Supplementary: Genesis of new particle formation events in a semi-urban location in Eastern Himalayan Foothills

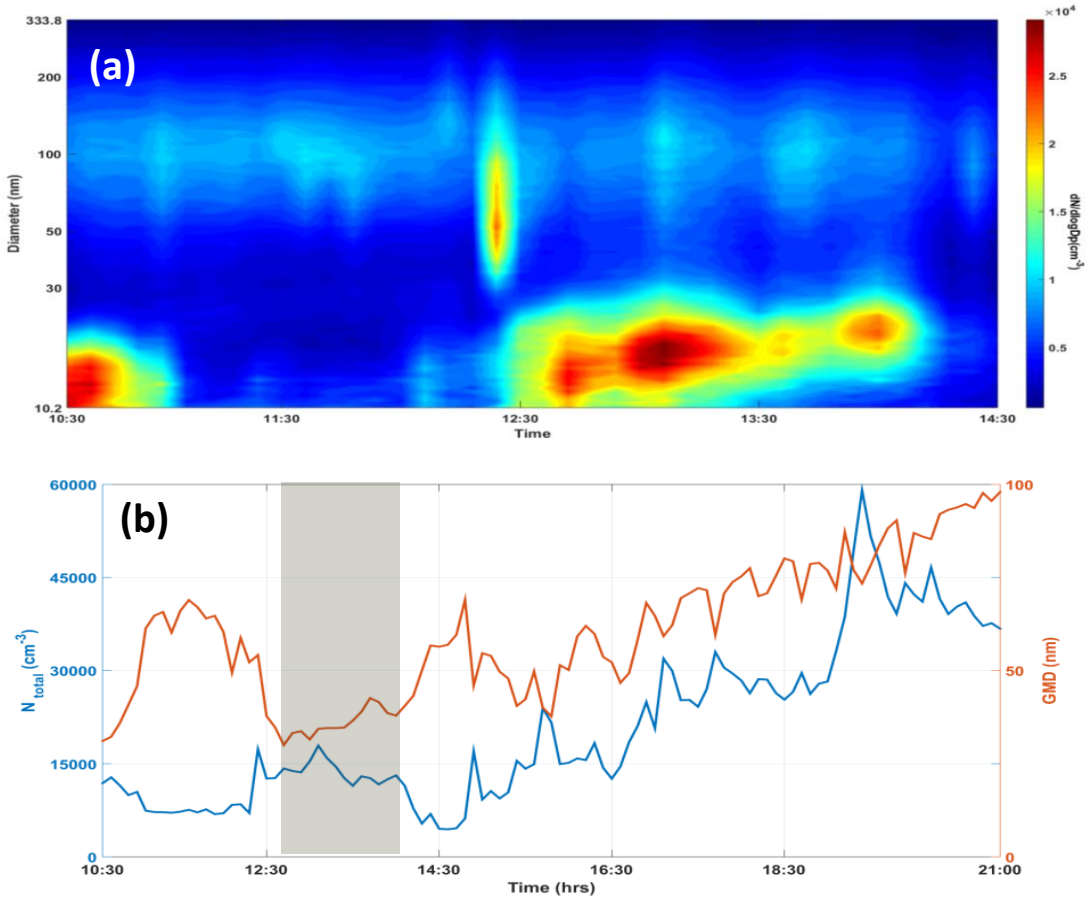

Figure S1. Representative observation of NPF event on 2 December 2016 (a) Contour plot of number concentration showing the formation and growth of new particles between 12:42-14:12 hrs and, (b) Variation of N_{total}, and GMD from 10:30 hrs to 21:00 hrs, where the shaded portion is the event period.

