

# **New hydrologic “design standards” & tools – how do we get there?**

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**California Department of Water Resources**

# Presentation Outline

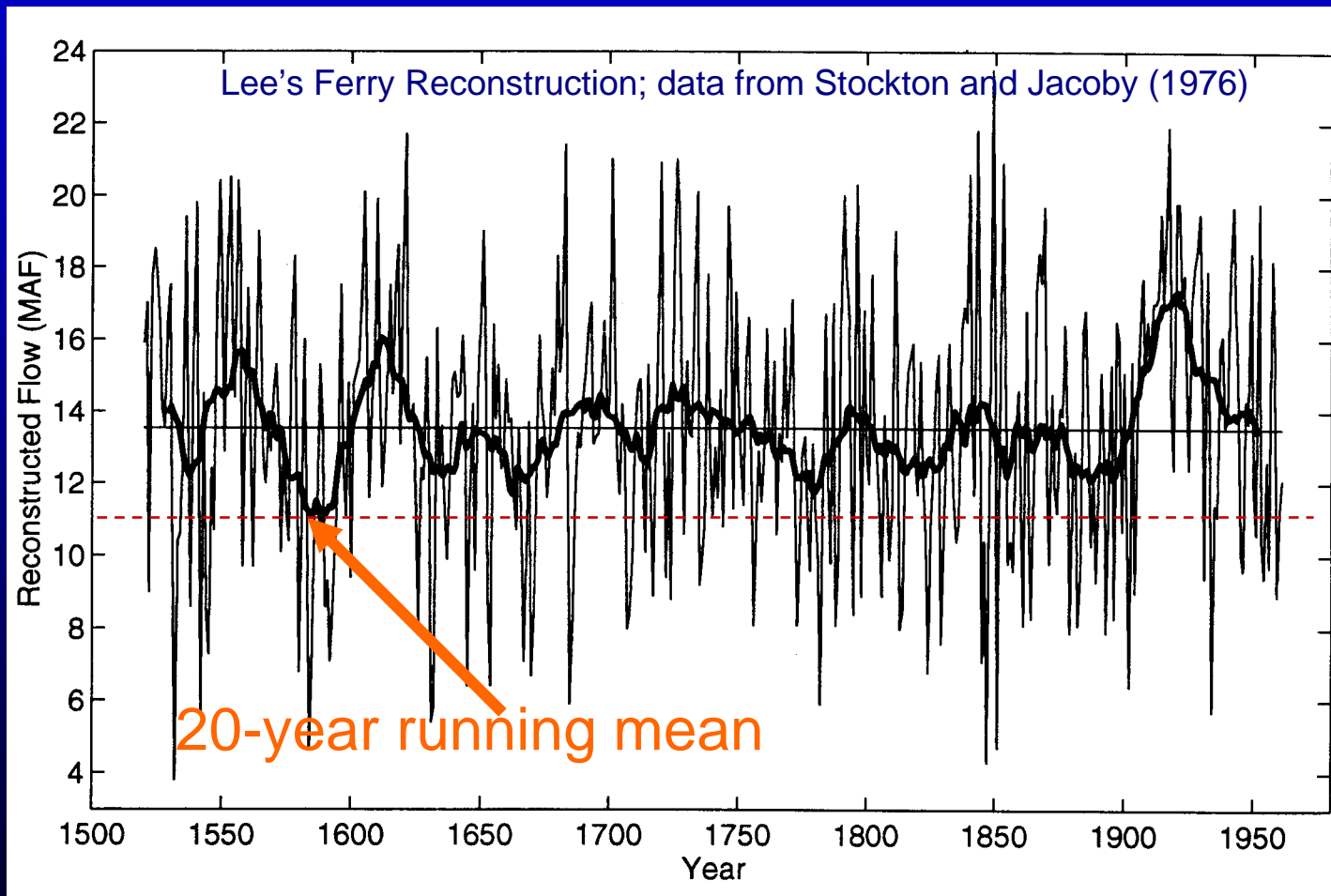
- The drivers/issues
- Example topics
- Possible ways forward

# The issues

- Relatively brief historical records
- Non-stationarity
- New expectations
- Changing standards of practice
- Scientific uncertainties
- Lack of data/information

