

DATA COLLECTION TO IMPROVE FORECASTING IN RIO GRANDE BASIN

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RIO GRANDE COMPACT
April 3, 2015 Analysis (DWR Estimate)
Closed Basin Project Split: 50/50

CONEJOS RIVER BASIN

DWR 4-3-2015 Forecast of
 April - September Index
 Flows = 203,800

Conejos = 150,000
 Los Pinos = 47,000
 San Ant. = 6,800

J-M & O-D volume 31,200

Obligation = **66,000**

Annual obligation

Index Supply

January 2,600 *
 February 2,500 *
 March 7,800 *
 April - September 203,800 forecast
 October 10,000 estimate
 November - December 8,300 estimate

Total

235,000

Deliveries

January 3,300 *
 February 4,000 *
 March 11,000 *
 April - October **31,200** needed
 Nov - Dec native 8,300 estimate

Total

57,800

Adjustments
 to the
 Delivery

Net Carryover Credit in E.B.
 Paper Credit
 SC Norton Drain Flow
 Remaining CBP Share

(2,100) estimate
 5,000
 2,000 estimate
 3,300 estimate

Delivery Credit

66,000

Expected Dec. 31, 2015 Compact Delivery Status

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- * = Actual measured flows (Deliveries include Closed Basin Project share)
- All values in acre-feet
- Assumes 50% of the Closed Basin Project flows are creditable to the Conejos (Projected delivery of creditable CBP production to the Rio Grande is 9,000 acre-feet)



RIO GRANDE COMPACT
August 4, 2015 Analysis (DWR Forecast)
Closed Basin Project Split: 50/50

CONEJOS RIVER BASIN

DWR Forecast of
 April - September Index
 Flows = 223,400

Index Supply

Conejos = 160,000
 Los Pinos = 57,000
 San Ant. = 6,400

January	2,600	*
February	2,500	*
March	7,900	*
April	26,400	*
May	55,700	*
June	99,200	*
July	25,000	*
August - September	17,100	forecast
October	9,900	estimate
November - December	8,700	estimate

J-M & O-D volume 31,600

Obligation = **78,400**

Total

255,000

Annual Obligation

Deliveries

Curtailment

<u>Required Delivery</u>	<u>6,600</u>	24.4%
Native Index	27,000	

January	3,400	*
February	4,100	*
March	11,100	*
April	3,900	*
May	3,000	*
June	17,600	*
July	11,700	*
August - October	6,600	needed
Nov - Dec native	7,700	estimate

Total 69,100

Adjustments to the Delivery	Net Carryover Credit in E.B.	(2,100)	estimate
	Paper Credit	5,000	
	SC Norton Drain Flow	2,000	estimate
	Remaining CBP Share	1,900	estimate
	Stored Compact water	2,500	

Delivery Credit 78,400

Expected Dec. 31, 2015 Compact Delivery Status -

- * = Actual measured flows (Deliveries include Closed Basin Project share)
- All values in acre-feet
- Assumes 50% of the Closed Basin Project flows are creditable to the Conejos (Projected delivery of creditable CBP production to the Rio Grande is 9,000 acre-feet)



In order to assess the possibility of changing a compact curtailment:

--compared to same day's historical avg flows.

