Missouri Basin Climate/Drought Early Warning Webinar: El Niño

MRBIR 2015 Summer Meeting
Bismarck, ND

Allen Schlag & Doug Kluck (NOAA)
Dr. Dennis Todey (State Climatologist
South Dakota State Univ.)

El Nino Extreme Potentials

- Likelihood of extreme events – precip or temp in highest/lowest 20% of years.
- [http://www.esrl.noaa.gov/psd/enso/climaterisks/](http://www.esrl.noaa.gov/psd/enso/climaterisks/)
Fall (Sep – Nov) Precipitation and Temperature Extremes

SON Precipitation Extremes During El Nino
Risk of Extreme Wet or Dry Years

SON Temperature Extremes During El Nino
Risk of Extreme Warm or Cold Years

http://www.esrl.noaa.gov/psd/enso/climaterisks/
Winter (Dec - Feb) Precipitation and Temperature Extremes

DJF Precipitation Extremes During El Nino
Risk of Extreme Wet or Dry Years

DJF Temperature Extremes During El Nino
Risk of Extreme Warm or Cold Years

http://www.esrl.noaa.gov/psd/enso/climaterisks/
Climate Outlooks

- Fall and Winter Outlooks
- Seasonal Drought Outlooks
3 Month Temperature and Precipitation Probabilities (Sept. – Nov.)

Temperature

Precipitation

http://www.cpc.ncep.noaa.gov/products/predictions/long_range/seasonal.php?lead=1
3 Month Temperature and Precipitation Probabilities
(December - February)

http://www.cpc.ncep.noaa.gov/products/predictions/long_range/seasonal.php?lead=1
Drought Outlook through Oct 31

U.S. Seasonal Drought Outlook
Drought Tendency During the Valid Period

Valid for July 16 - October 31, 2015
Released July 16, 2015

Depicts large-scale trends based on subjectively derived probabilities guided by short- and long-range statistical and dynamical forecasts. Use caution for applications that can be affected by short lived events. "Ongoing" drought areas are based on the U.S. Drought Monitor areas (intensities of D1 to D4).

NOTE: The tan areas imply at least a 1-category improvement in the Drought Monitor intensity levels by the end of the period, although drought will remain. The green areas imply drought removal by the end of the period (D0 or none).

Author:
Brad Pugh
NOAA/NWS/NCEP/Climate Prediction Center


http://go.usa.gov/hHTE
El Niño current and strengthening
- Some current impacts
- Very likely to impact winter across nation

- Mixed Temp. and Precip. currently from some places quite wet to fairly dry
- Drought in western MT
- Current ag conditions generally OK
Wetter conditions more likely in the fall central and southern plains

Could extend further north (composites and models)

Winter likely warmer northern areas of basin

Dry quite likely MT/parts WY

Less snow accumulation mountains/plains
Ag Issues

* Currently no major wetness issues (a few minor ones) – some dryness issues in the Missouri Basin
* Crop development generally OK – rangeland OK
* Fall Wetness could lead to delayed harvest – if very wet
* Warmer winter – winter wheat?
* Rangeland
* Spring – question mark on shift out of El Niño
Upper Missouri Basin Impacts

- Water/Missouri River (snowpack, plains & mountains)
- Agriculture
- Fire
- Energy
- Municipal Costs (storm costs)
**In Closing**

- Probabilities, not absolutes
- Potential pitfalls include AO, PDO, to name a couple
U.S. Drought Monitor

July 28, 2015
(Released Thursday, Jul. 30, 2015)
Valid 8 a.m. EDT

Drought Impact Types:
- Delineates dominant impacts
- S = Short-Term, typically less than 6 months (e.g. agriculture, grasslands)
- L = Long-Term, typically greater than 6 months (e.g. hydrology, ecology)

Intensity:
- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme Drought
- D4 Exceptional Drought

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

http://droughtmonitor.unl.edu/
Potential for below average snowpack and snow cover on the ground in much of the North Central region during El Niño

http://www.cpc.ncep.noaa.gov/products/precip/CWlink/ENSO/composites/EC_ENS_index.shtml
Fire Issues

- Complicated issues – what is the problem this year?
  - Dry surfaces
  - Less snow
  - Wet fall?
- Affected by fall pcp
- Open winter likely plains quite likely
- Likely location specific