# MULTI-DECADAL DROUGHT

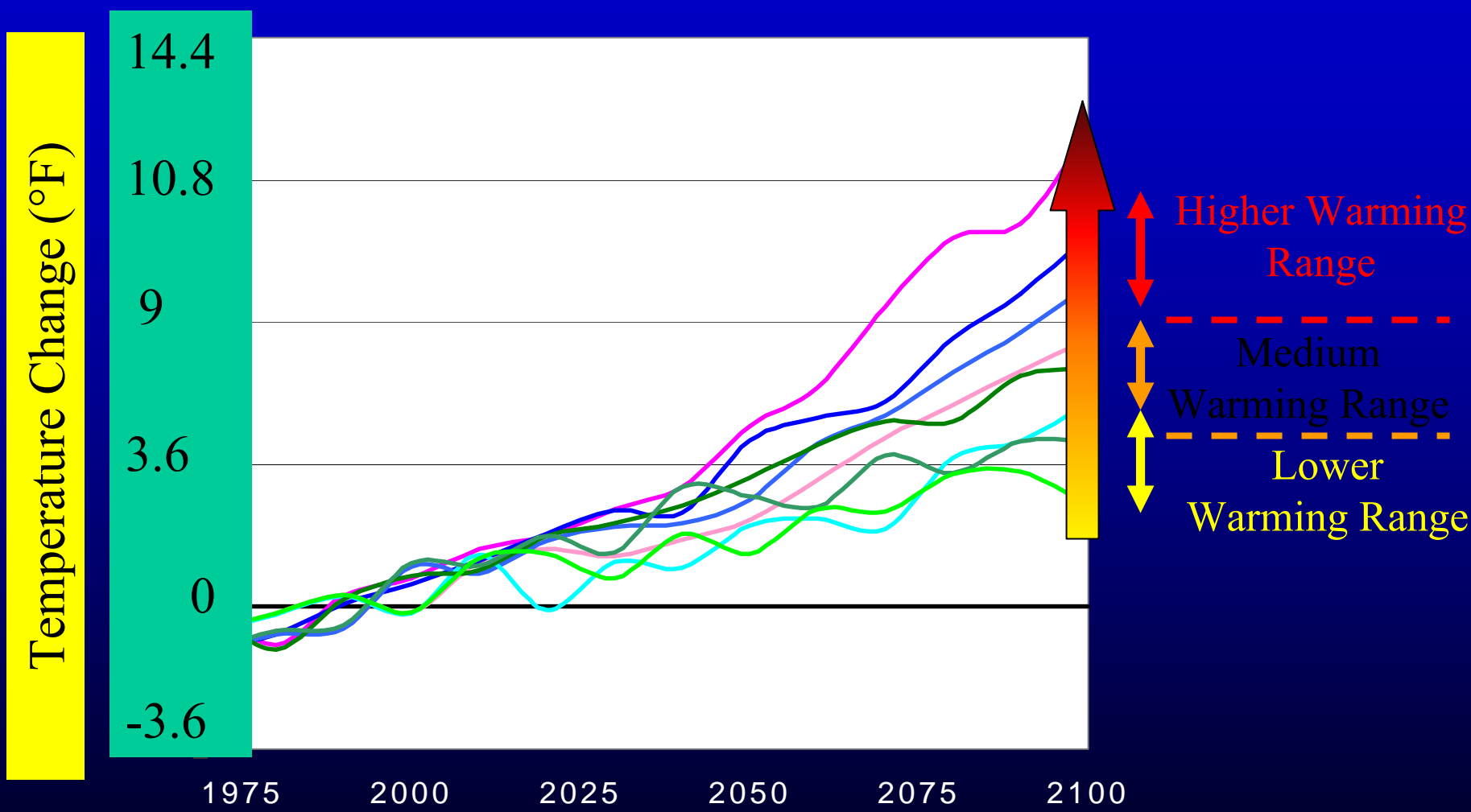
SMOOTHING HIGHLIGHTS SEVERITY OF LATE 1500'S DROUGHT (D. Meko)



