

# **Aerosols over the foothills of the eastern Himalayan region during post-monsoon and winter seasons**

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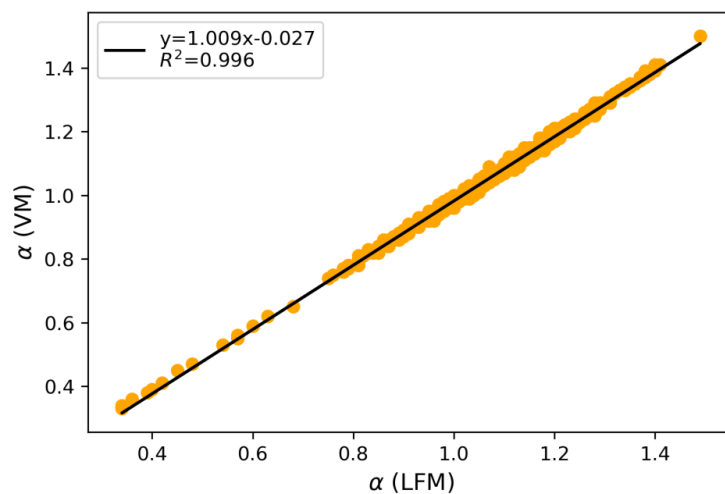
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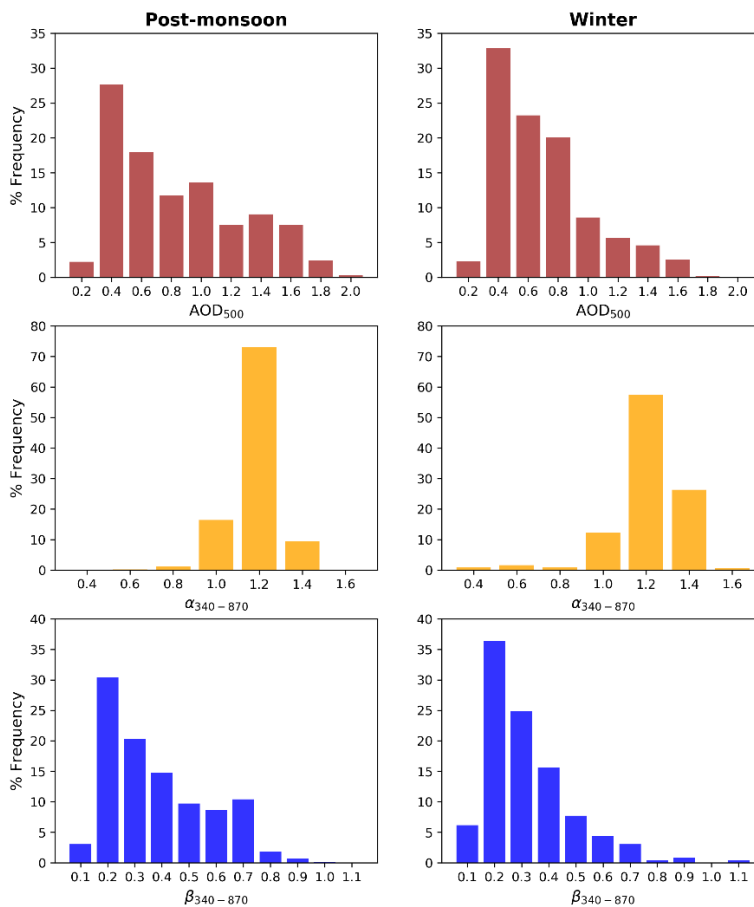
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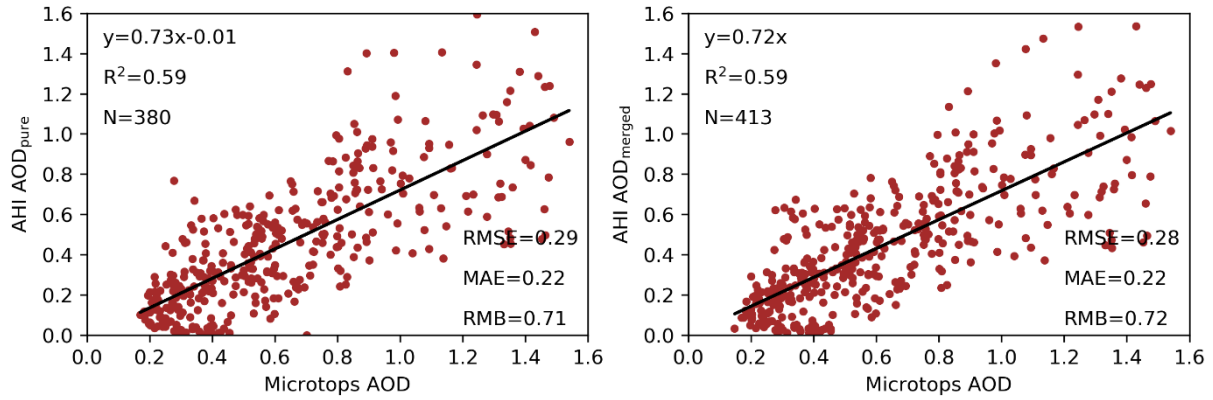
(B. Adhikary)



