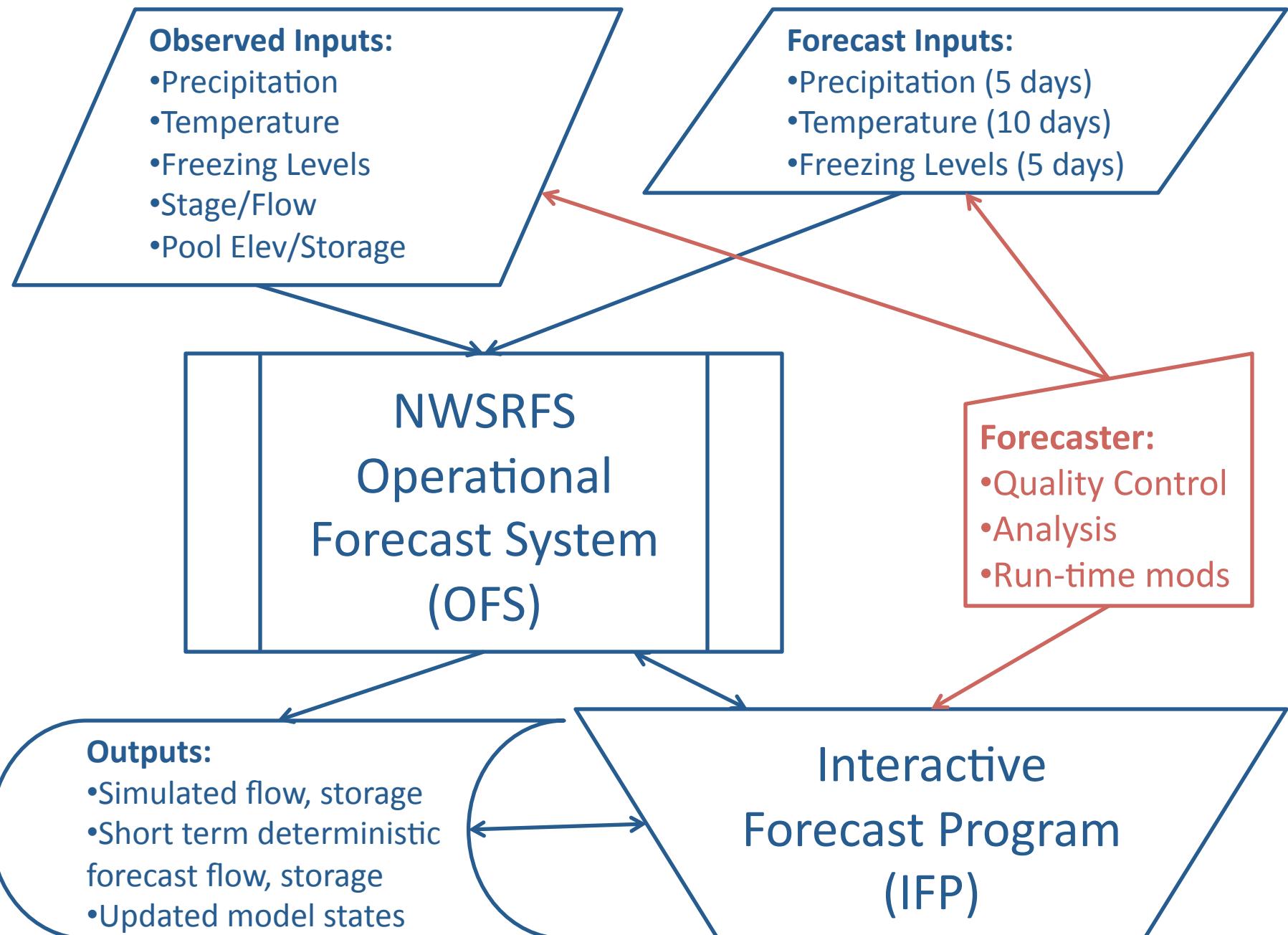


# National Weather Service River Forecast System (NWSRFS) Interactive Forecast Program (IFP)

CBRFC Open House

August 18, 2010



Latitude:

Longitude:

Distance:

Scale 1: 1514133 SJ\_F

### NWS River Forecast System Interactive Forecast Program

Forecast Group      Carryover Group

Carryover dates

GN F	CBRFC F
SJ F	CBRFC F
UC F	CBRFC F
GB F	CBRFC F
SE F	CBRFC F
LC F	CBRFC F
SV F	CBRFC F
GI F	CBRFC F
GRVU1	Special
SPGILA	Special
GLDA3	Special
SPSV	Special
SALT	Special

Use copy of current OFS files

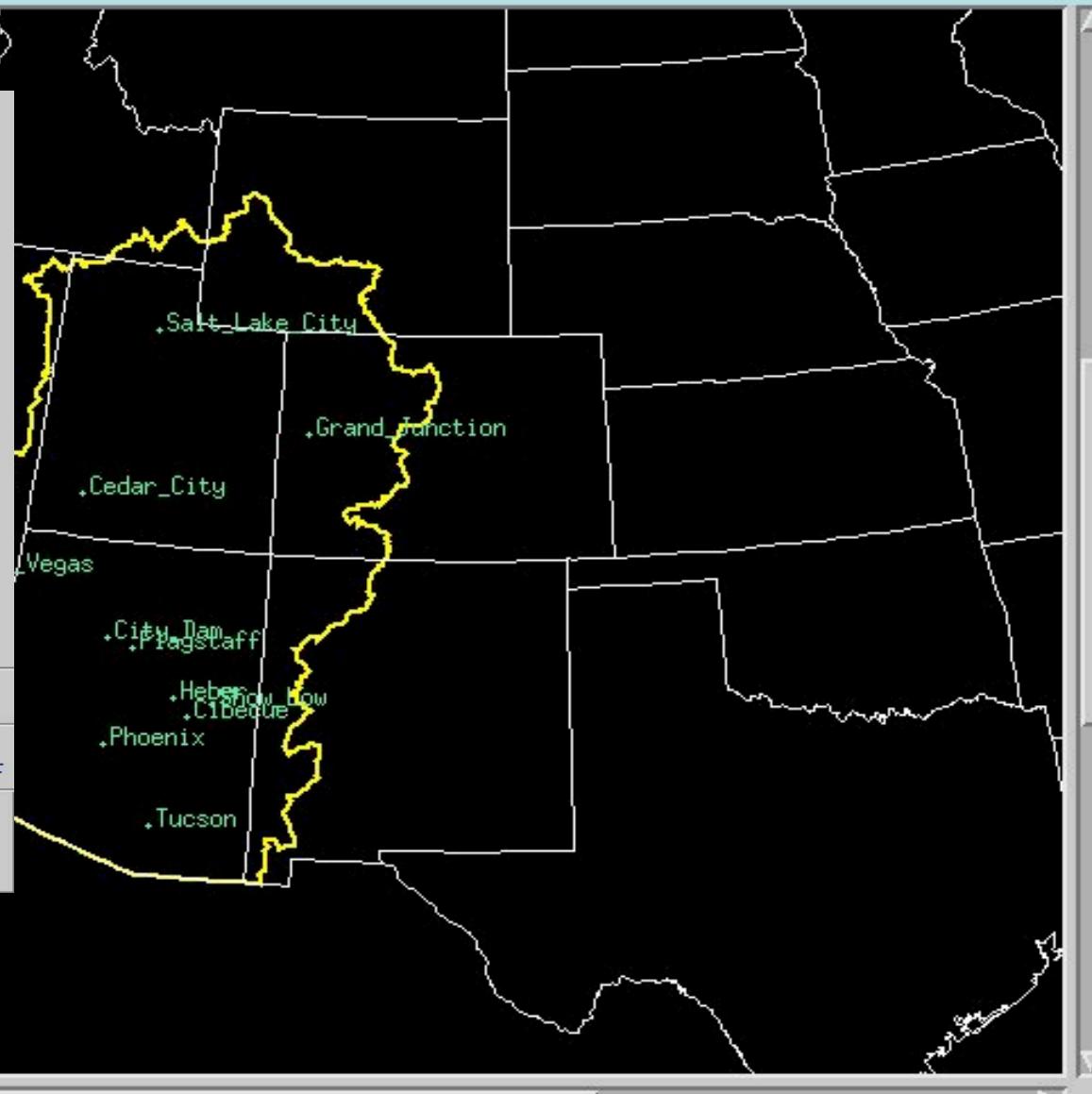
Files last copied from OFS: Wed Aug 11 15:21:06 GMT 2010

