Outline

• New Averages
• Recent Weather
• Snow States
• Future Weather/Climate
• Water Supply Forecasts
• Peak Flow Forecasts

New Averages for 2012 Water Year

Beginning January 1, 2012, we are using the 1981-2010 period for averages, forecast equations, and model calibration.

Frequently Asked Questions

1. Why do we update averages every 10 years using the most recent 30 year period for average computation?
Answer: We follow the NOAA and World Meteorological Organization (WMO) convention. NOAA/NCDC developed an explanation of this [here](#).

2. How does the 1981-2010 period compare with the 1971-2000 period and previous 30 year periods?
Answer: Streamflow volumes in the new 30 year period is generally between 5% and 20% lower than in the previous period. The largest decreases are observed in the upper Green River and the Bear River. For the entire upper Colorado above Lake Powell, the difference is 11%. The new 30 year period has the lowest average volume of any of the 30 year periods in the instrumental record. More details are available [here](#).

3. How does using the new period effect CBRFC forecasts and data on this webpage?
Answer: Long-lead water supply and peak flow forecasts generally use a combination of current conditions for snowpack and streamflow, a weather prediction, and the climatological distribution of precipitation and temperature. Thus long lead forecasts using the new average period will generally be lower than forecasts that used the previous 30 year period. The amount of the difference depends on the difference between the means and the duration of climatology assumed in the forecast period. For example, January 1 water supply forecasts require a climatological assumption for the months of January through July whereas April 1 water supply forecasts require only April through July. Thus the January 1 forecasts are influenced more greatly by the change in the 30 year period. An example illustrating this effect is available [here](#).
The snow time series plots on the CBRFC pages are now using the 1981-2010 period of record for calculated statistics including the daily mean, median, maximum, and minimum snow water equivalent. CBRFC requires at least 20 years of record to calculate any of these statistics.

4. How is this change being coordinated with other forecast groups?
Answer: NOAA/NCDC has published new means for the meteorological 30 year means. The NRCS and other RFCs plan to begin using the 1981-2010 average period in 2013.

5. Where can I get more information?
Answer: CBRFC staff is here to help. Please feel free to contact us.
February 2012 Precipitation

Web Reference: www.srh.noaa.gov/slc/
Snow

January 5, 2012

Snow

February 6, 2012

March 6, 2012

March 5, 2012

Snow Point Classification: □ Percentiles □ Percent Average
- Not Ranked
- Low
- <10
- 10-25
- 25-75
- 75-90
- >90
- High

Number of SNOTELs with daily record minimum SWE

Number of SNOTELs with SWE < 1.0
Snow: Upper Green Basin (Fontelle)

Web Reference: http://www.cbrfc.noaa.gov/station/sweplot/sweplot.cgi???open
Snow: Duchesne Basin

Snow: Yampa+White Basin

Web Reference: http://www.cbrfc.noaa.gov/station/sweplot/sweplot.cgi???open
Snow:
Colorado Mainstem (above Cameo)

Snow: Gunnison Basin

Snow:
San Juan Basin

Colorado Basin River Forecast Center
San Juan Basin Group

To Date: 91% (15.4 / 17.0)
Seasonal: 77% (15.4 / 20.2)
Accumulation rate 0.0 in/day averaged over last 3 days.

Average 1981-2010  2012  2011  

Web Reference: http://www.cbrfc.noaa.gov/station/sweplot/sweplot.cgi???open
2012 SNOTEL percentile rankings for Lake Powell
Snow:
Lower Colorado

Web Reference: http://www.cbrfc.noaa.gov/station/sweplot/sweplot.cgi??open
Snow:
Six Creeks in Salt Lake County

Web Reference: http://www.cbrfc.noaa.gov/station/sweplot/sweplot.cgi??open
Snow Maps

Modeled Snow Depth Departure from Normal (Daily) for 2012 February 6, 6:00 Z

Inches of depth

- > 59
- 39 to 59
- 31 to 39
- 24 to 31
- 16 to 24
- 8 to 16
- 4 to 8
- 2 to 4
- 0 to 2
- -0.4 to 0.4
- -2 to -0.4
- -4 to -2
- -8 to -4
- -16 to -8
- -24 to -16
- -31 to -24
- -39 to -31
- -59 to -39
- < -59

Elevation in feet

- > 13124
- 6203 to 13124
- 3281 to 6203
- 3 to 3281
- < 3

Weather Forecast

- Below average precipitation will prevail over CRB in spite of active storm track pattern continuing for western United States.
- Storm #1 (right) impacting CRB now through Thursday. Split flow with potential for localized precipitation amounts around 1”.
- Storm #2 middle of next week but most energy/moisture north of CRB.
- Third storm possible in 11-16 day period

- Overall warmer than normal temperatures creates potential for early melt in March

Web Reference: www.hpc.noaa.gov
La Niña Update

Observed Sea Surface Temperature (°C)

Observed Sea Surface Temperature Anomalies (°C)