lower water

higher water

Reasons : **just cold** OR

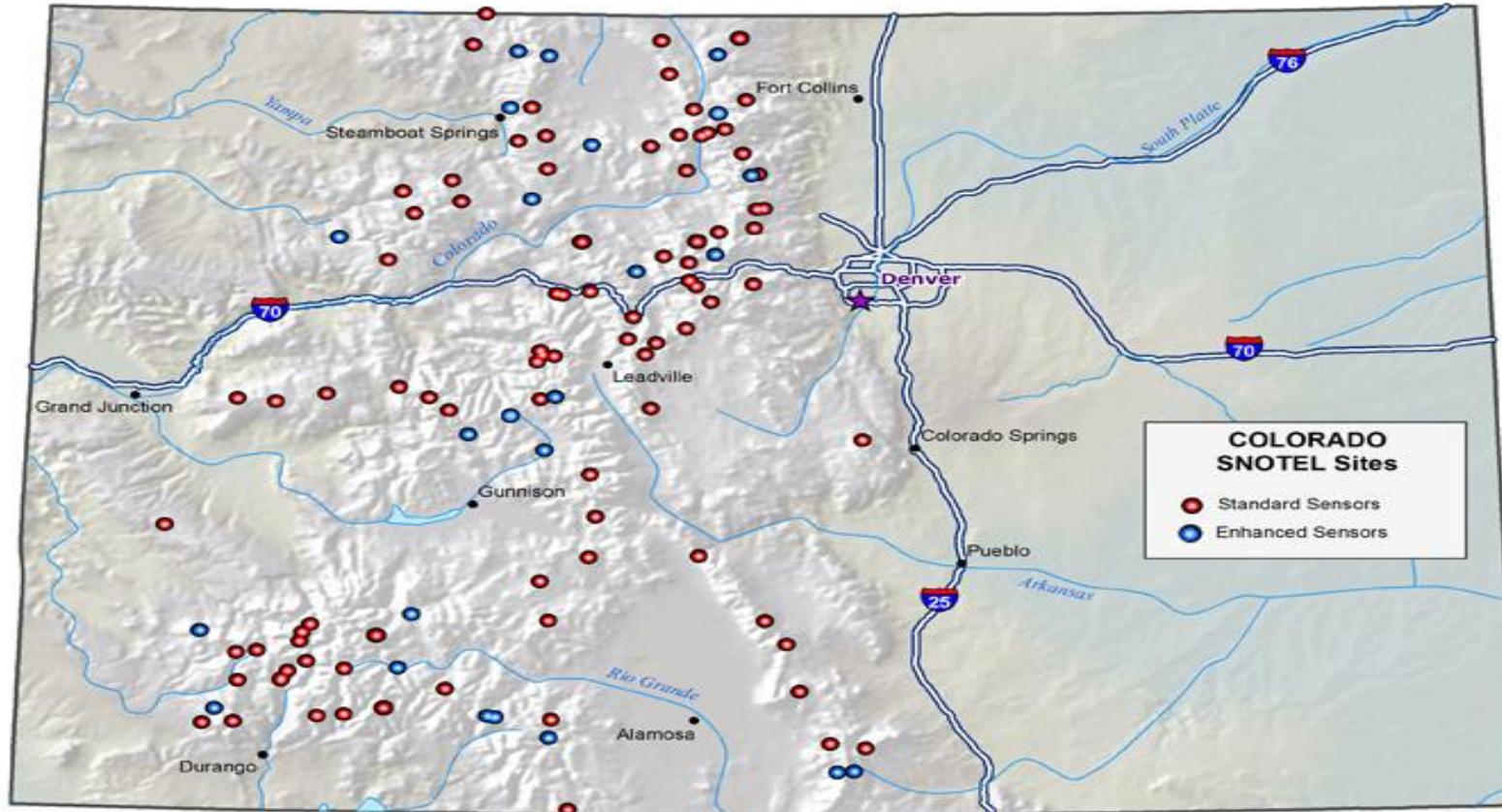
hotter temps

water is not up there OR