Mods last copied to OFS: Wed Aug 11 15:25:16 GMT 2010 UC\_F

Load

Cancel

Help



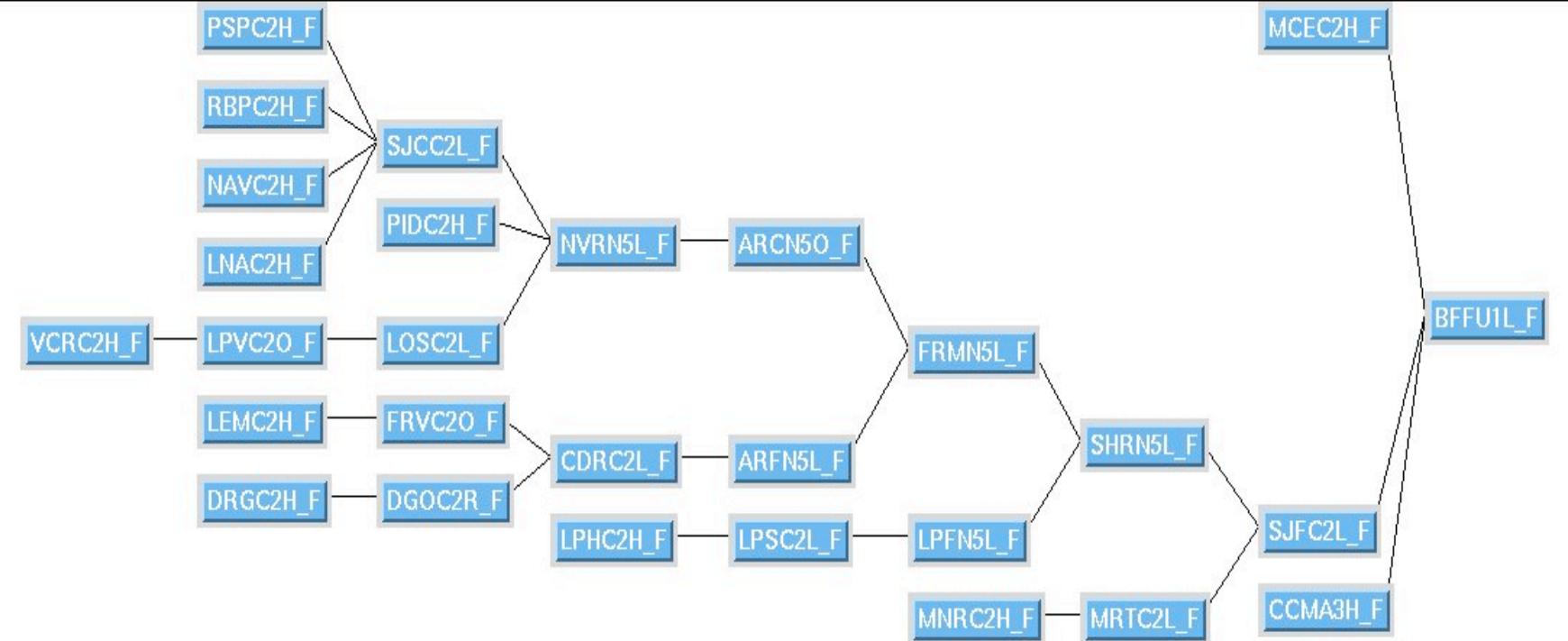
Latitude:

Longitude:

Distance:

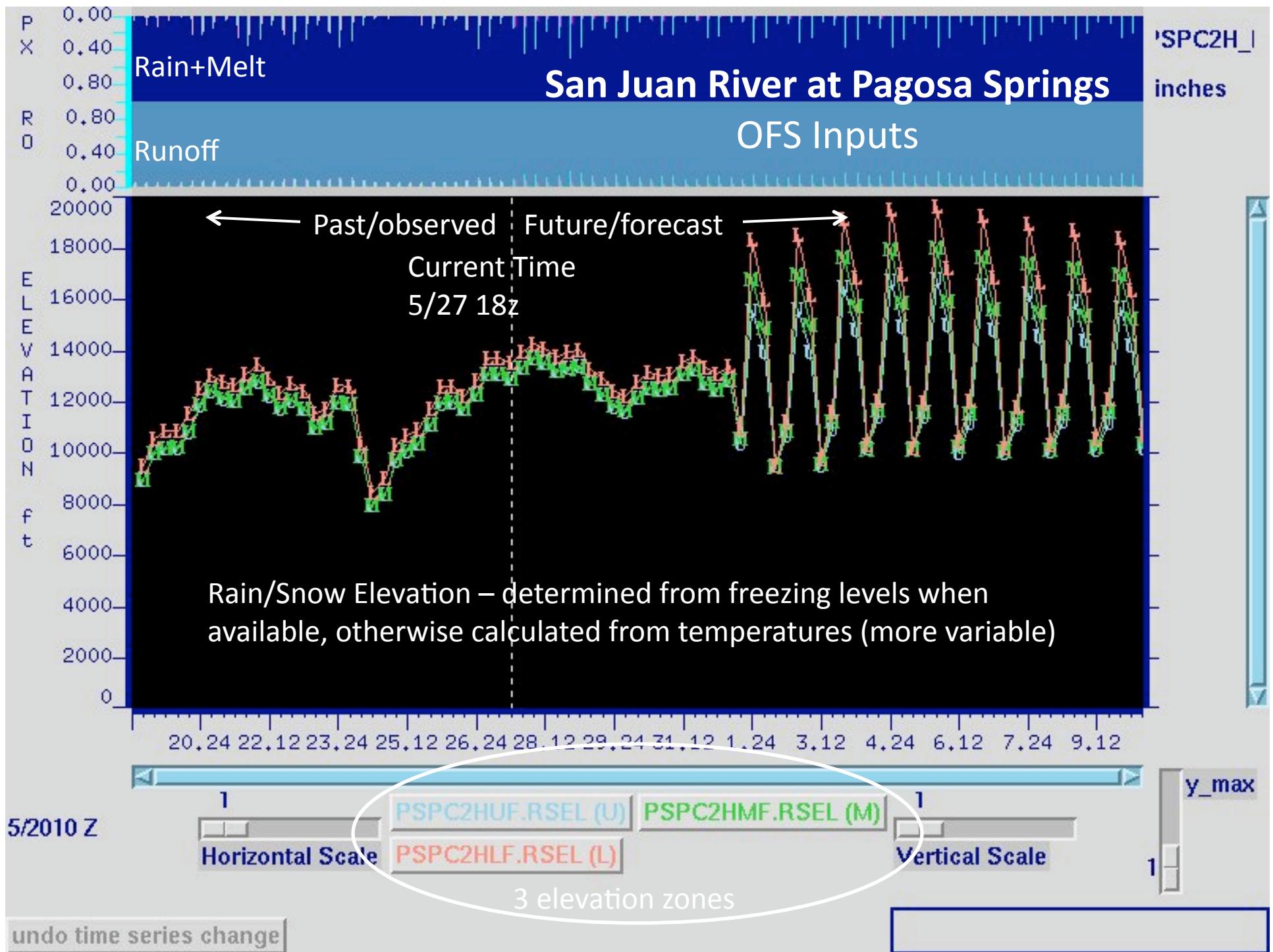
Scale 1: 1514133 SJ\_F

NWS River Forecast System  
Interactive Forecast Program



# San Juan River at Pagosa Springs

## OFS Inputs



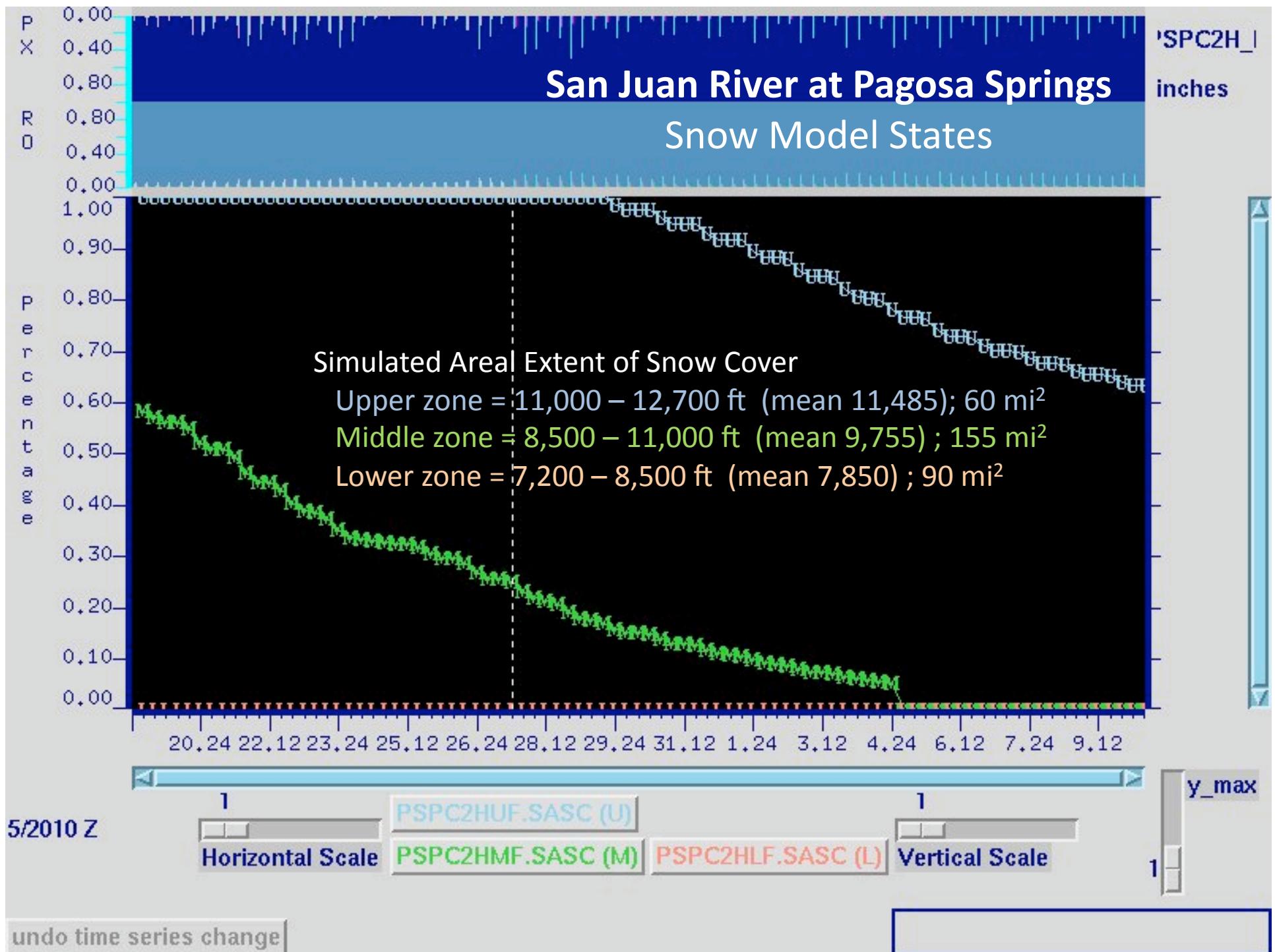
## Mean Areal Temperature

## Mean Areal Precipitation

Day	Hour	PSPC2HUF.MAT	PSPC2HMF.MAT	PSPC2HLF.MAT	PSPC2HUF.MAP	PSPC2HMF.MAP	PSPC2HLF.MAP
24	18	25.80	32.70	38.60	0.00	0.00	0.00
24	24	30.60	40.00	49.10	0.00	0.00	0.00
25	06	26.30	33.50	40.50	0.00	0.00	0.00
25	12	20.90	25.60	30.10	0.00	0.00	0.00
25	18	34.00	40.80	47.40	0.00	0.00	0.00
25	24	44.40	54.00	63.40	0.00	0.00	0.00
26	06	35.30	42.30	49.20	0.00	0.00	0.00
26	12	27.00	31.80	36.30	0.00	0.00	0.00
26	18	40.50	47.60	54.30	0.00	0.00	0.00
26	24	51.40	61.00	70.50	0.00	0.00	0.00
27	06	41.30	48.50	55.60	0.00	0.00	0.00
27	12	30.00	34.90	39.60	0.00	0.00	0.00
27	18	36.90	42.80	48.60	0.00	0.00	0.00
27	24	53.00	61.40	70.00	0.00	0.00	0.00
28	06	48.90	56.20	63.50	0.00	0.00	0.00
28	12	36.70	41.00	45.00	0.00	0.00	0.00
28	18	39.60	45.00	49.80	0.00	0.00	0.00
28	24	52.90	61.80	70.30	0.01	0.01	0.00

# San Juan River at Pagosa Springs

## Snow Model States



## Snow Water Equivalent

## Areal Extent Snow Cover

Day Hour	PSPC2HUF.SWE	PSPC2HMF.SWE	PSPC2HLF.SWE	PSPC2HUF.SASC	PSPC2HMF.SASC	PSPC2HLF.SASC
24 18	24.83	1.91	0.00	1.00	0.28	0.00
24 24	24.79	1.89	0.00	1.00	0.28	0.00
25 06	24.77	1.84	0.00	1.00	0.28	0.00
25 12	24.77	1.82	0.00	1.00	0.28	0.00
25 18	24.77	1.81	0.00	1.00	0.27	0.00
25 24	24.74	1.67	0.00	1.00	0.25	0.00
26 06	24.53	1.57	0.00	1.00	0.24	0.00
26 12	24.39	1.53	0.00	1.00	0.24	0.00
26 18	24.32	1.48	0.00	1.00	0.23	0.00
26 24	24.06	1.29	0.00	1.00	0.21	0.00
27 06	23.55	1.18	0.00	1.00	0.20	0.00
27 12	23.25	1.13	0.00	1.00	0.20	0.00
27 18	23.14	1.09	0.00	1.00	0.19	0.00
27 24	22.90	0.94	0.00	1.00	0.18	0.00
28 06	22.29	0.81	0.00	1.00	0.16	0.00
28 12	21.82	0.76	0.00	0.99	0.15	0.00
28 18	21.61	0.71	0.00	0.98	0.15	0.00
28 24	21.25	0.59	0.00	0.95	0.13	0.00
29 06	20.62	0.50	0.00	0.93	0.12	0.00
29 12	20.20	0.46	0.00	0.92	0.11	0.00
29 18	20.02	0.42	0.00	0.91	0.11	0.00

