Comparison of Surface Measurements of Equivalent Black Carbon at Four Arctic Stations

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Black Carbon has received global attention as a potential significant short term climate forcer in the Arctic, however direct surface measurements in Arctic locations have been sparse. In order to better understand the effects of black carbon this study compares one annual cycle (2010) of Equivalent Black Carbon (EBC) for observatories in Tiksi (Russia), Barrow (Alaska), Alert (Canada) and Summit (Greenland). It is expected that this analysis will provide some direct observational evidence to test the hypothesis that black carbon distributed on Arctic snow and ice surfaces may have a significant impact on surface albedo.

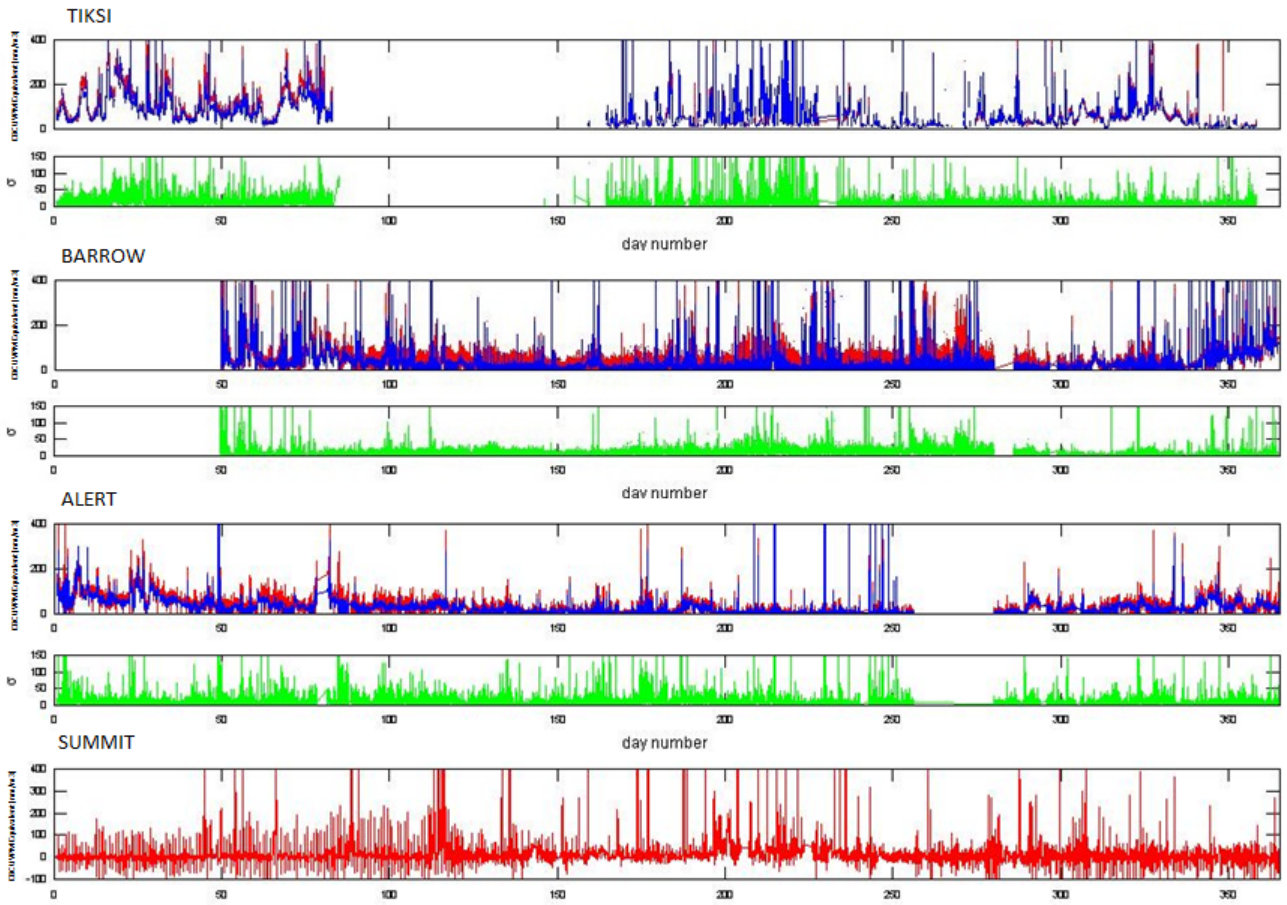

Figure 1. EBC estimates from 880 nm (red), 370 nm (blue); σ – standard deviation (green) of the 7 wavelengths from the Magee Scientific Aethelometer for Tiksi, Barrow, Alert and Summit Greenland.