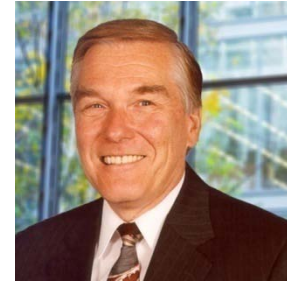


Joint FTF and WATF Meeting | March 21, 2013

CWCB Colorado Flood Threat Bulletin Program

Our Team



John Henz, CCM
Senior Meteorologist



Stuart Geiger, CFM
Flood Risk Advisor



Robert Rahrs, GISP
Meteorologist



Mathew Mampara, PE, CFM
Senior Flood Risk Advisor



Ryan Towell
Meteorologist



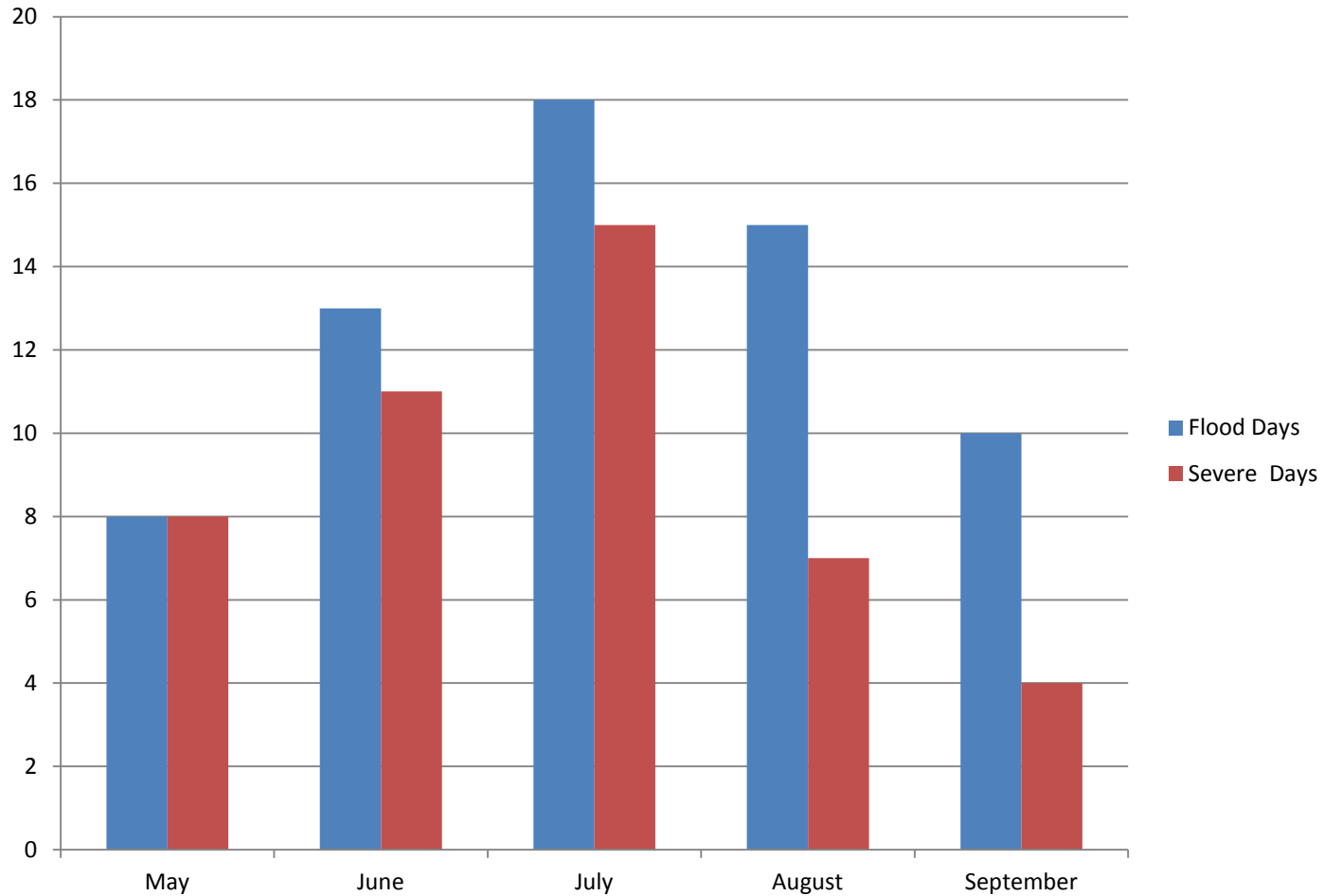
Zack Roehr, CFM
Database Analyst



Colorado's flood threat = meteorology and topography