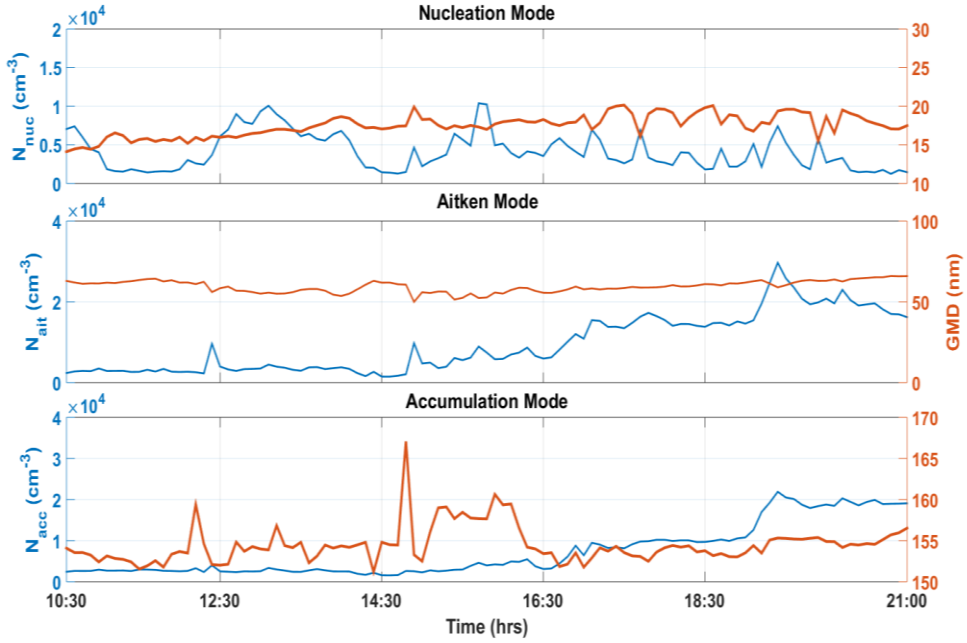

Figure S2. Variation of number concentration and GMD of nucleation (top), Aitken (middle) and accumulation (bottom) mode particles on 2 December 2016 from 10:30 hrs to 21:00 hrs.

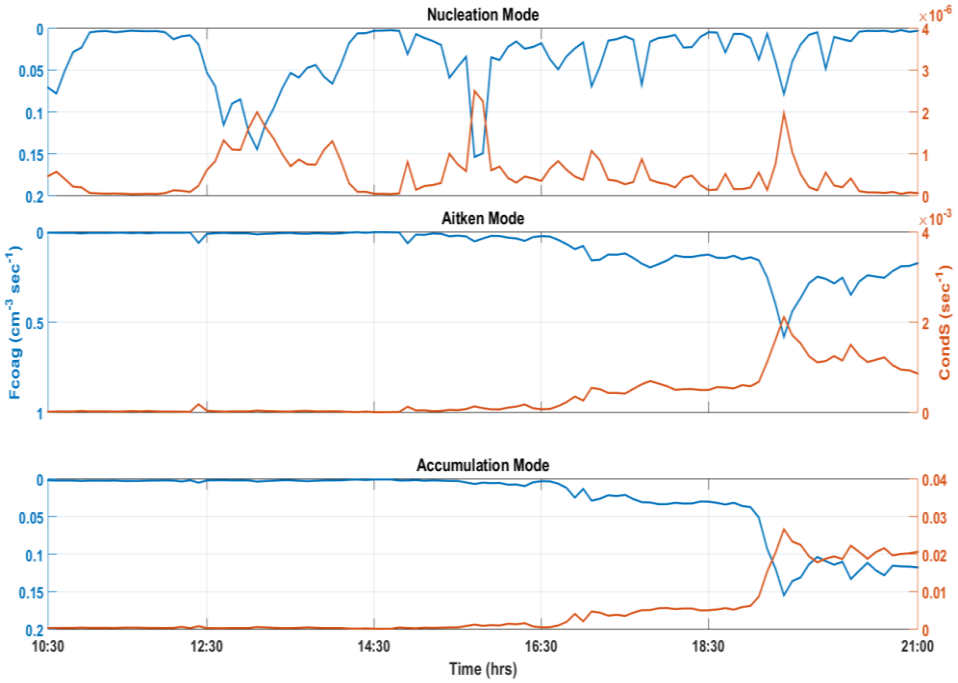

Figure S3. Variation of F_{coag} and CondS for Nucleation (top), Aitken (middle) and Accumulation (bottom) mode particles on 2 December 2016.