# San Juan River at Pagosa Springs

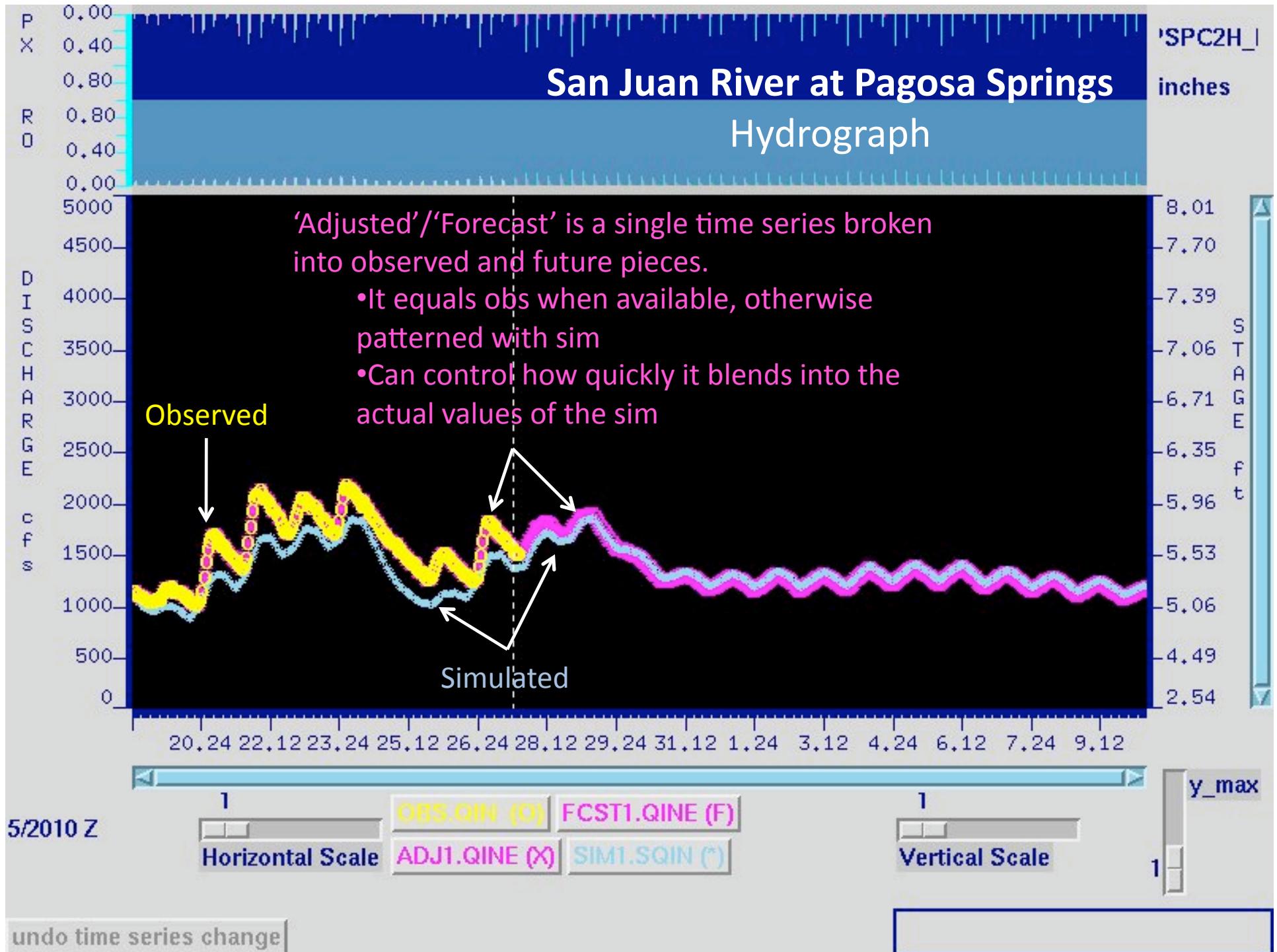
## Hydrograph

'Adjusted'/'Forecast' is a single time series broken into observed and future pieces.

- It equals obs when available, otherwise patterned with sim
- Can control how quickly it blends into the actual values of the sim

Observed

Simulated



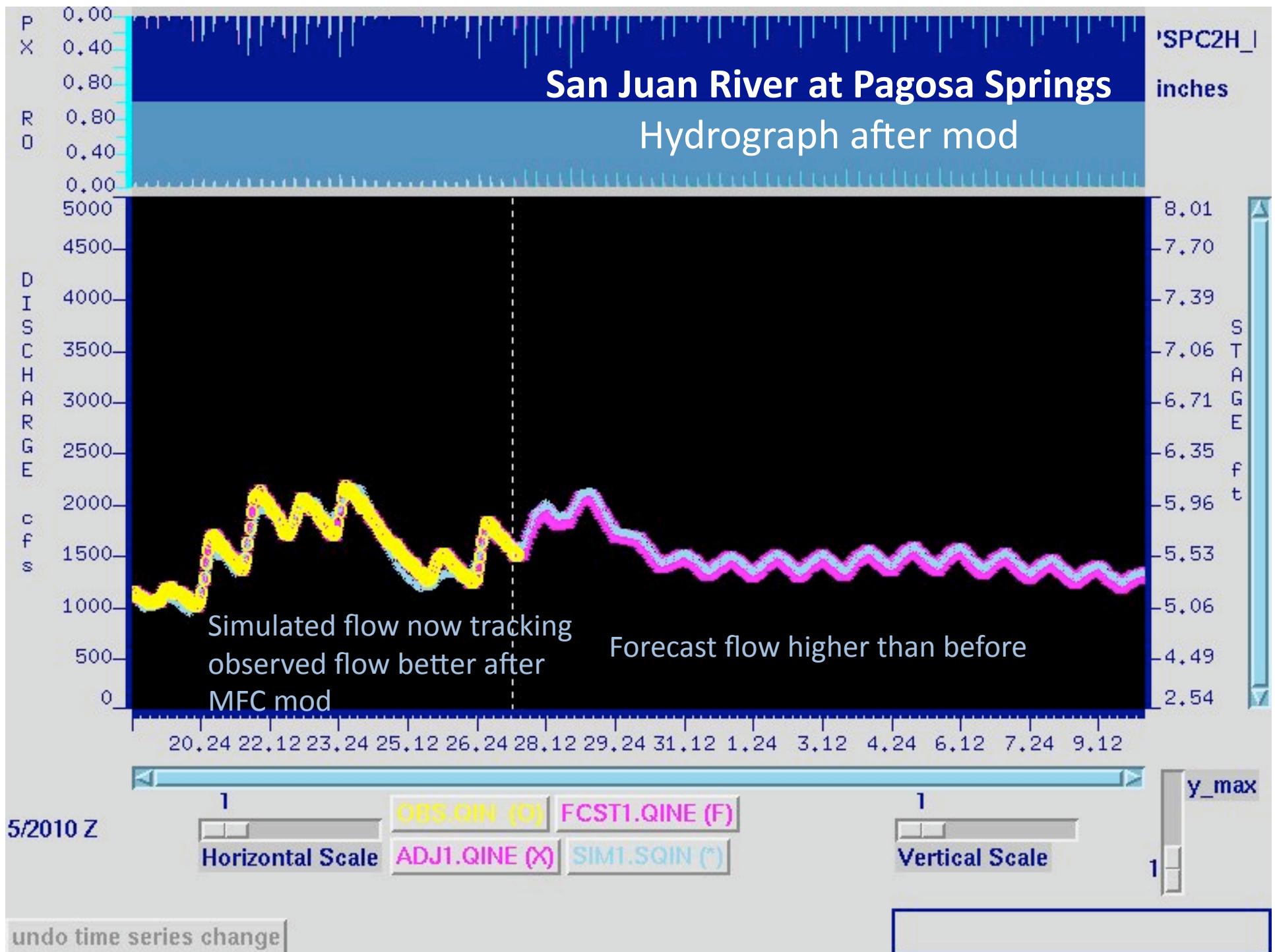
# Run Time Modifications

- Why:
  - Input data is not perfect
  - Calibration is not perfect
  - Models are not perfect
- Most commonly used at CBRFC:
  - Time series
    - Set data to missing
    - Change values - TSCHNG
      - Precipitation
      - Temperature
      - Diversions
    - Change the blend period
    - Set reservoir releases - SETQMEAN
  - Snow model
    - Change the amount of snow water equivalent
    - Change the areal extent of snow cover
    - Increase or decrease melt with a ‘melt factor correction’ - MFC
    - Force precipitation type to rain or snow
  - Soil moisture model
    - Change the contents of tanks

<b>Available Operations</b> Show Mods for ALL	<b>Available Run-time Mods</b> Mod selected MFC
<b>Mod Value</b> 1.25 Dimensionless	<b>Operations/Time-series</b> Type / Name SNOW-17 PSPC2HUF SNOW-17 PSPC2HMF SNOW-17 PSPC2HLF
<b>Mod Dates</b> Start of Mod May 19 2010 18 Z  End of Mod Jun 10 2010 12 Z  [◀] [▶]	<b>Time-series Dates</b> No DATE values for this Mod
<b>Options</b> No options for this Mod Apply to: SEGMENT	<b>Display</b> <input type="checkbox"/> Show Mods Viewer
<b>Create</b> <b>Close</b> <b>Undo</b> <b>Preferences</b> <b>Help</b>	

