

Tests	Old VRA-based test	New NDSI-based snow test	Snow adjacency test	Spatial filter
Criteria	<ol style="list-style-type: none"> <li>1. <math>VRA &gt; 0.02</math>;</li> <li>2. <math>\rho_{1240}/\rho_{865} &lt; 0.9</math>;</li> <li>3. surface temperature (ST) <math>&lt; 278</math> K;</li> <li>4. no cirrus;</li> <li>5. confidently or probably clear.</li> </ol>	<ol style="list-style-type: none"> <li>1. <math>NDSI &gt; C1</math>;</li> <li>2. <math>BT_{11\mu m} &lt; 285</math> K,</li> <li>3. no cirrus;</li> <li>4. confidently or probably clear.</li> </ol>	<p>For each of the <math>7 \times 7</math> pixels except the central pixel, the snow adjacency quality flag is set if</p> <ol style="list-style-type: none"> <li>1. center pixel is set as “snow” over land;</li> <li>2. no cirrus;</li> <li>3. confidently or probably clear.</li> </ol>	<p>Sets the homogeneity test flag for the center pixel if</p> <ol style="list-style-type: none"> <li>1. aerosol retrieval flag of the center pixel is “good”;</li> <li>2. the standard deviation of <math>\rho_{412}</math> <math>3 \times 3</math> surrounding pixels exceeds C2.</li> </ol>
AOD quality	Not produced	Not produced	Degraded	Degraded
Notes	<ol style="list-style-type: none"> <li>1. <math>VRA = \rho_{488}^s - 0.5 \times \rho_{672}^s</math>, where <math>\rho_{488}^s</math> and <math>\rho_{672}^s</math> are 488 nm (VIIRS band M3) and 672 nm (VIIRS band M5) surface reflectance, respectively;</li> <li>2. ST derived from <math>BT_{11\mu m}</math> and <math>BT_{12\mu m}</math>.</li> </ol>	<ol style="list-style-type: none"> <li>1. <math>NDSI = \frac{(\rho_{865} - \rho_{1240})}{(\rho_{865} + \rho_{1240})}</math>, where <math>\rho_{865}</math> and <math>\rho_{1240}</math> are reflectances at 865 nm (VIIRS M7) and 1240 nm (VIIRS M8), respectively;</li> <li>2. <math>C1 = 0.01</math> for IDPS; <math>C1 = 0.10</math> for EPS.</li> </ol>	Check good-quality AOD retrievals only.	<ol style="list-style-type: none"> <li>1. Check good-quality AOD retrievals at central pixel only;</li> <li>2. <math>\rho_{412}</math> is reflectance at 412 nm (VIIRS M1);</li> <li>3. <math>C2 = 0.05</math> for IDPS; <math>C2 = 0.004</math> for EPS.</li> </ol>