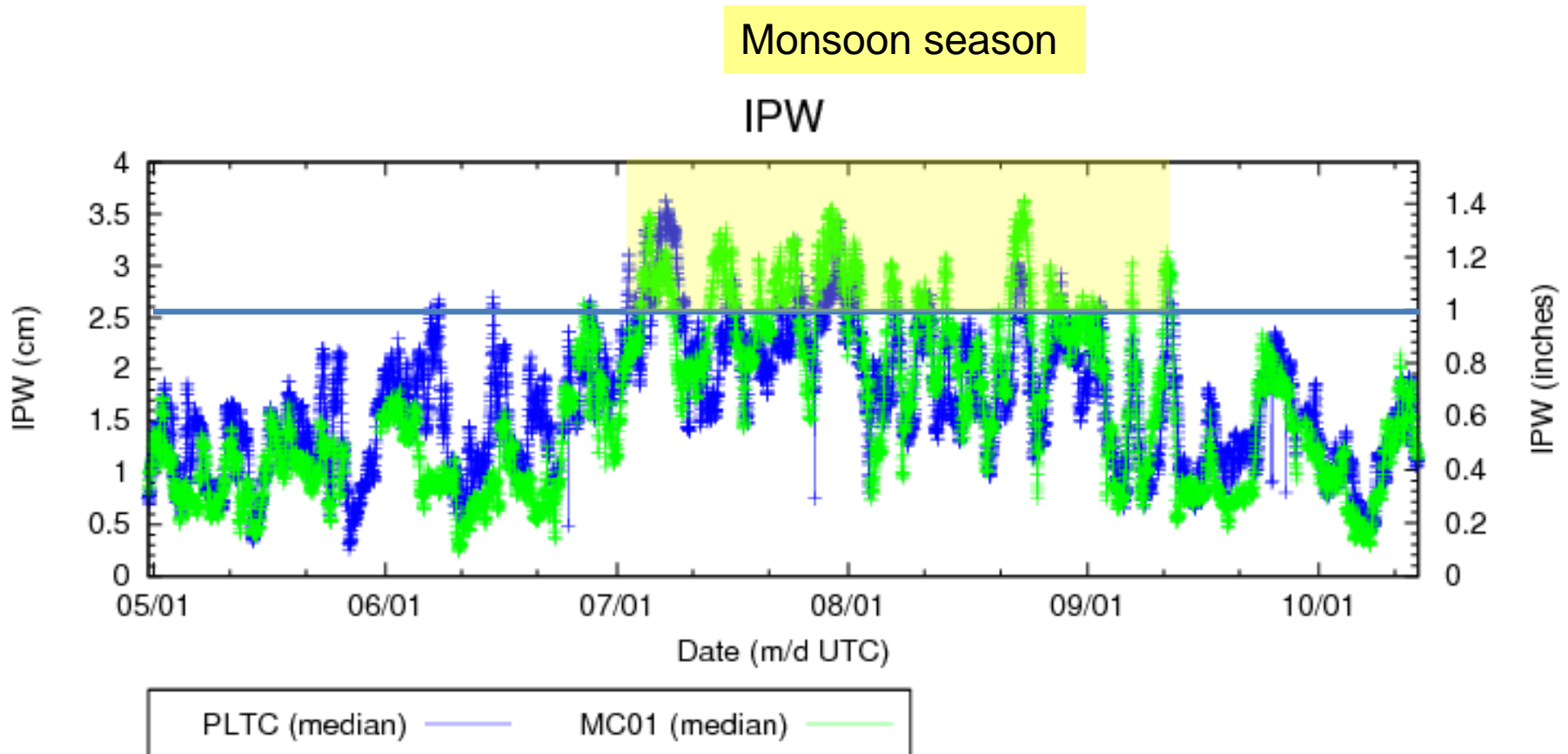
Colorado's "meteorological mixing pot of weather" is further stirred by its interactions with complex terrain. Along the front Range unique terrain induced features like "the Denver Cyclone" increase the threat of urban flash flooding. West of the Continental Divide long periods of above normal heat can trigger spring snow melt flooding. Monsoon moisture surges can bring the threat of "Big Thompson-like" flash floods.