7-day Average Centered on 29 February 2012

Web Reference: [http://www.cpc.noaa.gov](http://www.cpc.noaa.gov) and iri.columbia.edu/climate/ENSO
Soil Moisture

Upper Colorado
NWSRFS Modeled Lower Zone Soil Moisture

Percent Average (> 1.0 Inch) November 1, 2010

VALUE

0
51 - 70
70 - 99
100 - 109
110 - 129
130 - 150
> 150
March 2012
Water Supply Forecasts

Highlights:
• Only minor changes from February forecasts that reflect snow accumulation patterns:
  • Increases to near normal in Upper Green
  • Slight increases, still below normal, in Dolores, San Juan
  • Status quo in upper Colorado
  • Slight decreases in Great Basin

Seasonal Water Supply Forecast

Forecast Period: Apr–Jul

945 kaf
50% Exceedence (Official Forecast)

585 kaf
90% Exceedence

1390 kaf
10% Exceedence

113% of Historical Median
96% of Historical Mean

42nd of 72
Official Historical Flows

Forecast Issued: Mar 1 2012

GREEN - FLAMING GORGE RES, FLAMING GORGE DAM, AT (GRNL14)

Water Year 2012, Forecast Period Apr-Jul (highlighted)

Seasonal Water Supply Forecast

Forecast Period: Apr-Jul

1760 kaf
50% Exceedence (Official Forecast)

80% of Historical Median

75% of Historical Mean

1250 kaf
90% Exceedence

2510 kaf
10% Exceedence

61st of 79
Official Historical Flows

Forecast Issued: Mar 1 2012

COLORADO - CAMEO, NR (CAMC2)
Water Year 2012, Forecast Period Apr-Jul (highlighted)

Volume (kaf)

Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep 2012

FORECAST:
- Expected

OFFICIAL FORECAST:
- Reasonable Maximum
- Final
- Reasonable Minimum
- 90%-50% (Final)
- 50%-10% (Final)

OBSEVED:
- Monthly (GOMPZZZ)

NORMALS:
- Monthly
- Period Sum

HISTORY (1981-2010):
- Period Minimum
- Period Normal
- Period Median
- Period Maximum

Seasonal Water Supply Forecast

Forecast Period: Apr-Jul

450 kaf
50% Exceedence (Official Forecast)

78% of Historical Median

295 kaf
90% Exceedence

67% of Historical Mean

635 kaf
10% Exceedence

34th of 42
Official Historical Flows

Forecast Issued: Mar 1 2012

View Water Supply Forecast Plot

GUNNISON - BLUE MESA RES (BMDC2)
Water Year 2012, Forecast Period Apr-Jul

Seasonal Water Supply Forecast

5300 kaf
50% Exceedence (Official Forecast)

82% of Historical Median
74% of Historical Mean

3200 kaf
90% Exceedence

8200 kaf
10% Exceedence

78th of 103
Official Historical Flows

Forecast Issued: Mar 1 2012

COLORADO - LAKE POWELL, GLEN CYN DAM, AT (GLDAI)
Water Year 2012, Forecast Period Apr-Jul (highlighted)

Seasonal Water Supply Forecast

Forecast Period: Apr–Jul

- 74 kaf (50% Exceedance, Official Forecast)
- 64% of Historical Median
- 63% of Historical Mean

- 51 kaf (90% Exceedance)
- 105 kaf (10% Exceedance)

95th of 108 (Official Historical Flows)

Forecast Issued: Mar 1 2012

WEBER - OAKLEY, NR (OAWU1)

Water Year 2012, Forecast Period Apr-Jul (highlighted)

### Seasonal Water Supply Forecast

**Forecast Period:** Mar–May

<table>
<thead>
<tr>
<th>Forecast</th>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>50% Exceedence (Official Forecast)</td>
<td>100 kaf</td>
<td>49% of Historical Median</td>
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<tr>
<td>90% Exceedence</td>
<td>46 kaf</td>
<td>0% of Historical Mean</td>
</tr>
<tr>
<td>10% Exceedence</td>
<td>186 kaf</td>
<td>77th of 99 Official Historical Flows</td>
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**Forecast Issued:** Mar 1 2012

[View Water Supply Forecast Plot](www.cbrfc.noaa.gov/gmap/gmapm.php?wcon=checked)
Online Publication

Water Supply Outlook, March 1, 2012

New 1981-2010 Averages being used this year.
Click on text box for publication. Colors indicate the values of residual forecasts.