# San Juan River at Pagosa Springs

## Hydrograph after mod



# IFP COMPANION

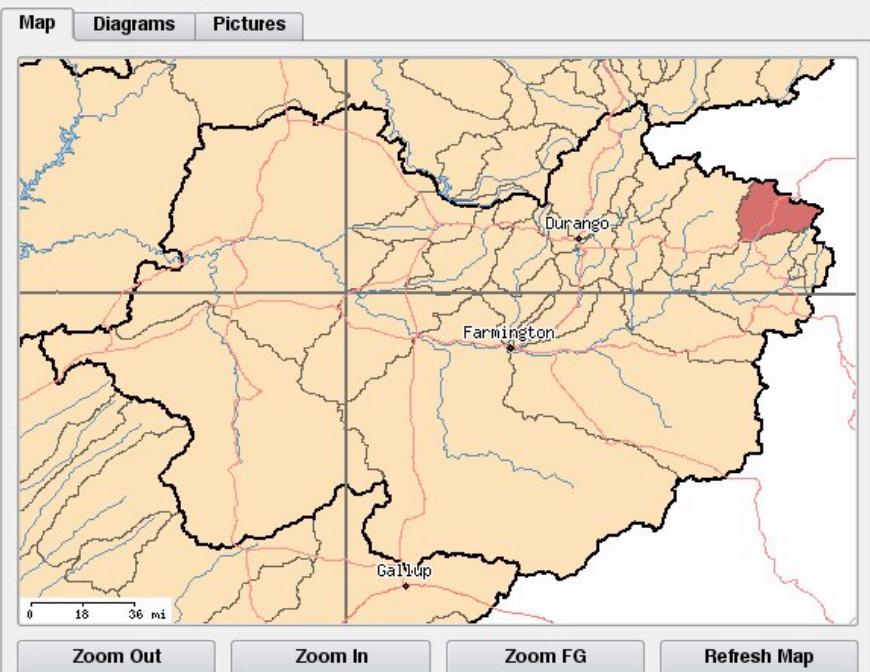
## Map Layers

**Current Mods for: PSPC2H\_F**

```

KSNWELEV PSPC2HMF
.TSCHNG 05271018Z 05271018Z
PSPC2H_F PSPC2HMF ZELV 6 & 
14700.00 15500.00 15400.00 15200.00 14700.00 &
15400.00 14800.00 14100.00 14000.00 13200.00 &
13600.00 14300.00 14300.00 14100.00 14500.00 &
15200.00 14800.00 14200.00 14300.00 14900.00 &
RSNWELEV PSPC2HMF
.TSCHNG 05271018Z 05271018Z
PSPC2H_F PSPC2HUF ZELV 6 & 
14700.00 15500.00 15400.00 15200.00 14700.00 &
15500.00 14800.00 14100.00 14000.00 13100.00 &
13600.00 14300.00 14300.00 14100.00 14500.00 &
15200.00 14800.00 14200.00 14300.00 14900.00 &
RSNWELEV PSPC2HUF
.AESCCHNG 05191012Z
PSPC2H_F 0.59 / PSPC2HMF
.WECHNG 05191012Z
PSPC2H_F 5.00 / PSPC2HMF
.MFC 05191018Z 06101012Z
PSPC2H_F 1.25

```



**Mod Log Entry** **Mod Log FG Summary**

Mod Date	Forecaster	Mod	Reason	Add Note																														
2010-08-13	AN	AESCCHNG		<input type="button" value="Edit Note"/>																														
<table border="1"> <thead> <tr> <th></th> <th>Date</th> <th>Forecaster</th> <th>Mod</th> <th>Note</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>2010-04-21</td> <td>TJC</td> <td>MAP</td> <td>added a little precip to sim better.</td> </tr> <tr> <td>2</td> <td>2009-10-08</td> <td>TJC</td> <td>MAP</td> <td>added some precip to sim better</td> </tr> <tr> <td>3</td> <td>2009-06-14</td> <td>TJC</td> <td>AESCCHNG</td> <td>Brought the percent down just a bit in the upper zone to sim b</td> </tr> <tr> <td>4</td> <td>2009-05-25</td> <td>TJC</td> <td>MAP</td> <td>added precip to sim better.</td> </tr> <tr> <td>5</td> <td>2009-05-24</td> <td>TJC</td> <td>MAP</td> <td>added some precip to sim better</td> </tr> </tbody> </table>						Date	Forecaster	Mod	Note	1	2010-04-21	TJC	MAP	added a little precip to sim better.	2	2009-10-08	TJC	MAP	added some precip to sim better	3	2009-06-14	TJC	AESCCHNG	Brought the percent down just a bit in the upper zone to sim b	4	2009-05-25	TJC	MAP	added precip to sim better.	5	2009-05-24	TJC	MAP	added some precip to sim better
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**San Juan - Pagosa Springs**  Official RFP  Rec Site

**General** **Diversions** **Critical Stages** **Elevation Zones** **Peak Info** **OAdjust**

Headwater point. There seems to be some channel loss for this segment from May through August. An average annual consumptive use upstream from this gage site is about 5,100 AF. The picture of the headwaters is near Wolf Creek Summit looking back downstream at the start of the San Juan River.