Comparison of the number of severe weather and flood days observed in Colorado, May – September 2012



Integrated Precipitable Water (IPW) May 1 – Oct 15, 2012

Grand Junction and Platteville



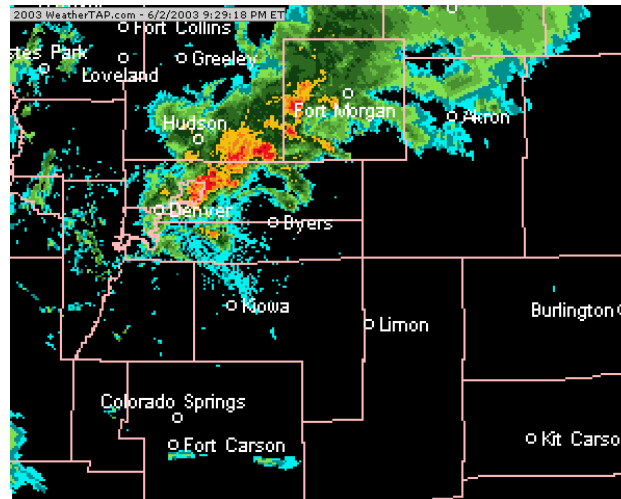
Colorado Flood Threat Bulletin

Runs from May 1 to September 30.

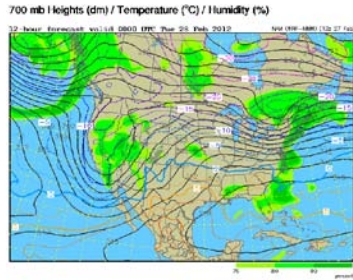
- www.coloradofloodthreat.com
- Web-based forecast of snow-melt, river and flash flooding threat in Colorado on a county-specific basis.
- **Storm Total Precipitation Map:** Google-Earth based map of precipitation over past 24 hours.
- **Flood Threat Bulletin:** 24-hr statewide, county-specific flood threat prediction available daily by 1100AM.
- **Flood Threat Outlook:** 15-day statewide, flood threat probability and precipitation amount outlook issued Tuesday and Thursday.