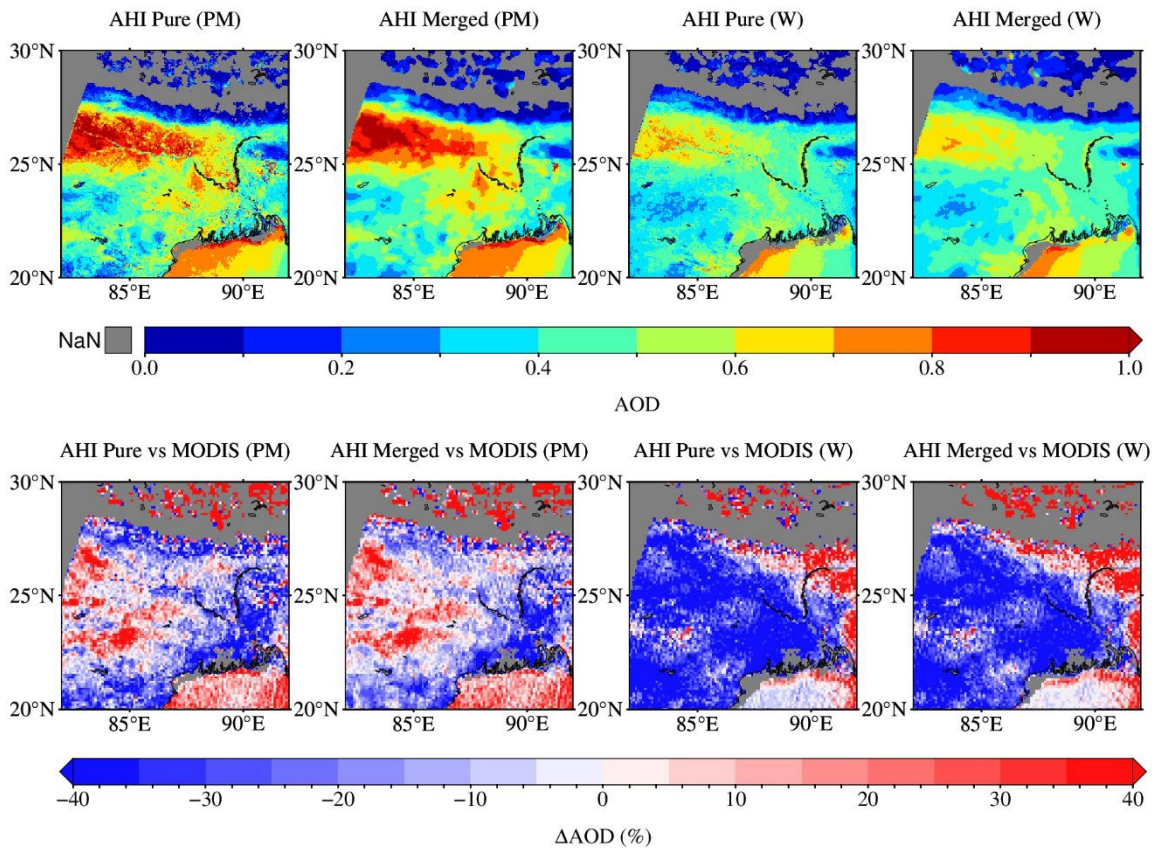
**Fig. S1.** Correlation between  $\alpha$  values derived from Volz method (VM) and linear fit method (LFM)



