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Supplement of

Impact of light-absorbing particles on snow albedo darkening and associated radiative forcing over high-mountain Asia: high-resolution WRF-Chem modeling and new satellite observations

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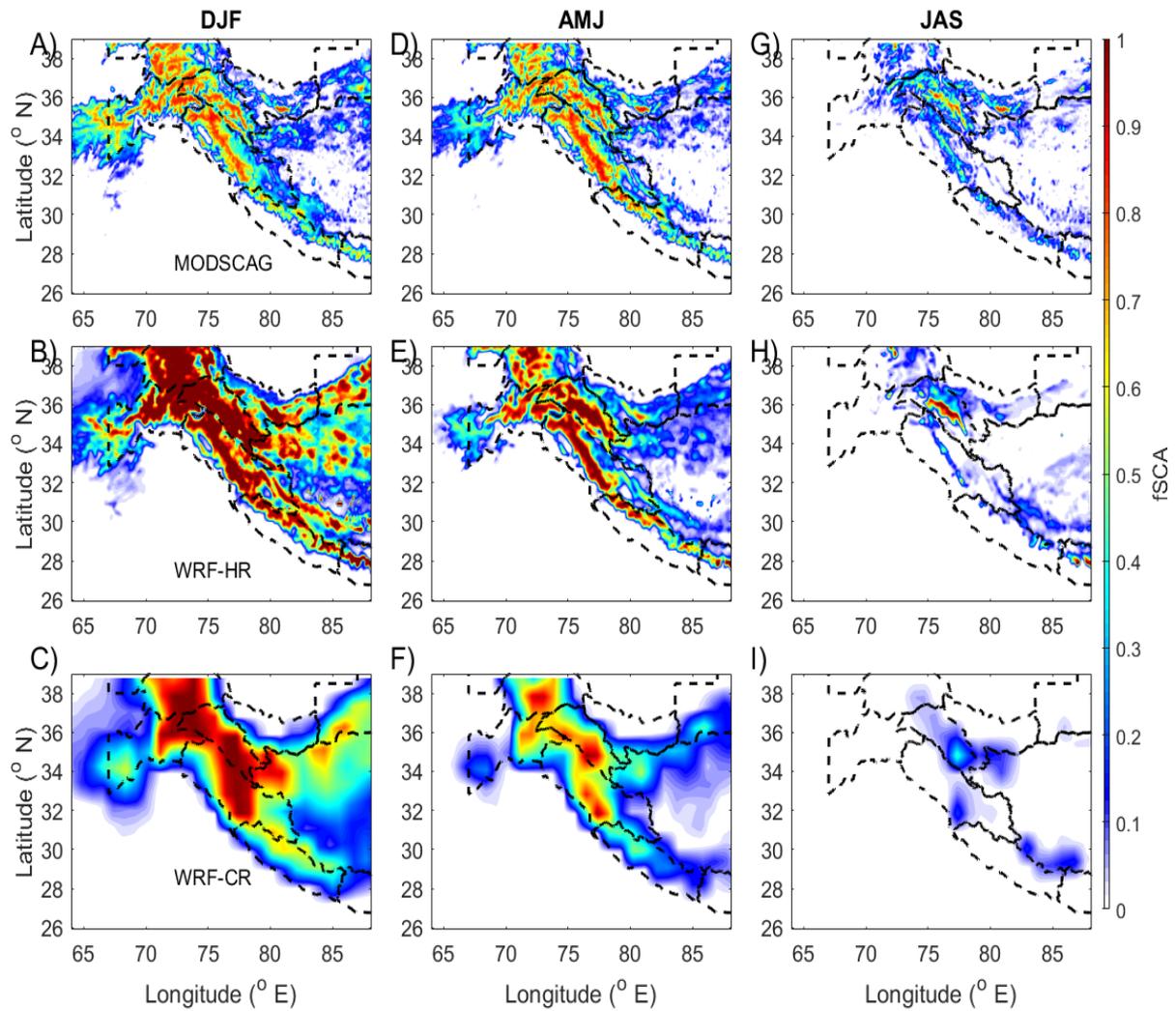


Figure S1: Panels A-C illustrate spatial distribution of seasonal mean snow fraction from A) MODSCAG retrievals, B) WRF-HR simulations and C) WRF-CR simulations during winter. Panels D-F are same as Panels A-C, but, for premonsoon months. Similarly, Panels G-I are same as Panels A-C, but, for monsoon months.