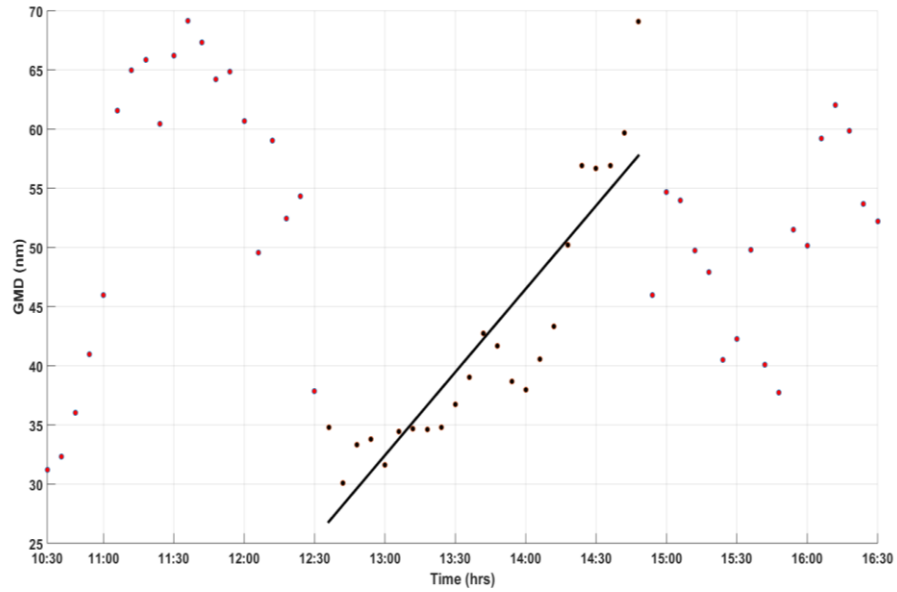

Figure S4. Scatter plot between the GMD versus local time. The solid line is the regression fit through GMD data points during the NPF growth period on 2 December 2016.