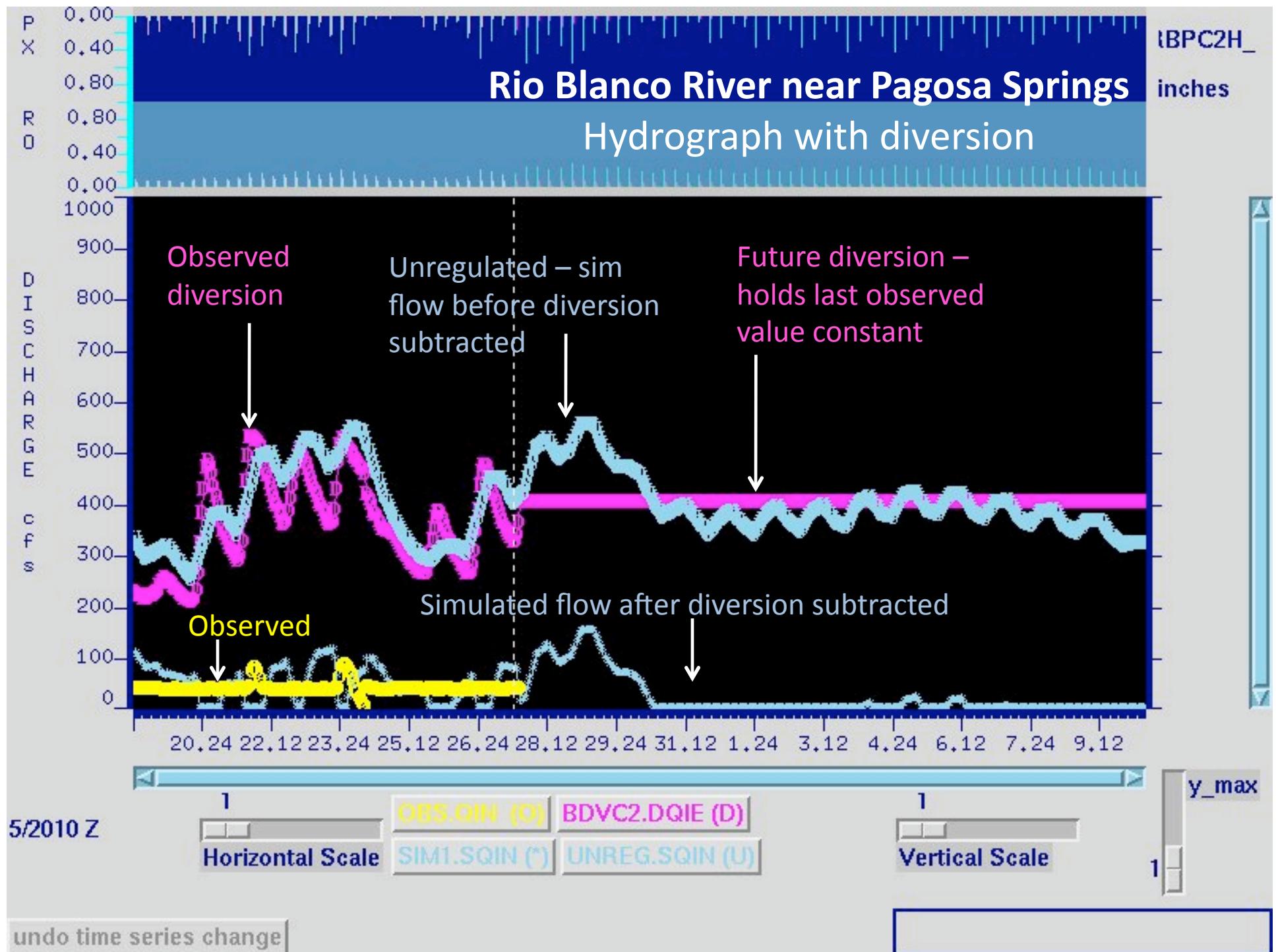
**Jump to:**

**Forecast Group: Segment:** SJ\_F PSPC2H\_F < >

**IFP Tracking**

On  Off

## Rio Blanco River near Pagosa Springs Hydrograph with diversion

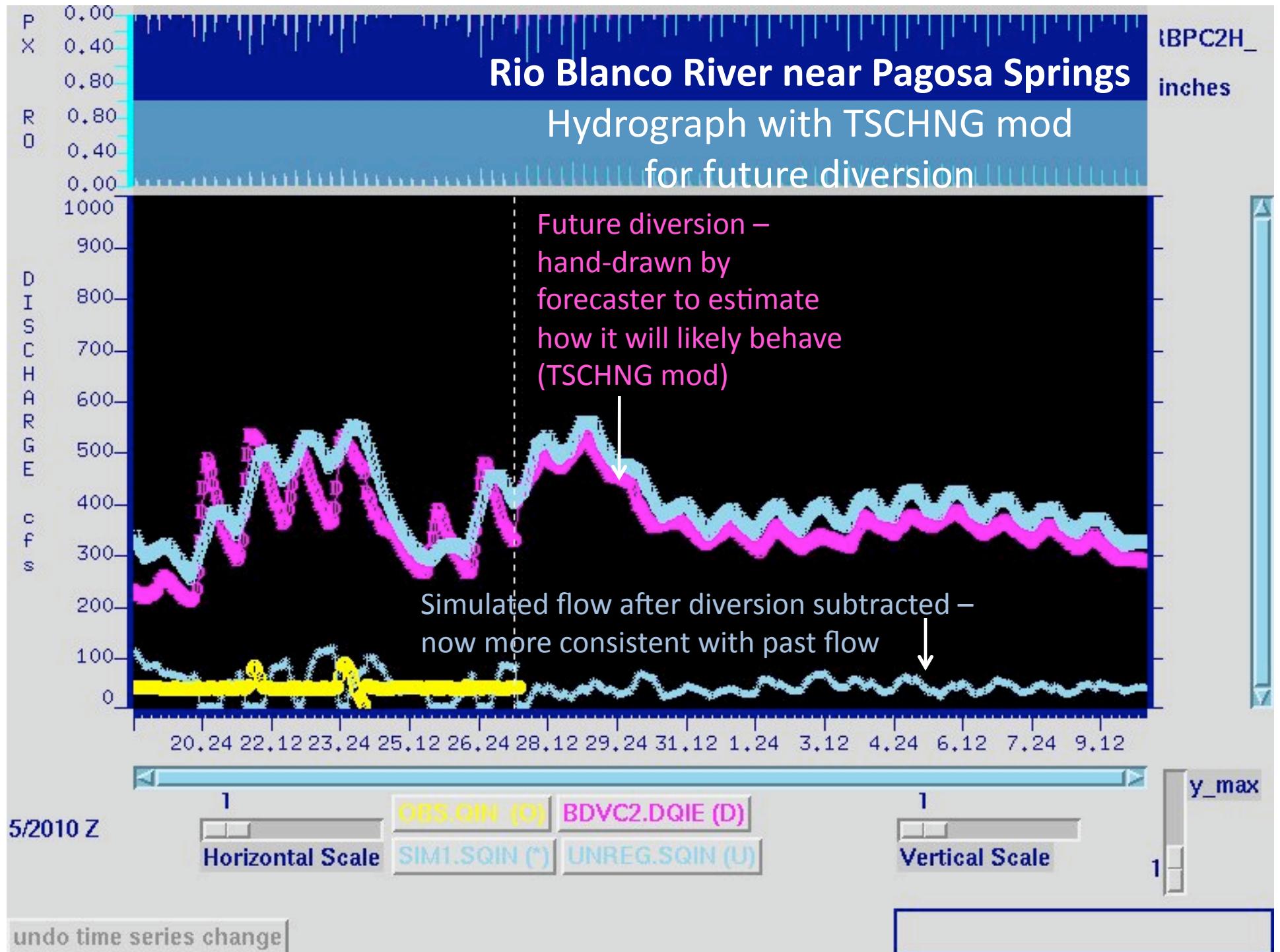


# Rio Blanco River near Pagosa Springs

## Hydrograph with TSCHNG mod for future diversion

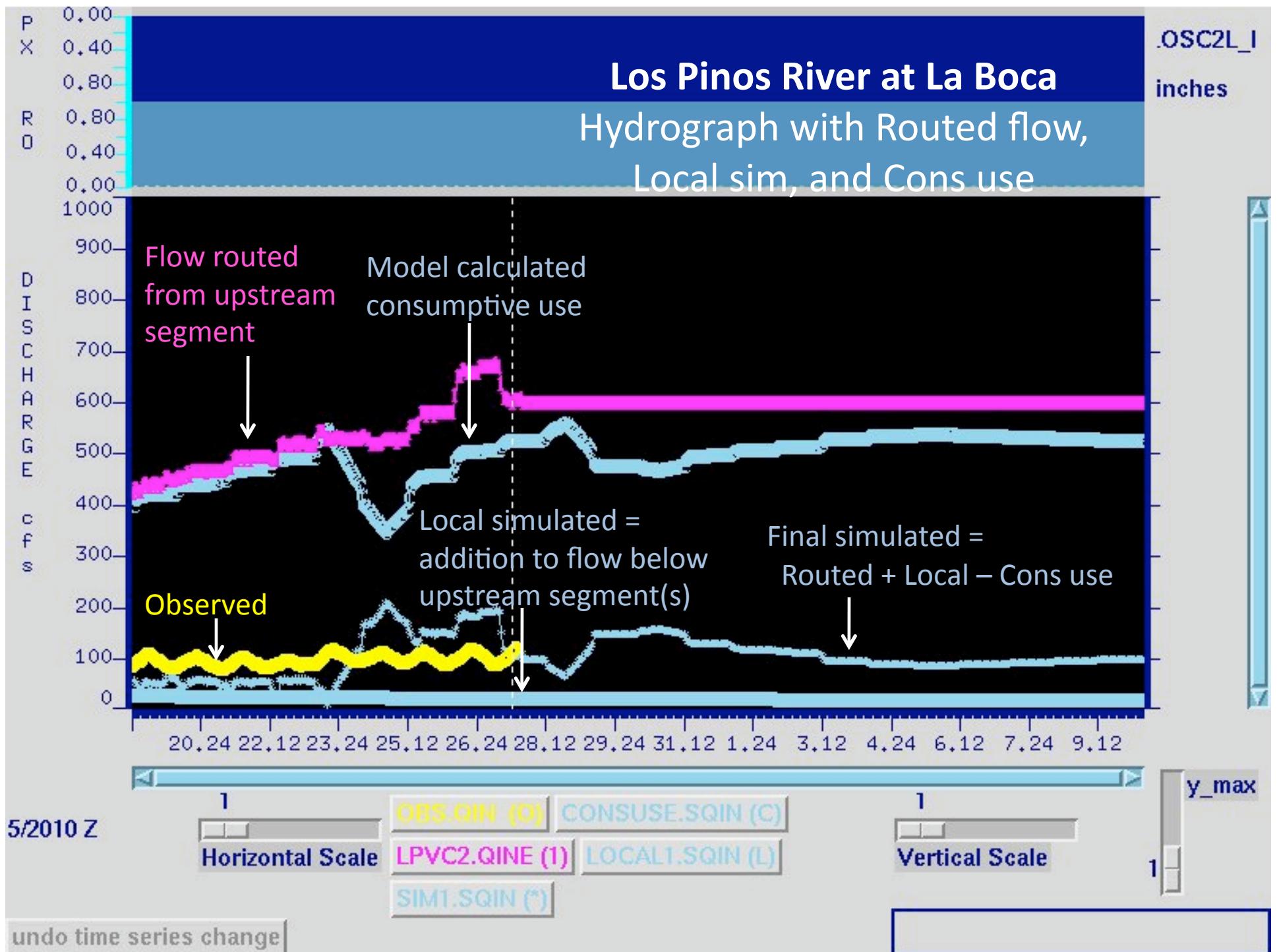
Future diversion –  
hand-drawn by  
forecaster to estimate  
how it will likely behave  
(TSCHNG mod)