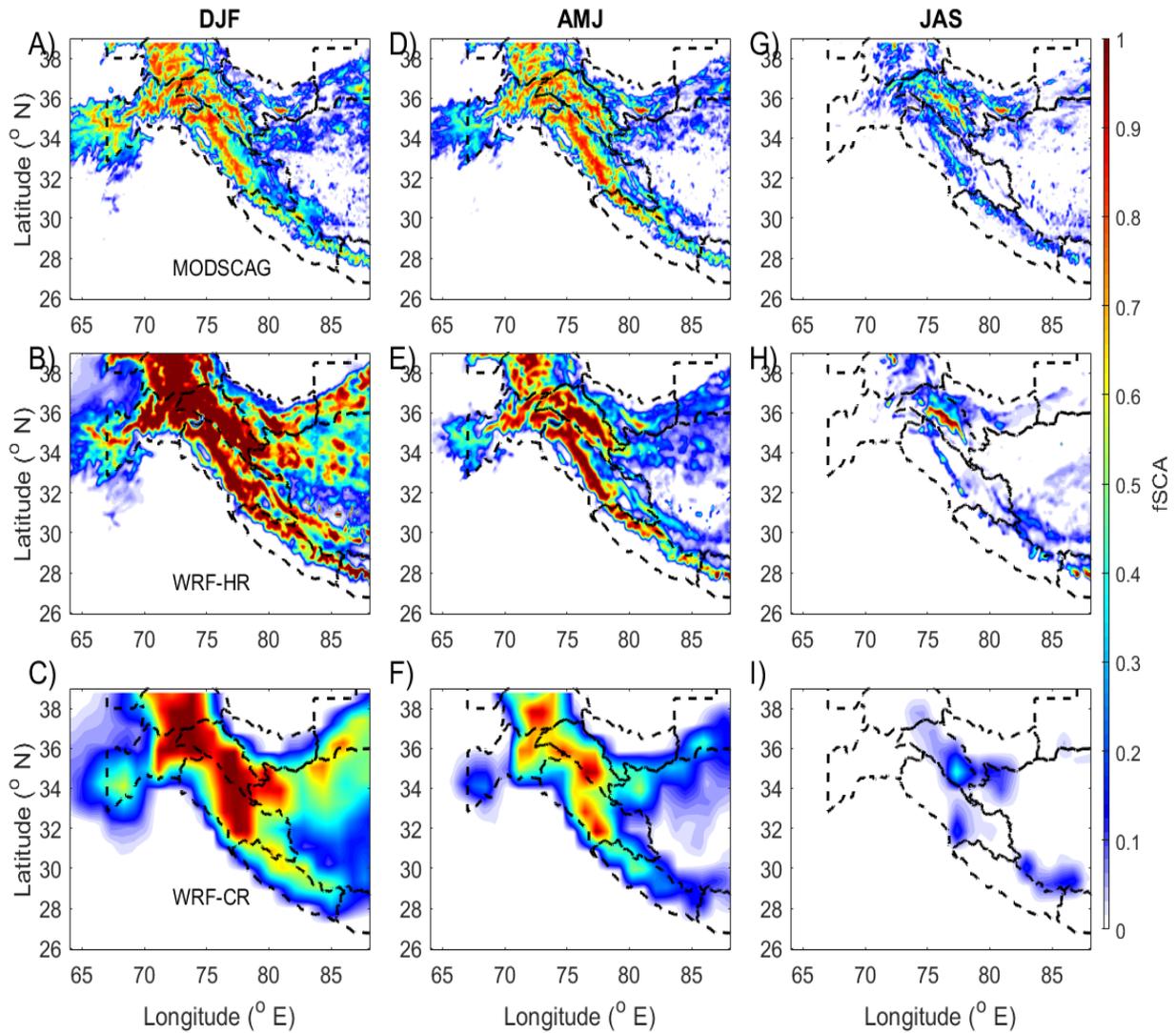


Figure S2: Panels A-C illustrate spatial distribution of number of snow days in winter season from A) MODSCAG retrievals, B) WRF-HR simulations and C) WRF-CR simulations. Panels D-F are same as Panels A-C, but, for premonsoon months. Similarly, Panels G-I are same as Panels A-C, but, for monsoon months.