A Day in the Life of the FTB/FTO

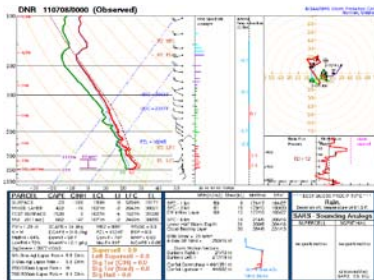
www.coloradofloodthreat.com



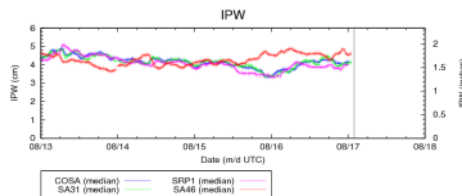
Observations



Surface Observations

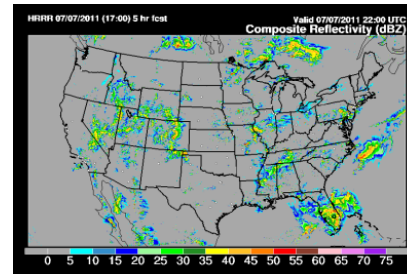


Soundings

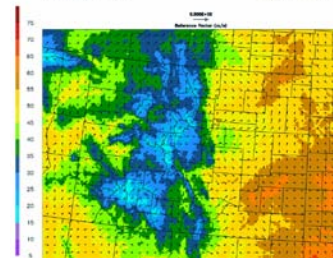


Atmospheric Moisture

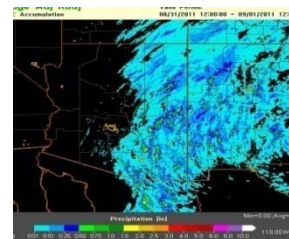
Models



HRRR

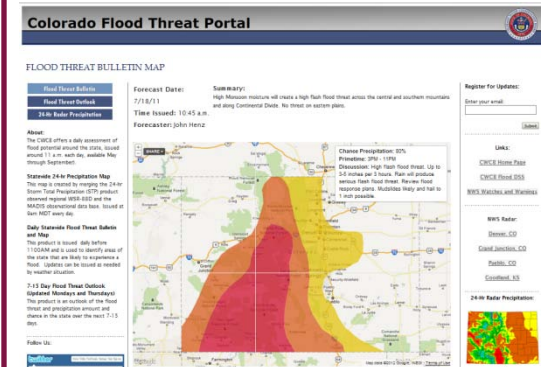


NSSL-WRF



WRF (U of A)

