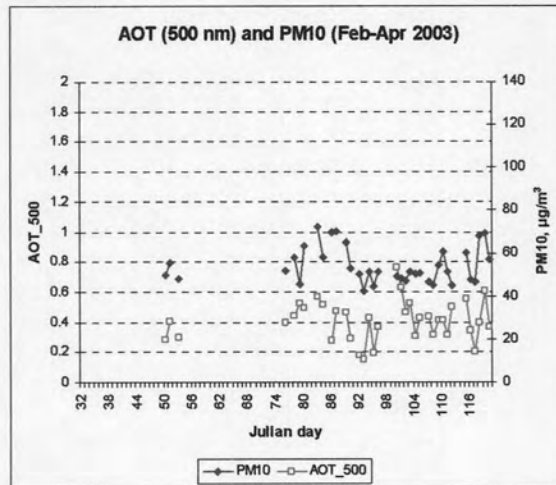


Figure J-1 Daily average values of AOT and PM10 at Bangkok in 2003.

APPENDIX K

Table shows seasonal index of PM10 time series

Table K -1 Sasonal index of PM10 time series

Day of week	Seasonal index of PM10 ($\mu\text{g}/\text{m}^3$)
Sunday	90.0
Monday	99.3
Tuesday	103.7
Wednesday	102.6
Thursday	103.9
Friday	101.2
Saturday	99.2

VITAE

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