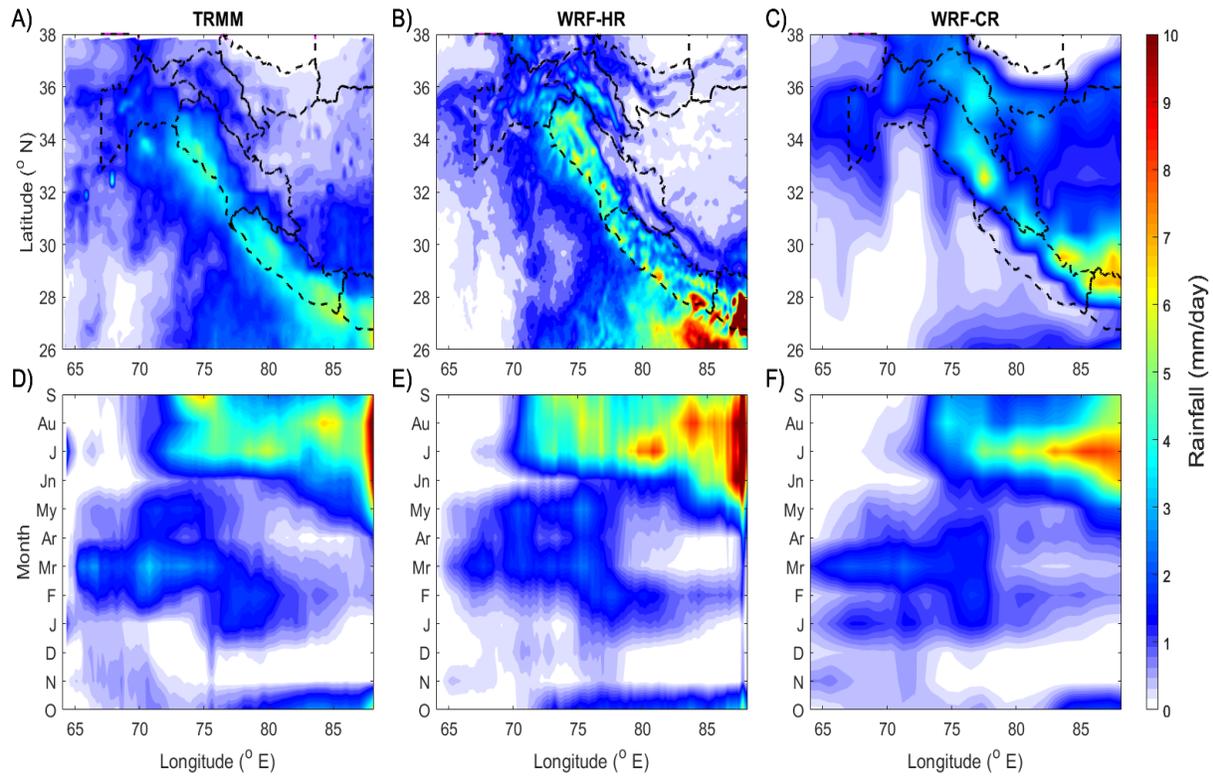


Figure S3: Spatial distribution of annual mean surface rainfall (in mm/day) for water year 2013-14 A) as observed in TRMM satellite observations and simulated values from B) WRF-HR and C) WRF-CR runs is shown. Corresponding time-Longitude distribution is shown in Panels D-F, respectively.