Colorado Flood Threat Bulletin

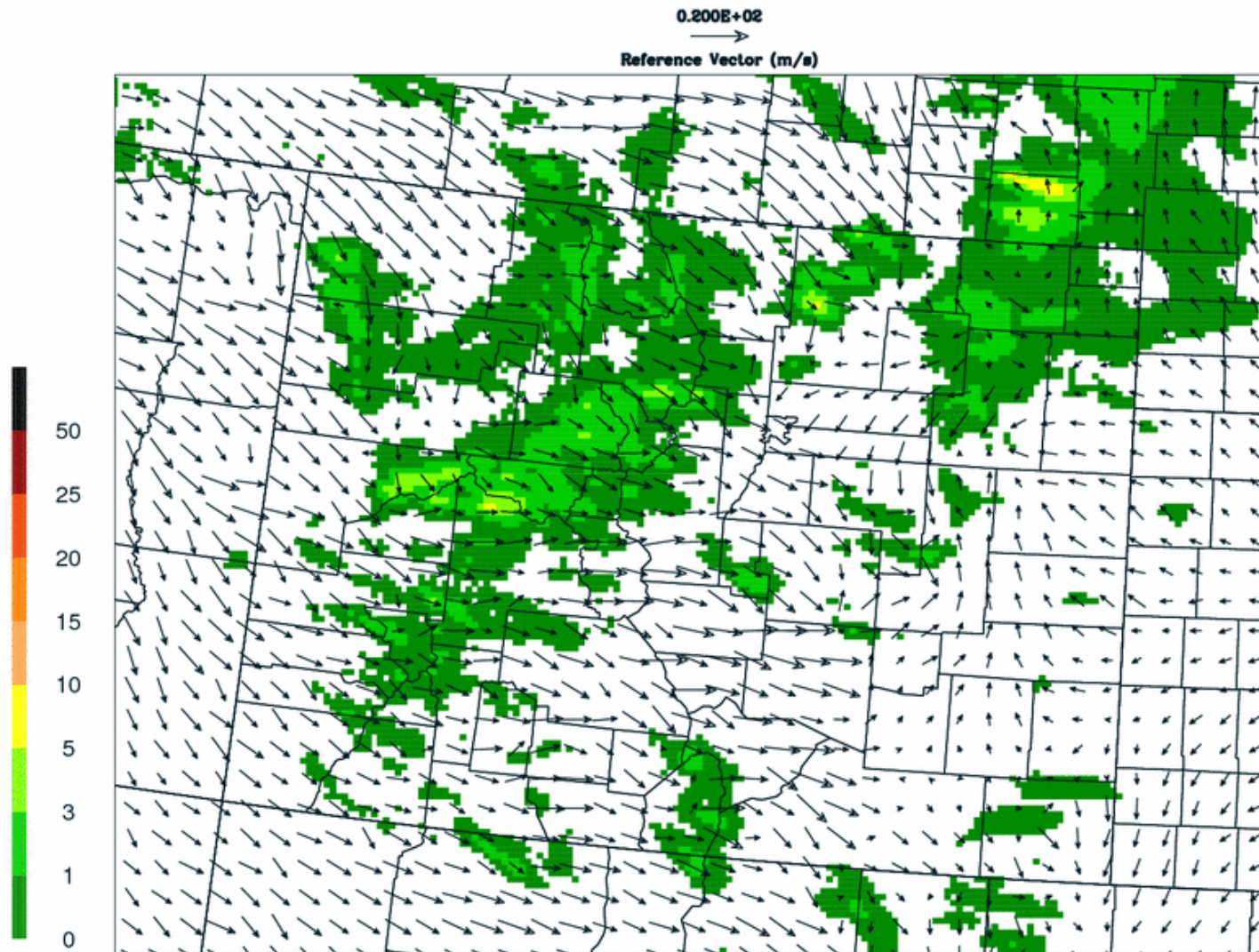


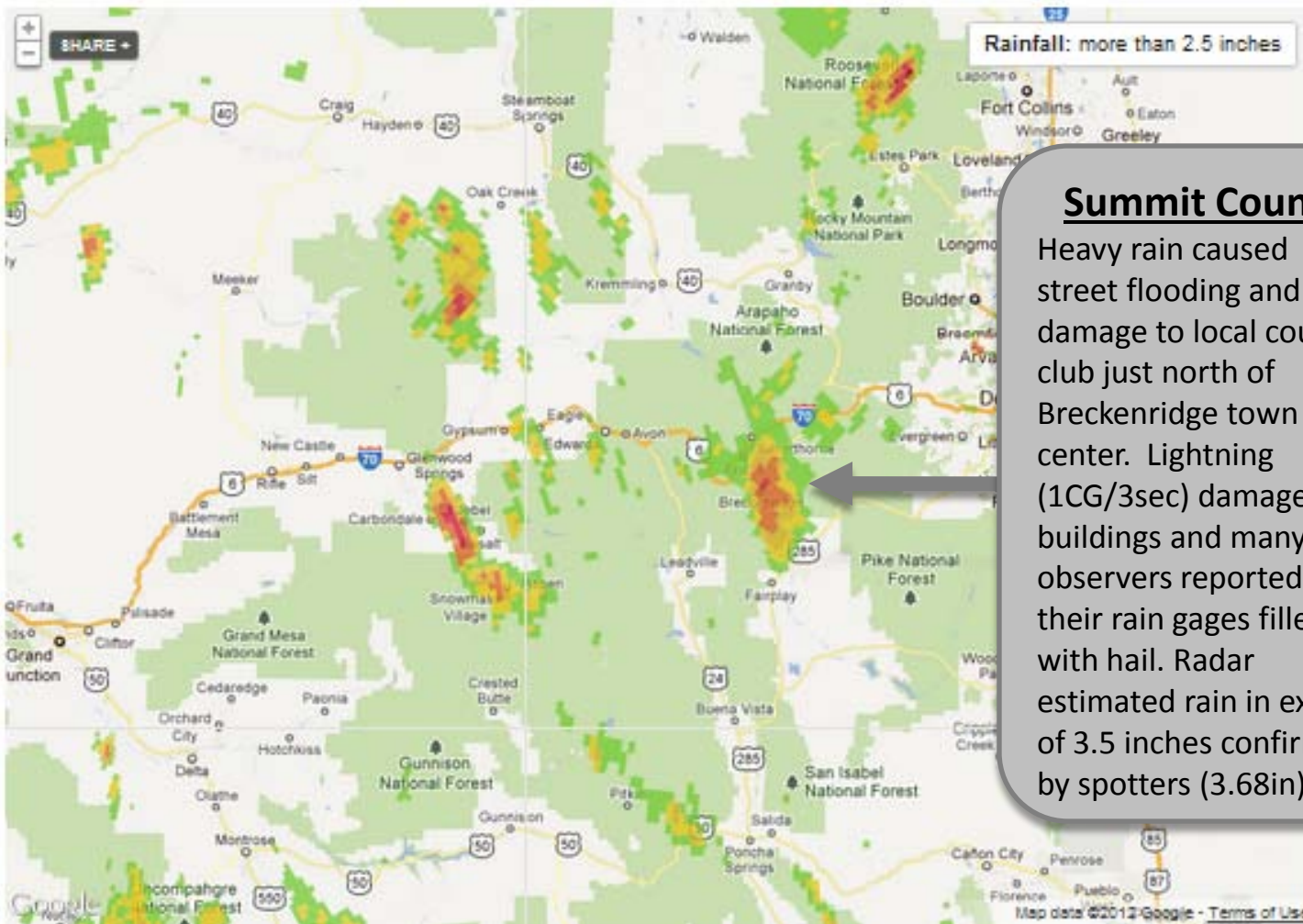
- Experienced analysts
- State of practice models
- Observation-based
- GIS-based for easy sharing