Simulated flow after diversion subtracted –  
now more consistent with past flow



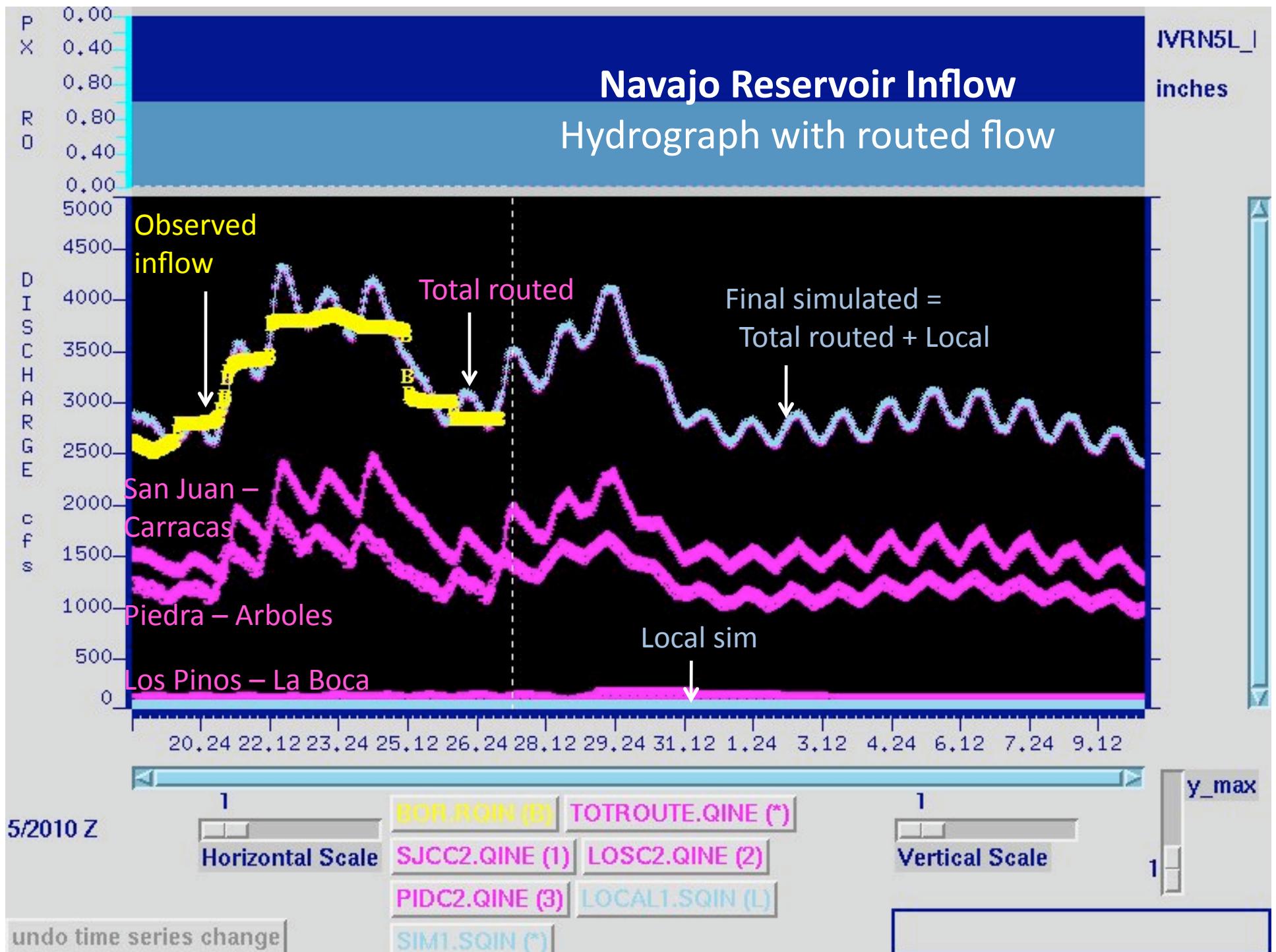
# Los Pinos River at La Boca

## Hydrograph with Routed flow, Local sim, and Cons use



# Navajo Reservoir Inflow

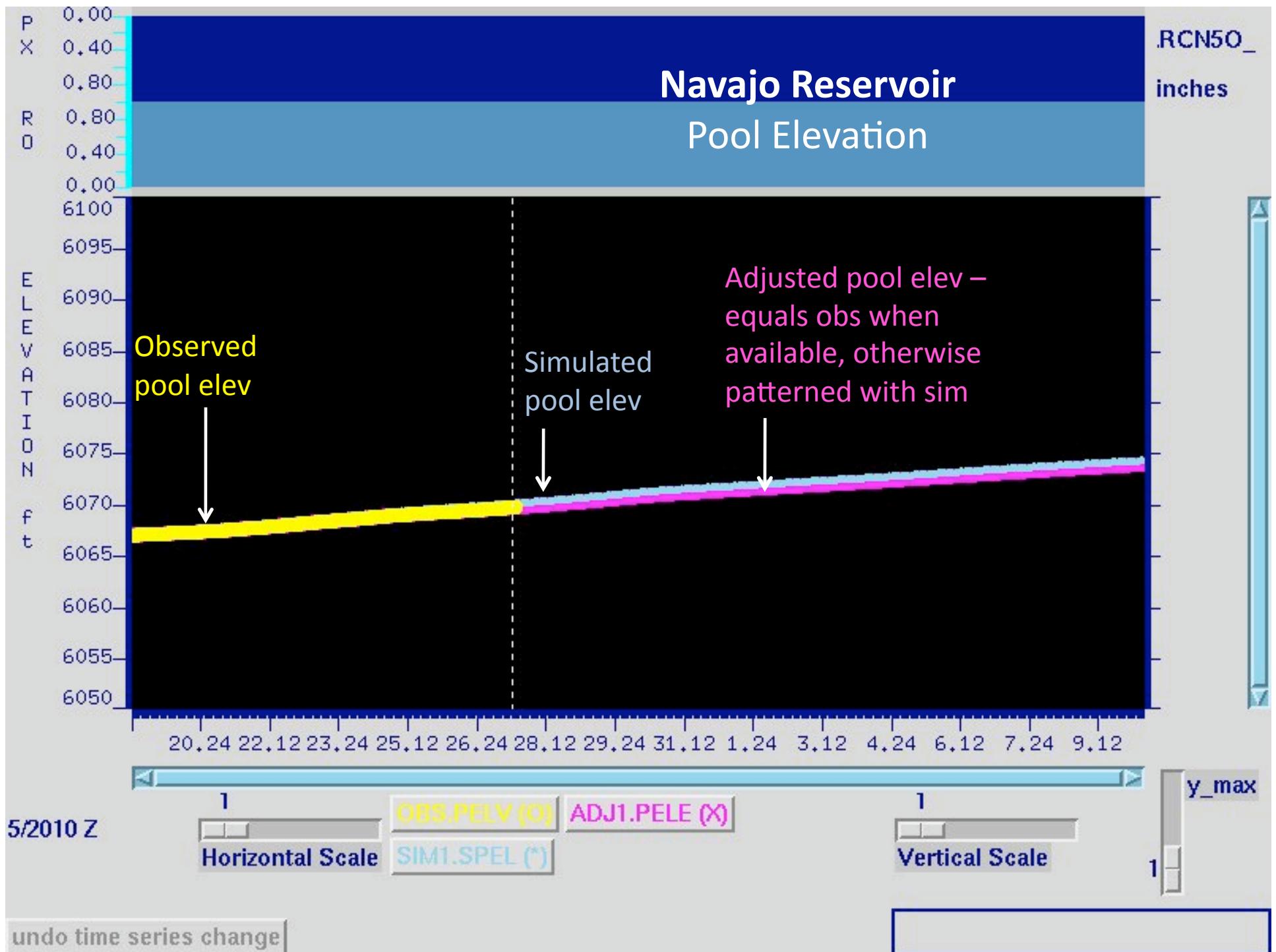