**Fig. S2.** Frequency distribution of AOD,  $\alpha$ , and  $\beta$  over Birtamode



**Fig. S3.** Evaluation of AHI L3 AOD<sub>pure</sub> and AOD<sub>merged</sub> with ground observation obtained from Microtops at the temporal window of  $\pm 30$  minutes



**Fig. S4.** Spatial distribution of AHI L3 AOD during post-monsoon (PM) and winter (W) seasons

Table S1 Comparison of AOD and AE over different sites in the IGP

| SN | Location         | Instrument                        | Study Period     | Post-monsoon                                    |   | Winter             |             | References                  |
|----|------------------|-----------------------------------|------------------|---|---|--------------------|-------------|-----------------------------|
|    |                  |                                   |                  | AOD <sub>500</sub>                              | $\alpha$  | AOD <sub>500</sub> | $\alpha$    |                             |
| 1  | <b>Birtamode</b> | <b>Microtops II sunphotometer</b> | <b>2018-2019</b> | <b>0.74</b>                                     | <b>1.08</b>                                     | <b>0.6</b>         | <b>1.11</b> | <b><i>This work</i></b>     |
| 2  | Lumbini          | CIMEL sky radiometer              | 2013-2014        | 0.72  | 1.39  | 0.58               | 1.34        | Rupakheti et al. (2018)     |
| 3  | Varanasi         | Microtops II sunphotometer        | 2011-2014        | 0.95  | 1.16  | 0.87               | 1.09        | Tiwari et al. (2018)        |
| 4  | Bhubaneswar      | Microtops II sunphotometer        | 2015-2016        | 0.77  | 1.12  | 0.77               | 1.09        | Mukherjee and Vinoj (2020)  |
| 5  | Bay of Bengal    | MODIS                             | 2006-2012        | 0.27  |   | 0.26               |             | Shani Tiwari et al. (2016)  |
| 6  | Delhi            | Prede sun/sky radiometer          | 2011-2013        | 1   | 1.03  | 0.95               | 1.02        | Suresh Tiwari et al. (2016) |
| 7  | Greater Noida    | Microtops II sunphotometer        | 2010-2012        | 0.98  | 1.19  | 0.87               | 1.13        | Sharma et al. (2014)        |
| 8  | Karachi          | CIMEL sky radiometer              | 2010-2011        |   |   | 0.33-0.34          | 0.76-0.96   | Alam et al. (2012)          |
| 9  | Lahore           | CIMEL sky radiometer              | 2010-2011        |   |   | 0.62-0.76          | 1.09-1.22   | Alam et al. (2012)          |
| 10 | Kanpur           | CIMEL sky radiometer              | 2006-2010        | 0.76  | 1.27  | 0.63               | 1.24        | Tiwari et al. (2018)        |
| 11 | Kharagpur        | Microtops II sunphotometer        | 2009-2010        |   |   | 0.82               | 1.33        | Kaskaoutis et al. (2012)    |
| 12 | Dibrugarh        | Multi Wavelength Radiometer (MWR) | 2001-2007        | 0.19  | 1.12  | 0.31               | 1.14        | Pani and Verma (2014)       |
| 13 | Pokhara          | CIMEL sky radiometer              | 2010-2018        | 0.39  | 1.12  | 0.43               | 1.14        | Regmi et al. (2020)         |
| 14 | Pune             | Microtops II sunphotometer        | 2008-2015        | 0.534 (6 year mean for post-monsoon and winter) | 1.054 (6 year mean for post-monsoon and winter) |                    |             | Kolhe et al. (2016)         |

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