Forecasts made on a county-specific basis for a 24-hour period

1h Prec, 10m WIND
01h accum
VALID 21Z 21 MAR 13

NSSL Realtime WRF
21-H FCST
4.0 KM LMB CON GRD



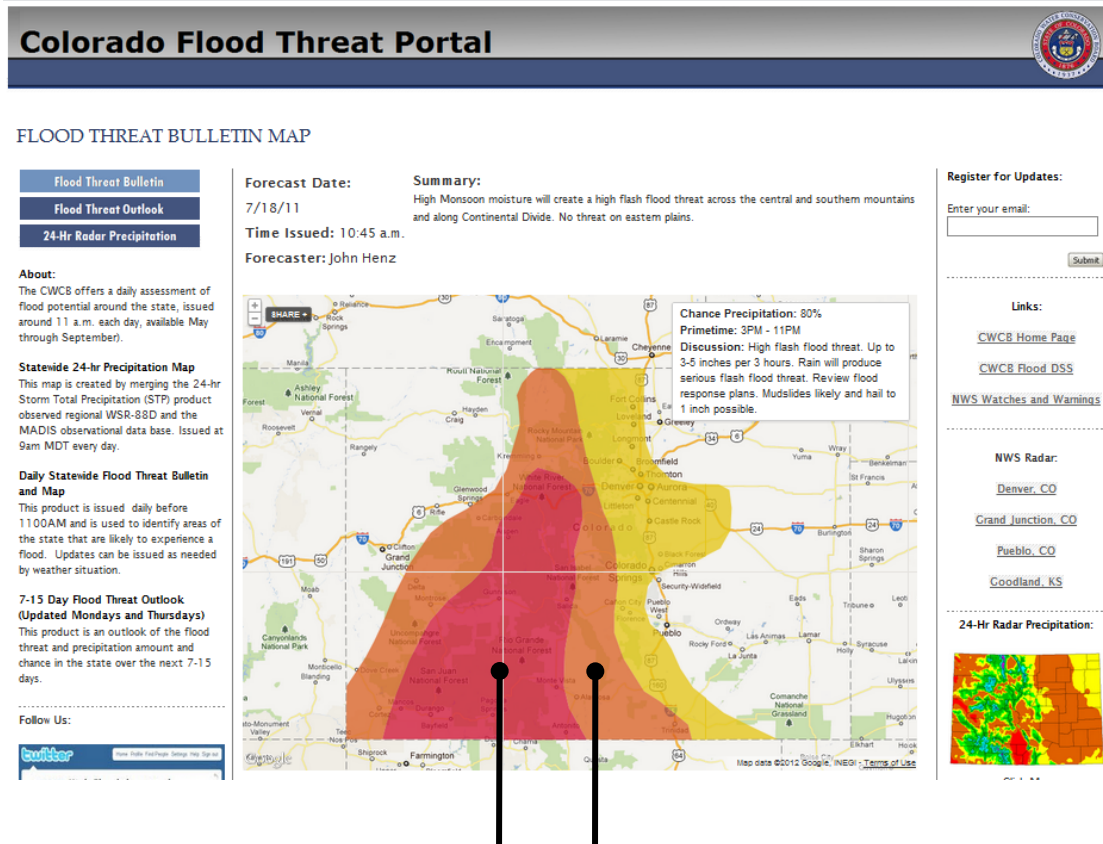


Storm Total Precipitation (STP)

Dewberry's OpenStreet Map-based STP product merges observed National Weather Service WSR-88D Radar Storm Total Precipitation products from the Goodland KS, Front Range CO, Pueblo CO, Grand Junction CO and Cheyenne WY radars. Rainfall < 0.50 inch omitted. MADIS/CoCoRaHS provides observed rainfall. Event summaries included. 3-5 day summed precipitation indicates where soil moisture content may be high enough to promote excessive runoff.

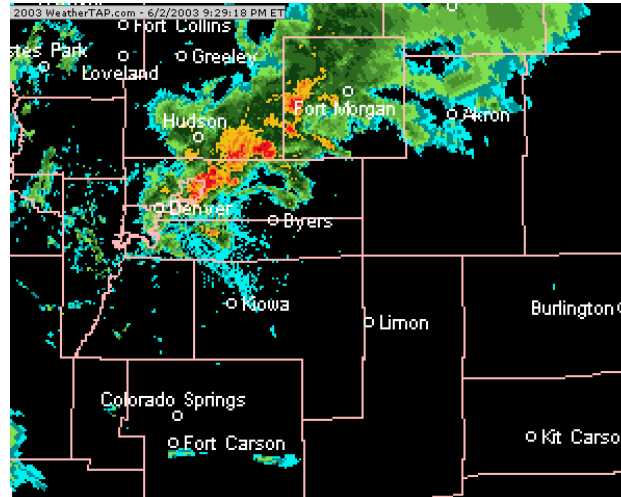
Flood Threat Bulletin

- County-specific forecasts of rainfall and flood threat
- Spatial threat identification
- Prime time for storms
- Storm movement
- Chance of flooding occurrence
- Web-based; PDF ready



