Colorado Dust-on-Snow Program

WY 2019 Dust Enhanced Runoff Classification

Upper Colorado River Watershed – Fraser River
as of: March 1, 2019 Update

for:
Berthoud Summit Snotel, Fraser River at Upper Station
<table>
<thead>
<tr>
<th>Dust</th>
<th>Mar 1 SWE</th>
<th>Avg Mar SWE</th>
<th>High Mar SWE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Min Dust</td>
<td>Mar 1 SWE</td>
<td>Avg Mar SWE</td>
<td>High Mar SWE</td>
</tr>
<tr>
<td>‘Avg’ Dust</td>
<td>Mar 1 SWE</td>
<td>Avg Mar SWE</td>
<td>High Mar SWE</td>
</tr>
<tr>
<td>Max Dust</td>
<td>Mar 1 SWE</td>
<td>Avg Mar SWE</td>
<td>High Mar SWE</td>
</tr>
</tbody>
</table>

- **Dry Spring**
- **Avg Spring**
- **Wet Spring**

Dust Enhanced Runoff ‘Space’
<table>
<thead>
<tr>
<th>SNOTEL Site</th>
<th>1981-2010</th>
<th>WY 2019</th>
<th>WY 2019</th>
<th>CODOS March 1 SWE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Red Mtn Pass</td>
<td>17.5</td>
<td>22.8</td>
<td>130%</td>
<td>High</td>
</tr>
<tr>
<td>Slumgullion</td>
<td>10.4</td>
<td>13.9</td>
<td>134%</td>
<td>High</td>
</tr>
<tr>
<td>Upper San Juan</td>
<td>26.0</td>
<td>26.2</td>
<td>101%</td>
<td>Average</td>
</tr>
<tr>
<td>Wolf Creek Summit</td>
<td>24.9</td>
<td>30.5</td>
<td>122%</td>
<td>High</td>
</tr>
<tr>
<td>Beartown</td>
<td>18.7</td>
<td>22.1</td>
<td>118%</td>
<td>High</td>
</tr>
<tr>
<td>Lizard Head</td>
<td>12.2</td>
<td>14.1</td>
<td>116%</td>
<td>High</td>
</tr>
<tr>
<td>Park Cone</td>
<td>8.3</td>
<td>8.4</td>
<td>101%</td>
<td>Average</td>
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<tr>
<td>Schofield Pass</td>
<td>25.2</td>
<td>28.3</td>
<td>112%</td>
<td>High</td>
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<tr>
<td>McClure Pass</td>
<td>13.5</td>
<td>14.2</td>
<td>105%</td>
<td>Average</td>
</tr>
<tr>
<td>Independence Pass</td>
<td>12.7</td>
<td>13.7</td>
<td>108%</td>
<td>Average</td>
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<tr>
<td>Hoosier Pass</td>
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<td>14.1</td>
<td>129%</td>
<td>High</td>
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<tr>
<td>Grizzly Peak</td>
<td>13.2</td>
<td>15.3</td>
<td>116%</td>
<td>High</td>
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<tr>
<td>Berthoud Summit</td>
<td>13.9</td>
<td>13.7</td>
<td>99%</td>
<td>Average</td>
</tr>
<tr>
<td>Willow Creek Pass</td>
<td>9.5</td>
<td>11.0</td>
<td>116%</td>
<td>High</td>
</tr>
<tr>
<td>Rabbit Ears Pass</td>
<td>19.1</td>
<td>19.5</td>
<td>102%</td>
<td>Average</td>
</tr>
<tr>
<td>Mesa Lakes</td>
<td>12.7</td>
<td>15.1</td>
<td>119%</td>
<td>High</td>
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</table>
### Fraser River Watershed

**Berthoud Summit Snotel**

<table>
<thead>
<tr>
<th>March 1 SWE</th>
<th>Dry Spring</th>
<th>Avg Spring</th>
<th>Wet Spring</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>LOW</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Min Dust</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Avg Dust</td>
<td>2012</td>
<td>2018</td>
<td></td>
</tr>
<tr>
<td>Max Dust</td>
<td></td>
<td></td>
<td>2013</td>
</tr>
<tr>
<td><strong>AVG</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Min Dust</td>
<td></td>
<td></td>
<td>2007, 2015</td>
</tr>
<tr>
<td>Max Dust</td>
<td>2010</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>HIGH</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Min Dust</td>
<td></td>
<td>2017</td>
<td></td>
</tr>
<tr>
<td>Avg Dust</td>
<td>2008, 2014</td>
<td>2011</td>
<td></td>
</tr>
<tr>
<td>Max Dust</td>
<td>2006</td>
<td>2009</td>
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</table>

<table>
<thead>
<tr>
<th>Year</th>
<th>March 1 SWE</th>
<th>Median</th>
<th>Actual</th>
<th>%</th>
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<td>2006</td>
<td>13.9</td>
<td>17.4</td>
<td>125%</td>
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<td>2012</td>
<td>13.9</td>
<td>16.0</td>
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<td>2013</td>
<td>13.9</td>
<td>16.3</td>
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<tr>
<td>2014</td>
<td>13.9</td>
<td>14.5</td>
<td>104%</td>
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<td>2015</td>
<td>13.9</td>
<td>18.3</td>
<td>132%</td>
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<td>2016</td>
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<td>2017</td>
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<td>10.6</td>
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<td>2018</td>
<td>13.9</td>
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<td>2007</td>
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<td>2015</td>
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<td>2016</td>
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<td>2017</td>
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<td>2009</td>
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<td>2018</td>
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</table>
Upper Colorado River Watershed – Berthoud Summit Snotel, Fraser River

**WY 2019 = Average March 1 SWE**

- **Min Dust**
- **‘Avg’ Dust**
- **Max Dust**

- **Dry Spring**
  - 2007, 2015
  - 2010

- **Avg Spring**
  - 2016

- **Wet Spring**

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Average Mar 1 SWE
USGS 09022000 Fraser River at Upper Sta, near Winter Park, CO.

- Median daily statistic (33 years)
- Estimated daily mean discharge
- Daily mean discharge
- Period of approved data
WY 2007: Avg March 1 SWE, Avg Spring, Min+ Dust
WY 2010: Avg March 1 SWE, Avg Spring, Max- Dust
WY 2015: Avg March 1 SWE, Avg Spring, Min Dust

USGS 09022000 Fraser River at Upper STA, Near Winter Park, CO.

Median daily statistic (36 years) — Estimated daily mean discharge
Daily mean discharge — Period of approved data
WY 2016: Avg March 1 SWE, Wet Spring, Min Dust