Upper Colorado Mainstem Specific Site Forecasts (kaf)

<table>
<thead>
<tr>
<th>Site Name</th>
<th>Forecast Period</th>
<th>90% Exceedance Volume</th>
<th>50% Exceedance Volume</th>
<th>Percent Average</th>
<th>10% Exceedance Volume</th>
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</thead>
<tbody>
<tr>
<td>Colorado</td>
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<tr>
<td>Lake Granby, Granby, Nr</td>
<td>April-July</td>
<td>200</td>
<td>260</td>
<td>124</td>
<td>370</td>
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<td>Willow Ck</td>
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<td>Willow Ck Res, Granby, Nr</td>
<td>April-July</td>
<td>44</td>
<td>70</td>
<td>137</td>
<td>102</td>
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<td>Fraser</td>
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<td>Winter Park</td>
<td>April-July</td>
<td>15</td>
<td>23</td>
<td>115</td>
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<td>Williams Fork Res, Parshall, Nr</td>
<td>April-July</td>
<td>76</td>
<td>110</td>
<td>116</td>
<td>150</td>
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<td>Muddy Ck</td>
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<td>Wolford Mtn Res, Blo</td>
<td>April-July</td>
<td>46</td>
<td>76</td>
<td>127</td>
<td>114</td>
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<td>Blue</td>
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<tr>
<td>Dillon Res</td>
<td>April-July</td>
<td>134</td>
<td>200</td>
<td>120</td>
<td>280</td>
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<td>Green Mtn Res</td>
<td>April-July</td>
<td>225</td>
<td>335</td>
<td>120</td>
<td>465</td>
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<td>Kremmling, Nr</td>
<td>April-July</td>
<td>720</td>
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<td>Eagle</td>
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<td>Gypsum, Blo</td>
<td>April-July</td>
<td>250</td>
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<td>Dotsero, Nr</td>
<td>April-July</td>
<td>1140</td>
<td>1720</td>
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<td>Frying Pan</td>
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<td>Ruedi Res, Basalt, Nr</td>
<td>April-July</td>
<td>112</td>
<td>160</td>
<td>113</td>
<td>215</td>
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<td>Roaring Fork</td>
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<td>Glenwood Springs</td>
<td>April-July</td>
<td>570</td>
<td>840</td>
<td>118</td>
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<td>Glenwood Springs, Blo</td>
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<td>2560</td>
<td>119</td>
<td>3600</td>
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<tr>
<td>Cameo, Nr</td>
<td>April-July</td>
<td>1960</td>
<td>2910</td>
<td>120</td>
<td>4020</td>
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<tr>
<td>Plateau Ck</td>
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<tr>
<td>Cameo, Nr</td>
<td>April-July</td>
<td>100</td>
<td>160</td>
<td>139</td>
<td>250</td>
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<tr>
<td>Colorado</td>
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<tr>
<td>Cisco, Nr</td>
<td>April-July</td>
<td>3640</td>
<td>5620</td>
<td>121</td>
<td>8020</td>
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<td>Mill Ck</td>
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<td>April-July</td>
<td>2.9</td>
<td>6</td>
<td>120</td>
<td>10.8</td>
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<td>Colorado</td>
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<tr>
<td>Lake Powell, Glen Cyn Dam, At</td>
<td>April-July</td>
<td>5860</td>
<td>9500</td>
<td>120</td>
<td>14000</td>
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</tbody>
</table>

Peak Flow Forecasts

Long Lead Peak Flow Forecasts

- Snowmelt maximum mean daily flow (April‐July)
- Probabilistic Forecasts Exceedence Probabilities - 10%, 25%, 50%, 75%, 90%
- Issued (at least) monthly from March‐June (this year semi‐monthly starting in April)
- ~60 forecast points – some unregulated, some regulated

Daily Forecasts

- Full Hydrograph out 14 days
- Includes temperature (10 days) and precipitation (5 days)
- Includes any knowledge of future regulation (e.g., reservoir release)
- Single value forecast
- Issued daily by 10am MDT and updated throughout day
- ~450 forecast points
Spring Weather Really Matters

• Runoff characteristics are largely determined by the day-to-day spring weather.
  – While large snow pack years increase chances for flooding, it is not an inevitability
  – Small snow pack years (like last year) can flood with the right sequence of spring temperatures
Peak Flow Forecast Synopsis

• All 50% forecasts (much) below flood stages
• Only one point (Logan R) with a 10% chance of flooding
• Upper Green has somewhat higher chances of river flows near bankful reflecting near average snow pack in that drainage
CBRFC News

• Basin Focal Points (Available to discuss forecasts: 801.524.5130)
  – Upper Colorado: Brenda Alcorn / John Lhotak
  – Green: Ashley Nielson
  – San Juan / Gunnison: Greg Smith
  – Great Basin: Brent Bernard
  – Sevier / Virgin: Stacie Bender
  – Lower Colorado (below Lake Powell): Tracy Cox

• Misc:
  – New CBRFC webpage (www.cbrfc.noaa.gov) - “How to use the webpage” webinar recording available
  – Lake Powell forecast page development
  – Future webinar dates announced:
    • April 6 at 10am MT
    • May 4 at 1pm MT
    • June 6 at 1pm MT

  – Weekly ESP model guidance
  – mail product updates via govdelivery
  – Blog
More Resources

- [www.cbrfc.noaa.gov](http://www.cbrfc.noaa.gov)
- [Wateroutlook.nwrfc.noaa.gov](http://Wateroutlook.nwrfc.noaa.gov)
- Tentative February webinar: 10am Mar 7
Feedback, Questions, Concerns always welcome….

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