



***Geosciences Division***  
***Physical Research Laboratory***

**Seminar**

**Sources and Characteristics of Brown Carbon Aerosols over  
North India through Real-time Measurements**

**Abstract**

Recent studies have documented that a certain type of organic carbon (predominantly water soluble) significantly absorb light at near-UV (300-400) and visible regions, which is termed as “Brown Carbon (BrC)”. Recent global models estimate that light absorption by BrC in different regions of the world may be 30–70% of that due to black carbon (BC). To assess the role of BrC on regional and global level, it is important to understand their sources and characteristics on temporal and spatial scale, which is scarce in literature. Semi-continuous measurements of water soluble organic carbon (WSOC), BrC, BC and chemical composition of organic and inorganic aerosols were performed over Kanpur during winter season (December, 2015-Dec to February, 2016) using state-of-the-art instruments. Diurnal variability in the absorption coefficient of BrC at 365 nm ( $b_{\text{abs}_365}$ ) showed higher values during late evening through early morning and attributed to primary emissions from biomass burning (BB) and fossil fuel burning (FFB). Primary BrC, assessed based on H:C ratios from HR-ToF-AMS, dominates the total BrC abundance with higher  $b_{\text{abs}_365}$ . Secondary BrC, assessed based on O:C ratios, was abundant in the morning and afternoon with lower  $b_{\text{abs}_365}$ . Further, diurnal variability in ratios of  $b_{\text{abs}_365}$  with  $b_{\text{abs}_405}$  and  $b_{\text{abs}_420}$  suggests that BrC composition is not uniform throughout the day. Fog processing of BrC was also found to be affecting  $b_{\text{abs}_365}$  positively.

**Speaker: Mr. R.V. Satish**  
**SRF, GSDN**

<b>Date</b>	<b>Time</b>	<b>Venue</b>
12-Sept-2016	16:00 hrs	Ground Floor Lecture Hall

**All are invited to attend and participate in discussion**  
**Tea at 15:30 hrs**

***Neeraj Rastogi, Seminar Secretary, Geosciences Division***