Supporting Information: Contribution of fluorescent primary biological aerosol particles to low-level Arctic cloud residuals

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### Table S0. Data availability

Data availability (whole year, summer and winter seasons) of cloud events and sampled hours. These are subdivided for cloud events and sampled hours where the multiparameter bioaerosol spectrometer (MBS), temperature sensor (T), Cloudnet, isotope and Cloudnet+isotope data were available.

<table>
<thead>
<tr>
<th></th>
<th>Total</th>
<th>MBS</th>
<th>T</th>
<th>Cloudnet</th>
<th>Isotope</th>
<th>Cloudnet + isotope</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cloud events (all)</td>
<td>209</td>
<td>209</td>
<td>195</td>
<td>141</td>
<td>90</td>
<td>84</td>
</tr>
<tr>
<td>Sampled hours (all)</td>
<td>812</td>
<td>812</td>
<td>778</td>
<td>654</td>
<td>407</td>
<td>391</td>
</tr>
<tr>
<td>Cloud events (Summer)</td>
<td>156</td>
<td>156</td>
<td>142</td>
<td>93</td>
<td>42</td>
<td>41</td>
</tr>
<tr>
<td>Sampled hours (Summer)</td>
<td>612</td>
<td>612</td>
<td>578</td>
<td>470</td>
<td>241</td>
<td>241</td>
</tr>
<tr>
<td>Cloud events (Winter)</td>
<td>53</td>
<td>53</td>
<td>53</td>
<td>48</td>
<td>48</td>
<td>43</td>
</tr>
<tr>
<td>Sampled hours (Winter)</td>
<td>200</td>
<td>200</td>
<td>200</td>
<td>185</td>
<td>166</td>
<td>150</td>
</tr>
</tbody>
</table>

### Figure S1. Comparison between ambient and cloud residual coarse mode particles

a) A box plot of the ratio between cloud residual and ambient coarse mode aerosol. Median is shown in orange (0.45). b) All cloud event cases are classified by temperature (color) and ambient/cloud residual coarse mode aerosol. Black diagonal line is a 1x1 line, and orange line is the median ratio between ambient aerosol and cloud residual.
Figure S2. Deuterium excess as a function of trajectory type. Trajectory type (-1 fully terrestrial to 1 fully oceanic) and its deuterium excess for A) cloud cases, B) hours with visibility below 1000 meters, C) hours with visibility above 5000 meters and D) all data. Numbers represent number of points per box.
Figure S3. Full cloudnet profile for mixed phase cloud case. Cloudnet profile along with assigned cloud top height and temperature curves for -15 °C and -10 °C.

Figure S4. Full cloudnet profile for liquid droplet cloud case. Cloudnet profile along temperature curves for -15 °C and -10 °C.
Figure S5. Full cloudnet profile for ice cloud case. Cloudnet profile along with assigned cloud top height and temperature curves for -15 °C and -10 °C.