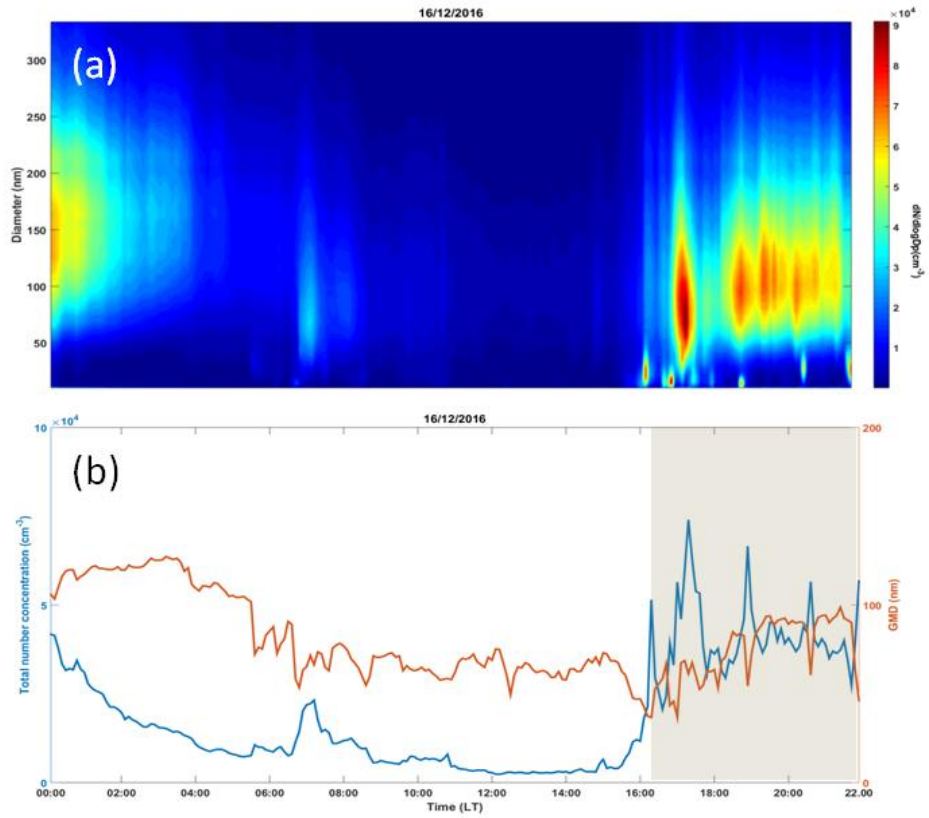

Figure S5. Representative observation of NPF event on 16 December 2016 (a) Contour plot of number concentration showing the formation and growth of new particles between 16:00-21:48 hrs and, (b) Variation of N_{total}, and GMD from midnight hrs to 22:00 hrs, where the shaded portion is the event period.

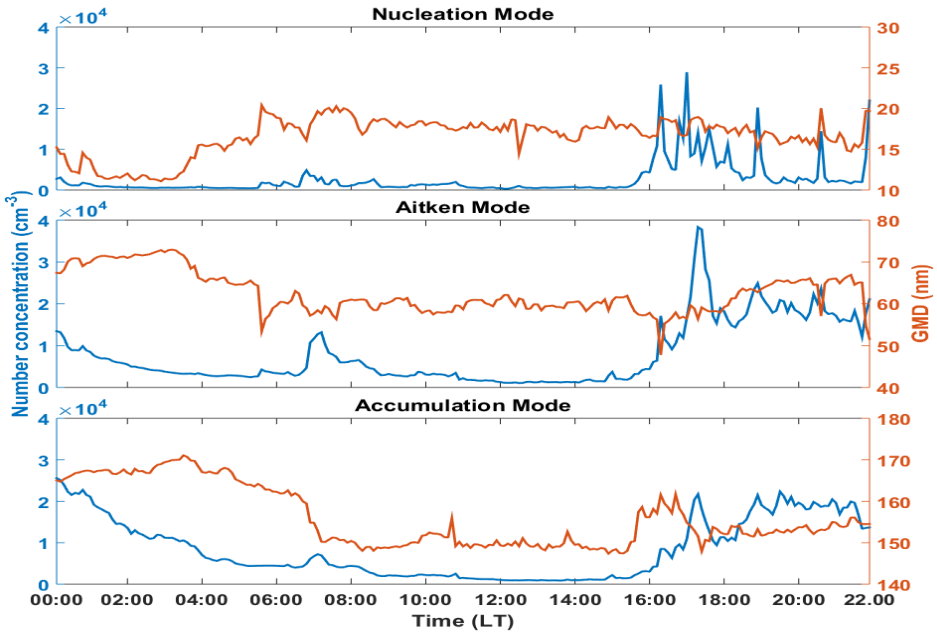

Figure S6. Variation of number concentration and GMD of nucleation (top), Aitken (middle) and accumulation (bottom) mode particles on 16 December 2016 from midnight to 22:00 hrs.