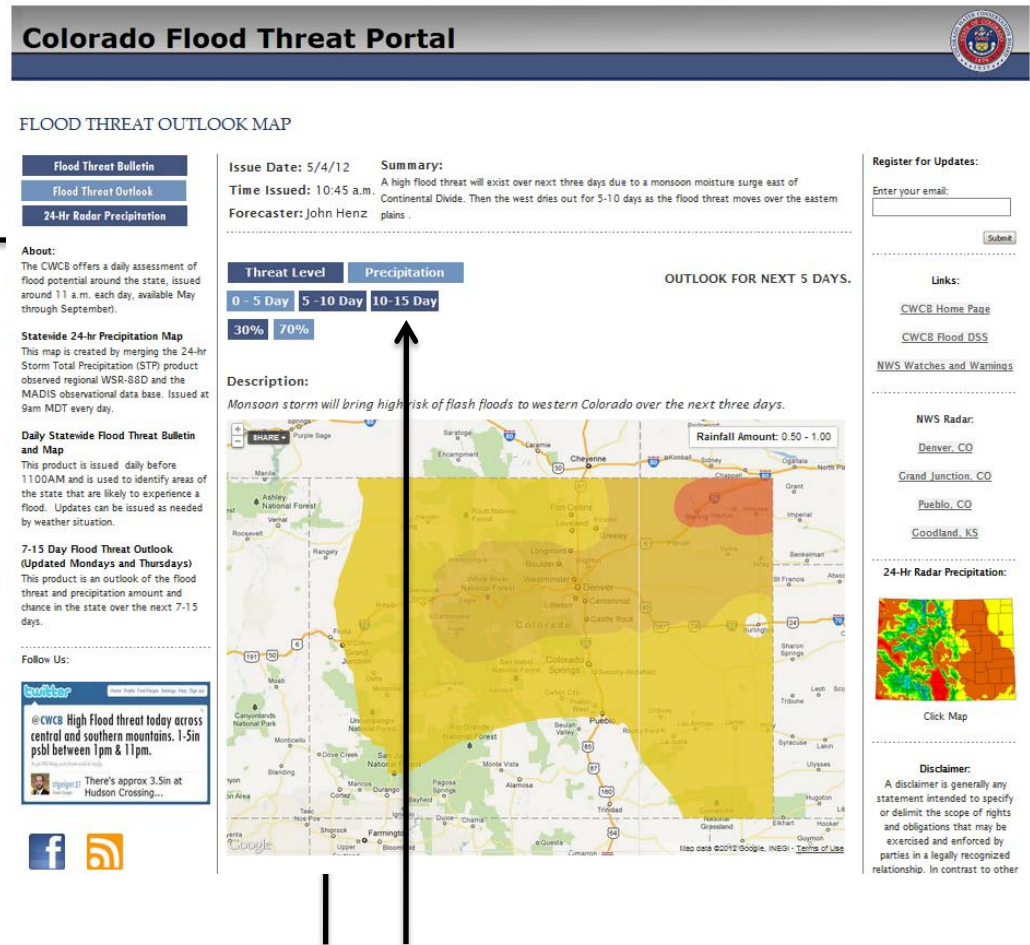
Chance of Precip.	Prime Time	Discussion
80%	6PM – 11PM	High flash flood threat. Up to 3-5 inches per 3 hours. Rain will produce serious flash flood threat. Review flood response plans. Mudslides likely and hail to 1 inch possible.

Flood Threat Outlooks



FTO: Enhanced Display

- Interactive navigation
- Categorical flood threat and precip. outlooks
- Valuable for planning by EMs and water supply interests
- Useful to agriculture and recreational groups



View estimated precipitation for next 5 days. possible (30%) and likely (70%) chance.

FTB Program WRF- Assisted Meteorologist Forecast Metrics Improved during storm season.

Month	Correct FTB Forecasts	Observed Flood Days missed	Flood Days Forecast that did not occur	Number of observed flood days per month	Number of observed flood days predicted	Number of observed flood days not predicted
May	26/31	3	2	8	5 (62%)	3
June	26/30	3	1	13	10 (79%)	3
July	27/31	1	3	18	17 (94%)	1
Aug	25/31	1	5	15	14 (93%)	1
Sept	28/30	2	0	10	8 (80%)	2
Total	132/153 (86%)	10	11	64	54 (84%)	10 (16%)



QUESTIONS

www.coloradofloodthreat.com

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Can you help us?

1. With over a dozen fire-burn areas statewide, are site-specific forecasts valuable to local and state responders?
2. We currently are providing a 15-day precipitation outlook. Is this outlook meeting the needs of state water users?
3. While this product is currently available online, are there other methods we should consider for “getting the word out?”

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