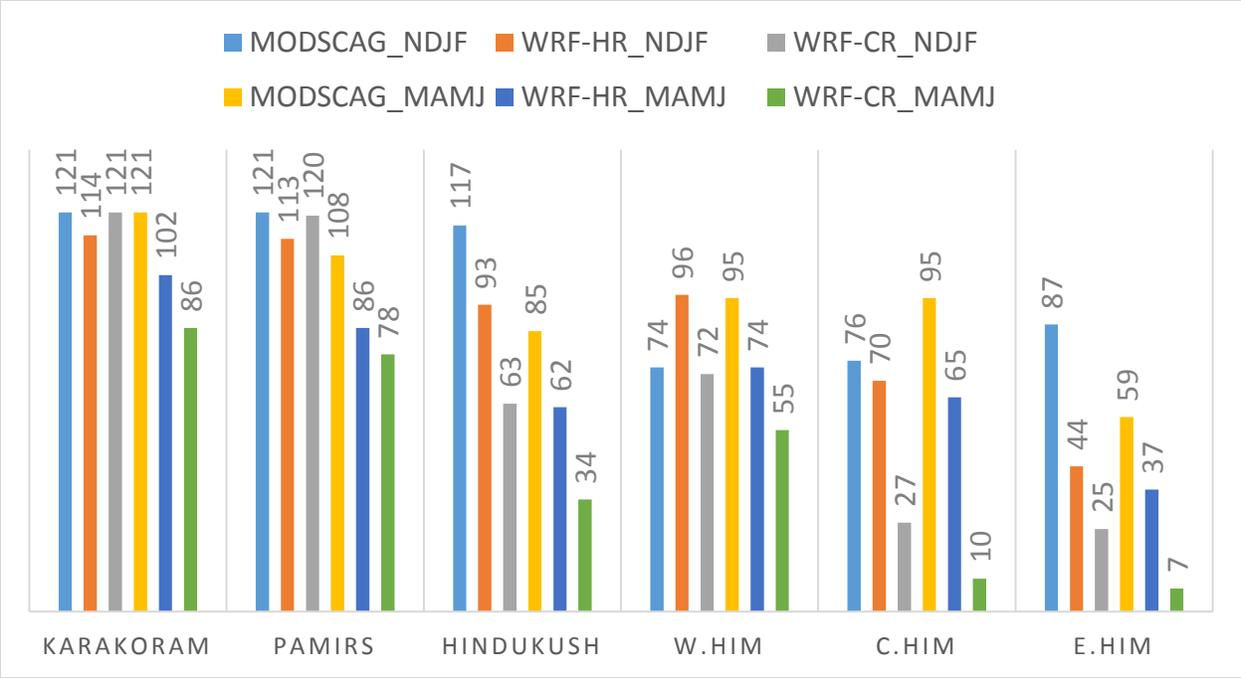


Figure S4: Region-wise estimate of snow duration in terms of NSD (number of snow days) during winter and pre-monsoon months.