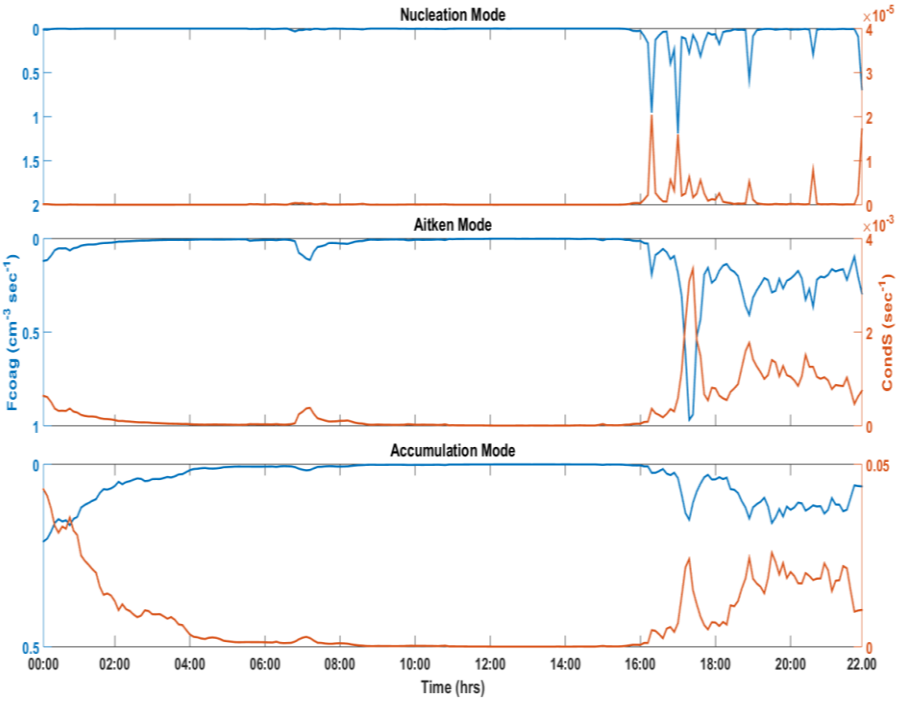

Figure S7. Variation of F_{coag} and CondS for Nucleation (top), Aitken (middle) and Accumulation (bottom) mode particles on 16 December 2016.

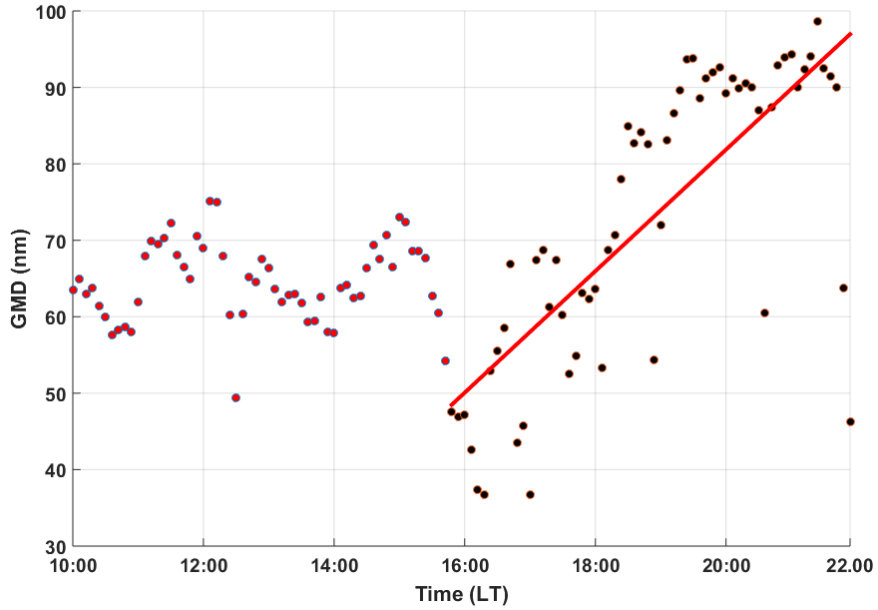

Figure S8. Scatter plot between the GMD versus local time. The solid line is the regression fit through GMD data points during the NPF growth period on 16 December 2016.

