## Data Set Properties

Data Set: Granby_1112_2010_0105_to_2011_0520_with_data_validation_offset_165_WWS.windog  
Report Created: 6/2/2011 09:46

<table>
<thead>
<tr>
<th>Variables</th>
<th>Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>Latitude</td>
<td>N 40° 6’ 59.600&quot;</td>
</tr>
<tr>
<td>Longitude</td>
<td>W 105° 55’ 27.000”</td>
</tr>
<tr>
<td>Elevation</td>
<td>8018 ft</td>
</tr>
<tr>
<td>Start date</td>
<td>1/5/2010 13:40</td>
</tr>
<tr>
<td>End date</td>
<td>5/20/2011 13:20</td>
</tr>
<tr>
<td>Duration</td>
<td>16 months</td>
</tr>
<tr>
<td>Length of time step</td>
<td>10 minutes</td>
</tr>
<tr>
<td>Calm threshold</td>
<td>0 mph</td>
</tr>
<tr>
<td>Mean temperature</td>
<td>-0.875 °C</td>
</tr>
<tr>
<td>Mean pressure</td>
<td>75.22 kPa</td>
</tr>
<tr>
<td>Mean air density</td>
<td>0.962 kg/m³</td>
</tr>
<tr>
<td>Power density at 50m</td>
<td>76 W/m²</td>
</tr>
<tr>
<td>Wind power class</td>
<td>1 (Poor)</td>
</tr>
<tr>
<td>Power law exponent</td>
<td>0.126</td>
</tr>
<tr>
<td>Surface roughness</td>
<td>0.00996 m</td>
</tr>
<tr>
<td>Roughness class</td>
<td>0.78</td>
</tr>
<tr>
<td>Roughness description</td>
<td>Rough pasture</td>
</tr>
</tbody>
</table>

### Temperature

![Temperature Graph](image-url)
Wind Speed and Direction

**Seasonal Wind Speed Profile**
- Mean Wind Speed (mph)
- Synthesized 40 m
- WS20

**Daily Wind Speed Profile**
- Mean Wind Speed (mph)
- Synthesized 40 m
- WS20

**Probability Distribution Function, All Sectors**
- Frequency (fs)
- Synthesized 40 m (mph)
- Actual data
- Best-fit Weibull distribution ($k=1.11, c=7.35$ mph)

**Wind Frequency Rose (20 m)**
- Wind direction

**Mean Wind Speed (40 m)**
- Wind direction
- Mean wind speed

**Total Wind Energy (40 m)**
- Wind direction
- Total wind energy
Wind Shear

**Vertical Wind Shear Profile, All Sectors**

- Measured data
- Power law fit
- Log law fit

**Daily Wind Shear Profile, All Sectors**

- All data
- Jan
- Feb
- Mar
- Apr
- May
- Jun
- Jul
- Aug
- Sep
- Oct
- Nov
- Dec

**Seasonal Wind Shear Profile, All Sectors**

- Power Law Exponent

**Power Law Exponent**

- 0°
- 30°
- 60°
- 90°
- 120°
- 150°
- 180°
- 210°
- 240°
- 270°
- 300°
- 330°
Turbulence Intensity

Turbulence Intensity at 20 m, All Sectors

Wind Speed (m/s)

Turbulence Intensity

Mean TI at 20 m

Hour of Day

Turbulence Intensity

Representative TI
Mean TI
## Data Column Properties

<table>
<thead>
<tr>
<th>Label</th>
<th>Units</th>
<th>Height</th>
<th>Possible Records</th>
<th>Valid Records</th>
<th>Recovery Rate (%)</th>
<th>Mean</th>
<th>Min</th>
<th>Max</th>
<th>Std. Dev</th>
</tr>
</thead>
<tbody>
<tr>
<td>WS20</td>
<td>mph</td>
<td>20 m</td>
<td>71,998</td>
<td>71,998</td>
<td>100</td>
<td>6.47</td>
<td>0.13</td>
<td>51.05</td>
<td>6.06</td>
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<tr>
<td>WS20_SD</td>
<td>mph</td>
<td></td>
<td>71,998</td>
<td>71,998</td>
<td>100</td>
<td>1.52</td>
<td>0.00</td>
<td>13.57</td>
<td>1.20</td>
</tr>
<tr>
<td>WD20</td>
<td>°</td>
<td>20 m</td>
<td>71,998</td>
<td>71,998</td>
<td>100</td>
<td>163.7</td>
<td>0.1</td>
<td>359.9</td>
<td>101.7</td>
</tr>
<tr>
<td>Synthesized 40 m</td>
<td>mph</td>
<td>40 m</td>
<td>71,998</td>
<td>71,998</td>
<td>100</td>
<td>7.06</td>
<td>0.14</td>
<td>55.71</td>
<td>6.61</td>
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</tbody>
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