Smoke Plume Behaviour - Variable Source Heights

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• Correct plume height reduces one source of forecast error
• Current fixed height of 1500m is not a bad approximation but is not suitable in all cases
• A dynamic method for specifying plume height is desirable
• Full plume rise model not currently practicable
• Mixed Layer Depth is proposed as interim solution
• Initial results are very encouraging
• Operational implementation beginning soon

<table>
<thead>
<tr>
<th>Fixed Plume 1500m Height</th>
<th>Plume Height = MLD, updated hourly</th>
<th>Verification</th>
</tr>
</thead>
<tbody>
<tr>
<td>King Island 0800 UTC 11 Jan 2001</td>
<td>NOAA AVHRR</td>
<td></td>
</tr>
<tr>
<td>Perth 0100 UTC 18 Jan 2005</td>
<td>Terra -MODIS</td>
<td></td>
</tr>
</tbody>
</table>

Concentration Scale

1.0E-12 1.0E-13 1.0E-14 1.0E-15