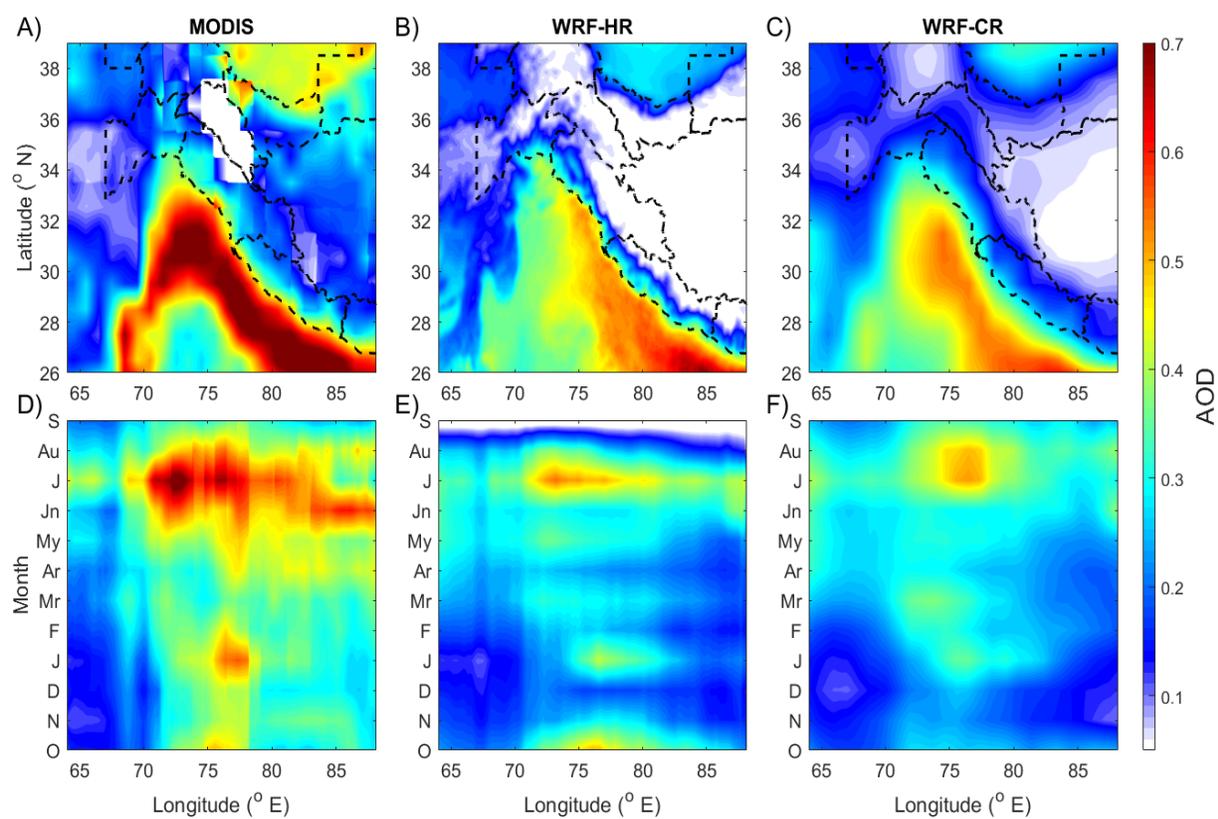


Figure S5: Same as Figure S3, but, for aerosol optical depth (AOD) values. Panels A and D are MODIS-observed AOD.

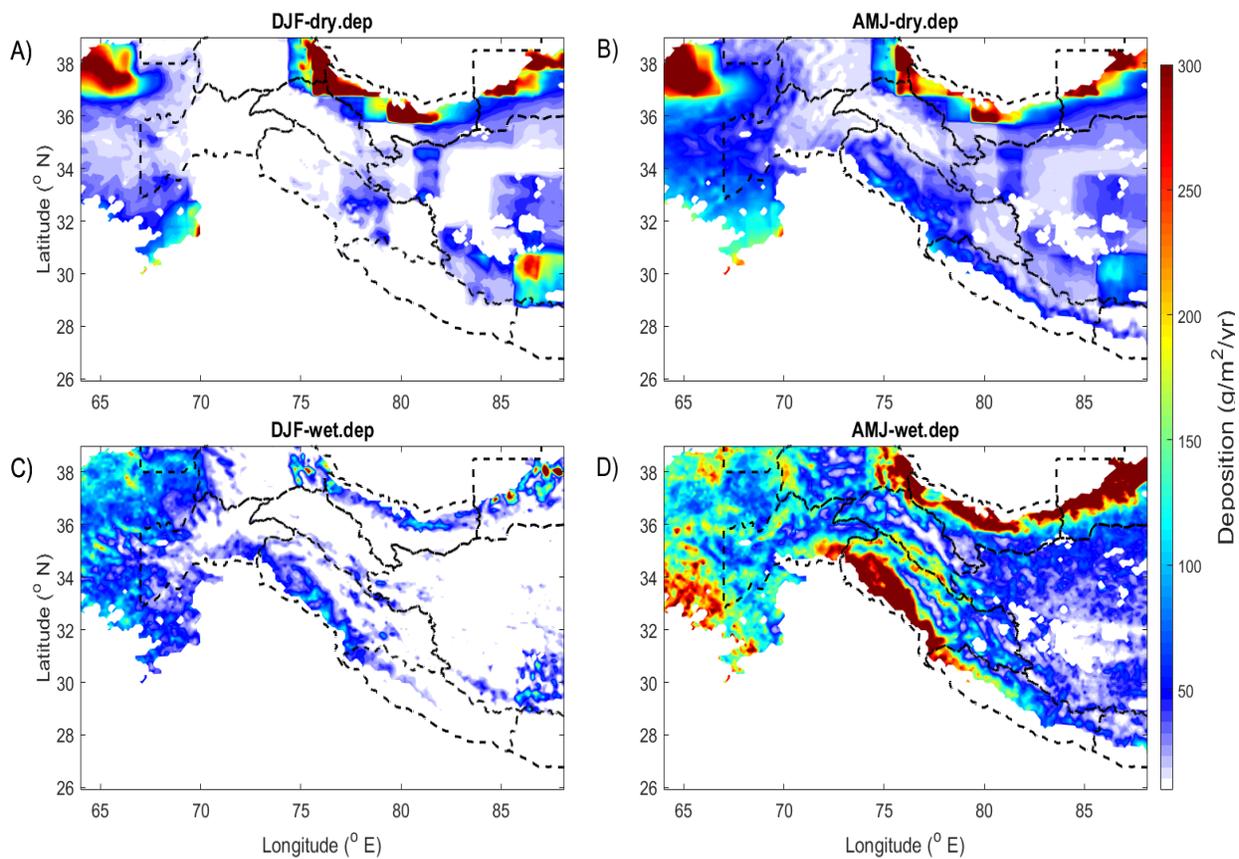


Figure S6: Spatial distribution of mean deposition rate for A) WRF-HR runs and B) WRF-CR during winter months. Panel C) and D) are same as Panels A) and B), but, for pre-monsoon months.