more water than expected



Gaps in understanding

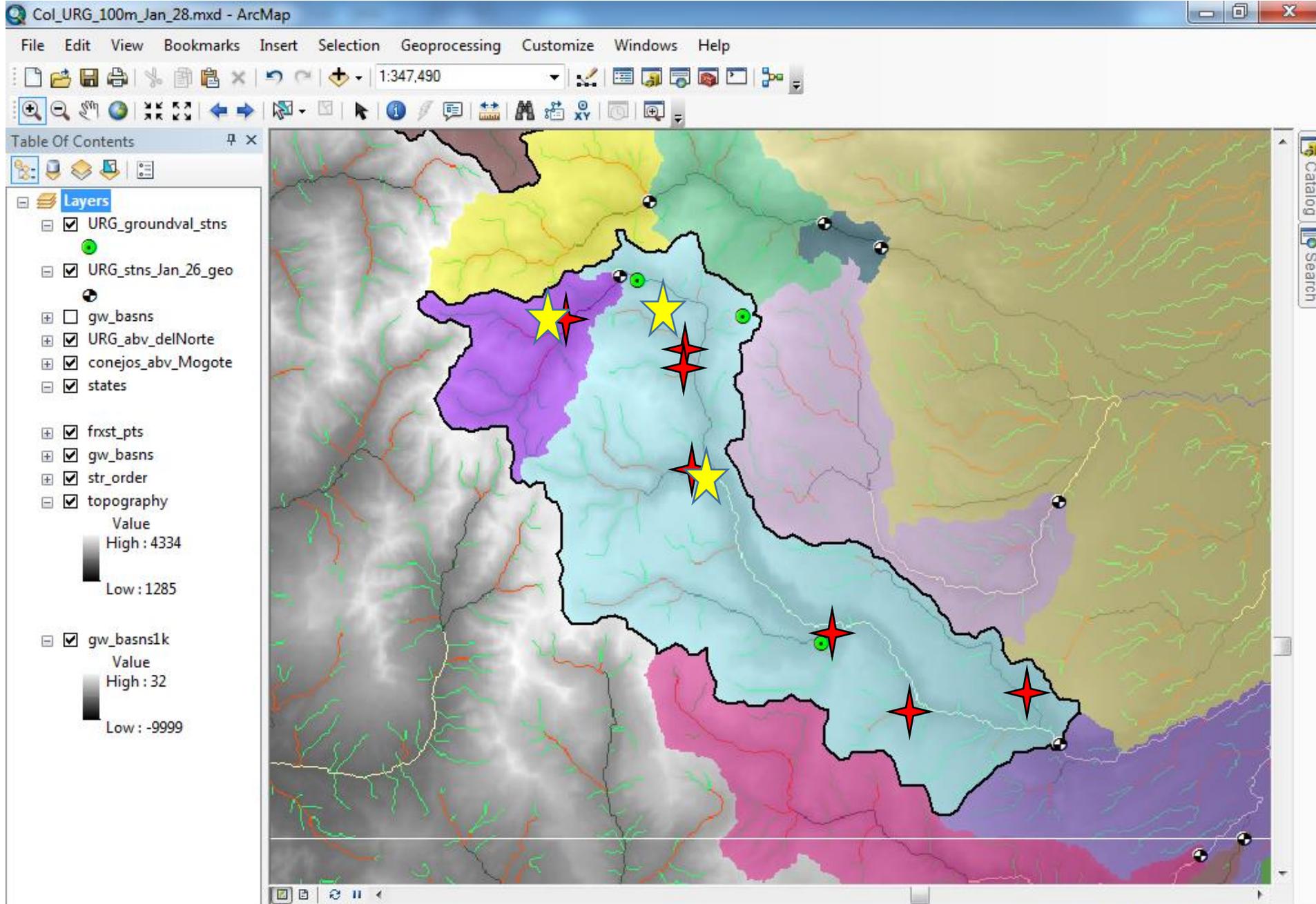


How do you collect better data?