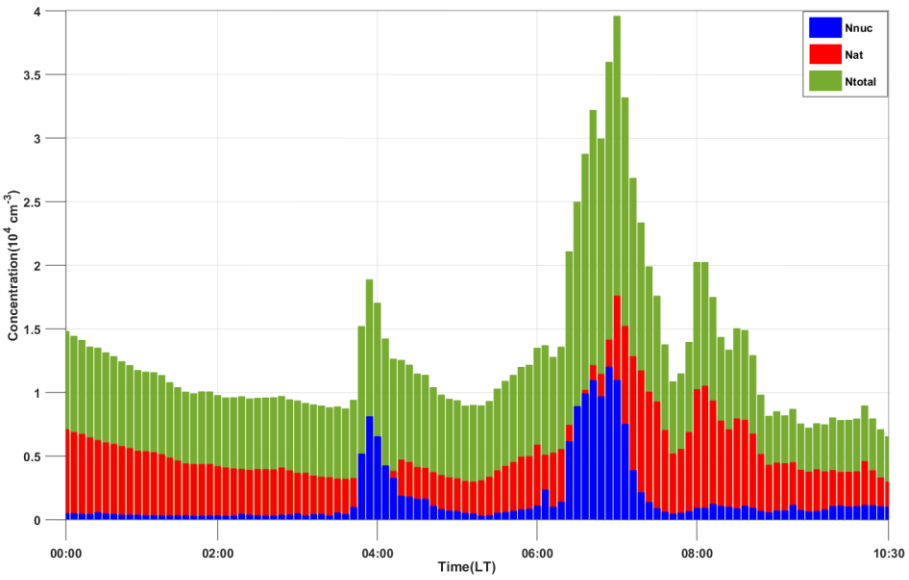

Figure S9: Contribution of N_{nuc} and N_{ait} to the N_{total} on 3 December 2016.

Table S1: Summary statistics of calculated parameters in different size regime on 3 December, 2016

Parameters	Mean	SD	Median	Minimum	Maximum
N_{nuc} (cm^{-3})	1590	2612	618.76	216.38	11943.56
N_{ait} (cm^{-3})	5572	2810	4484.66	2943.00	17566.01
N_{acc} (cm^{-3})	5585	1741	5685.85	2620.94	11114.20
$CondS_{nuc}$ (sec^{-1})	2.40×10^{-7}	7.09×10^{-7}	1.22×10^{-8}	1.01×10^{-9}	3.86×10^{-6}
$CondS_{ait}$ (sec^{-1})	1.06×10^{-4}	1.05×10^{-4}	6.18×10^{-5}	2.60×10^{-5}	6.50×10^{-4}
$CondS_{acc}$ (sec^{-1})	2.00×10^{-3}	1.30×10^{-3}	1.92×10^{-3}	3.50×10^{-3}	6.94×10^{-3}
$CoagS_{nuc}$ (sec^{-1})	2.27×10^{-6}	3.37×10^{-6}	5.69×10^{-7}	1.45×10^{-6}	1.70×10^{-5}
$CoagS_{ait}$ (sec^{-1})	3.67×10^{-6}	1.85×10^{-6}	4.46×10^{-6}	5.14×10^{-6}	9.31×10^{-6}
$CoagS_{acc}$ (sec^{-1})	1.89×10^{-6}	0.56×10^{-6}	2.29×10^{-6}	1.96×10^{-6}	3.20×10^{-6}
$Fcoag_{nuc}$ ($cm^{-3}\,sec^{-1}$)	0.013	0.0385	5.46×10^{-3}	1.41×10^{-3}	2.03×10^{-1}
$Fcoag_{ait}$ ($cm^{-3}\,sec^{-1}$)	0.021	0.0319	1.32×10^{-2}	9.83×10^{-6}	1.31×10^{-1}
$Fcoag_{acc}$ ($cm^{-3}\,sec^{-1}$)	0.002	0.0013	1.04×10^{-2}	3.21×10^{-3}	3.17×10^{-2}