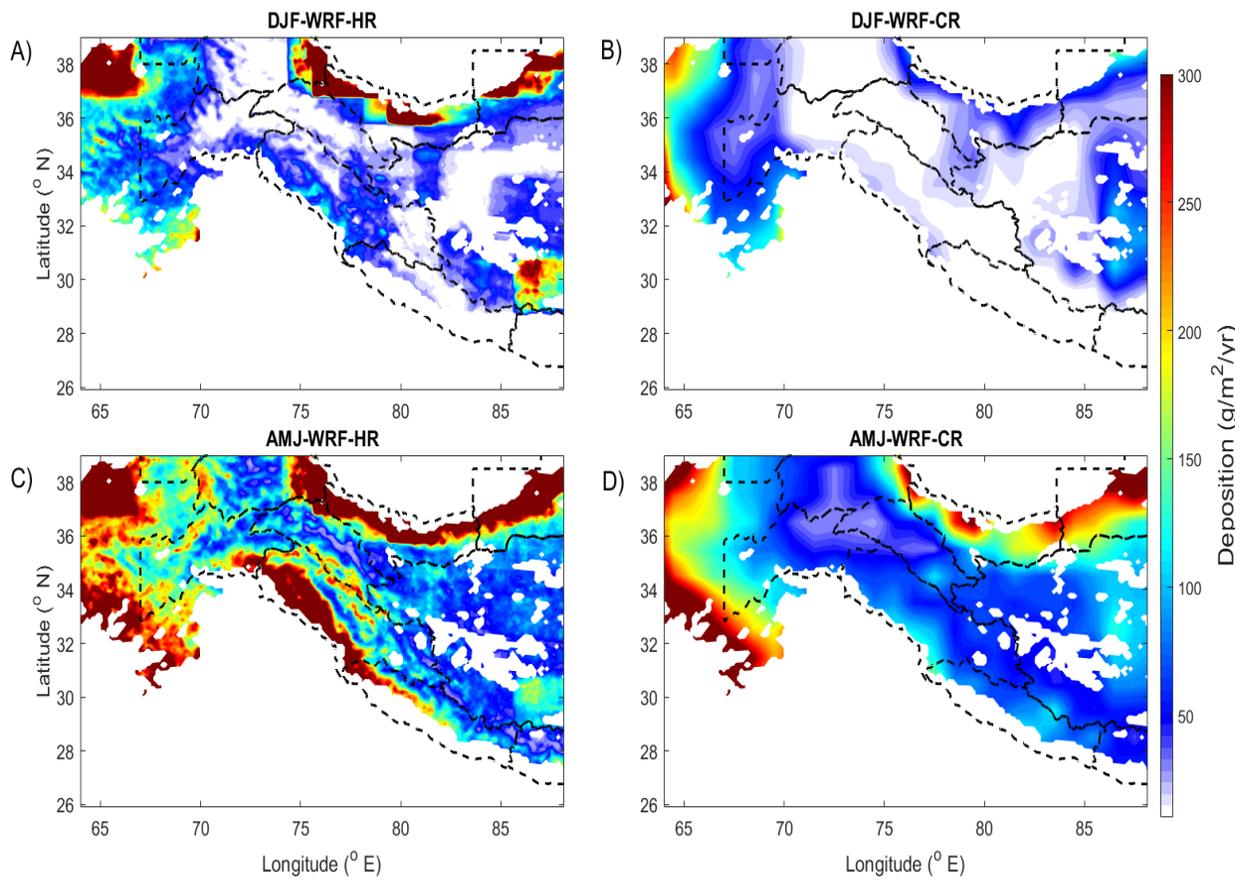


Figure S7: Spatial distribution of mean fluxes of A) dry deposition and C) wet deposition during winter months. Panel B) and D) are same as Panels A) and C), but, for premonsoon months.