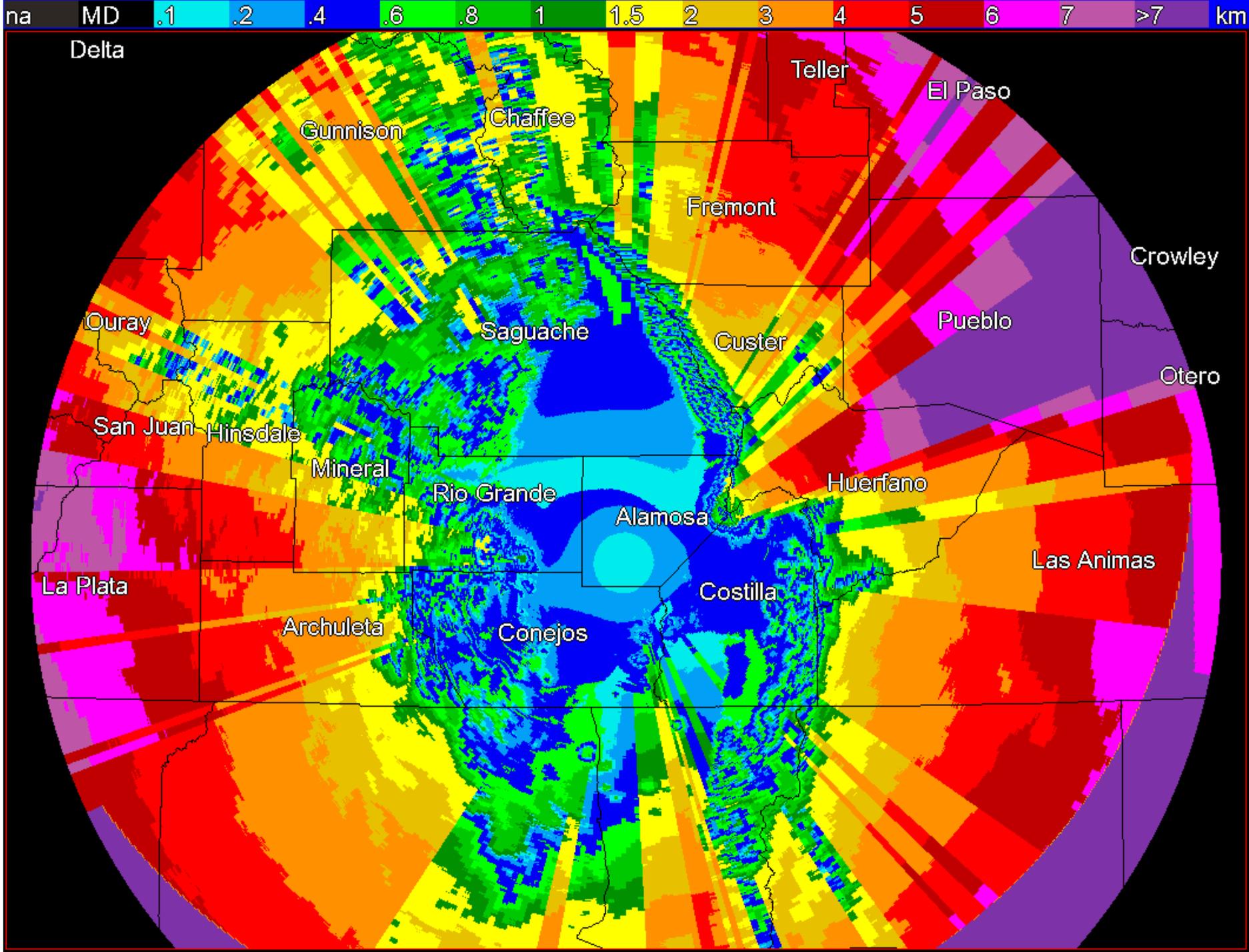


Manual collection is time and labor intensive and not possible in wilderness or remote areas

Ground Validation & Streamflow Measurement Sites



NSSL: Alamosa



Project in a Nutshell

- Deploy more instrumentation where possible
- ASO creates a 3D model of entire basin's topography
- Use truck mounted radar to “see” and measure a winter's worth of snow events
- UCAR integrates data into WRF Hydro model
- DWR can more accurately answer;
- “Why is stream flow today below or above historical averages,..hotter, colder, more water, or less water?”
- Is an adjustment to curtailment and forecast necessary?

“It’s all related.....”



Thank You!!