## Hydrograph with routed flow



# Navajo Reservoir

## Pool Elevation

.RCN50\_  
inches

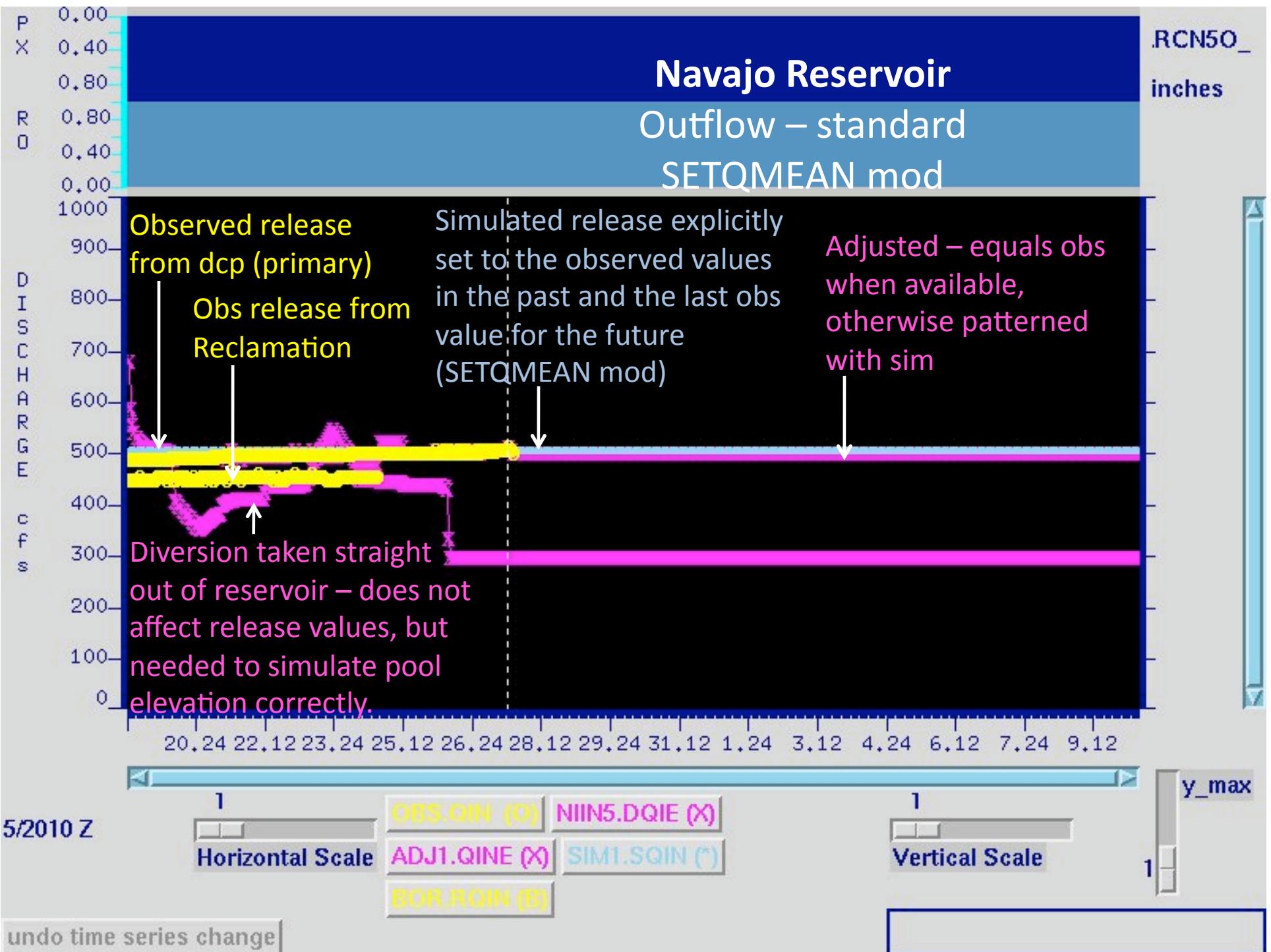


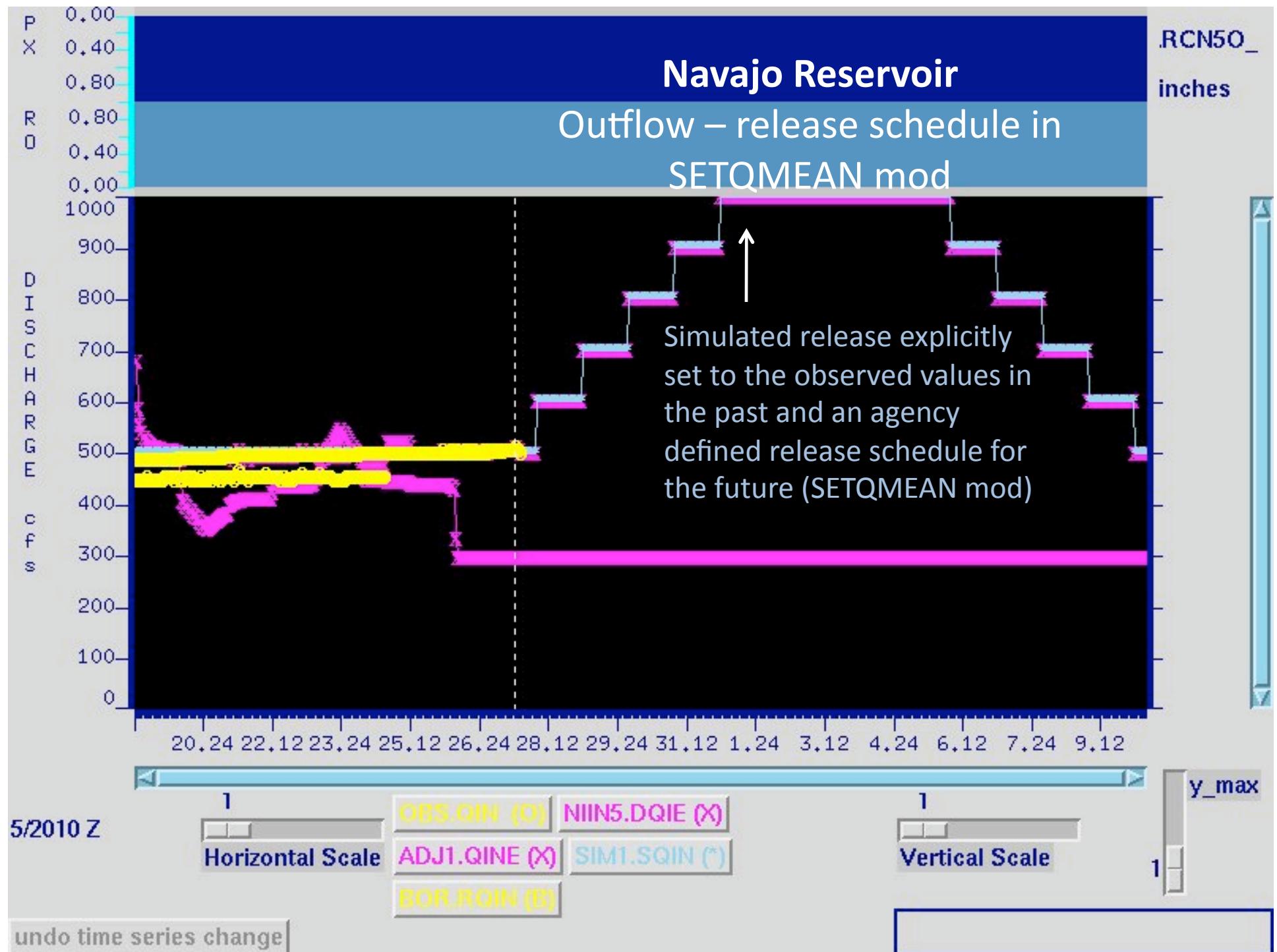
# Navajo Reservoir

Outflow – standard

SETQMEAN mod

.RCN5O\_  
inches





# Navajo Reservoir

## Outflow – reservoir rules (no SETQMEAN mod)