Source of figure: Meko et al. 1995, Water Res. Bulletin

# Projected Warming Ranges

## Statewide annual average (°F) (from D. Cayan)



- A1 HadCM3
- A1 PCM
- A2 HadCM3
- A2 GFDL2.1
- A2 PCM
- B1 HadCM3
- B1 GFDL2.1
- B1 PCM



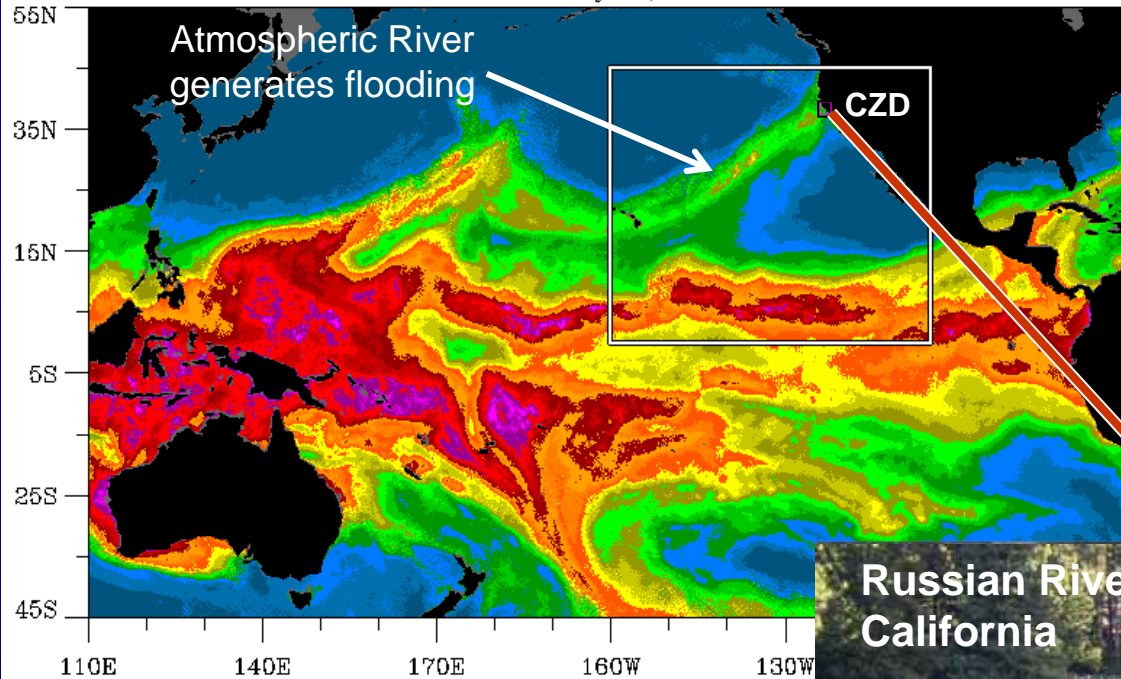
# Technical Advisory

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**CEQA AND CLIMATE CHANGE:  
Addressing Climate Change Through  
California Environmental Quality Act  
(CEQA) Review**

# SSM/I Water Vapor (Schlüssel algorithm)

February 16, 2004



Russian River, CA Flood Event of 18-Feb-04 (from NOAA presentation)

Russian River flooding in Monte Rio, California

18 February 2004

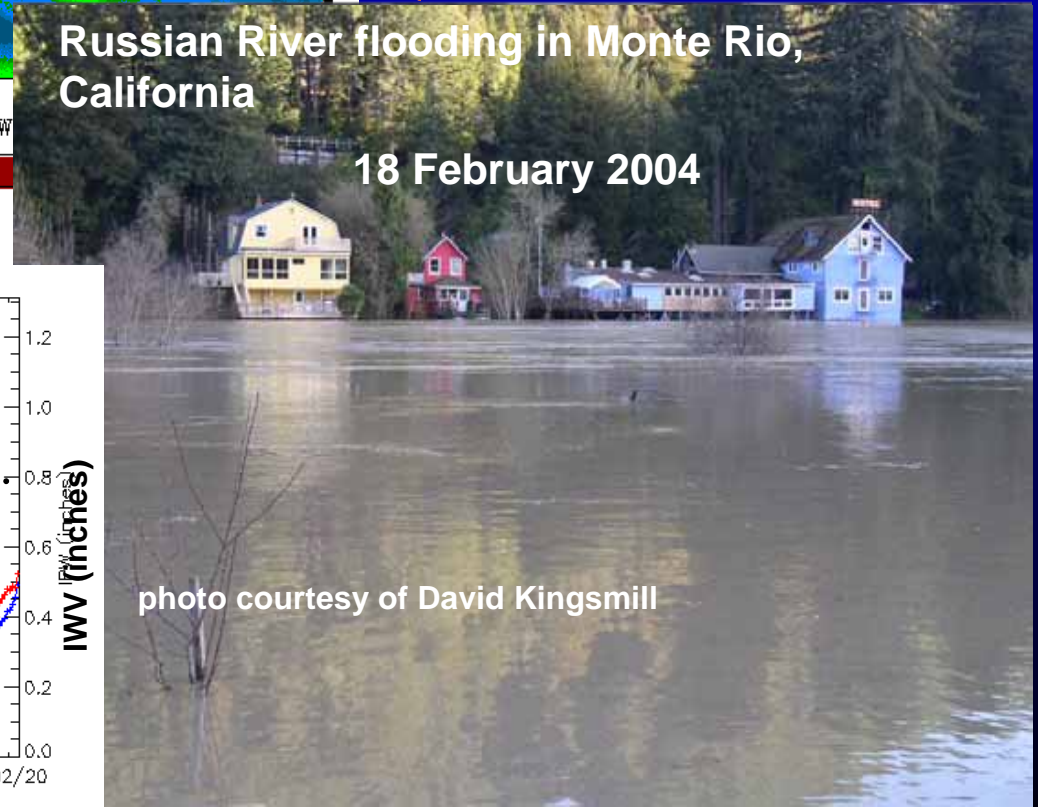
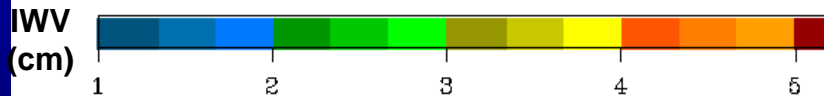
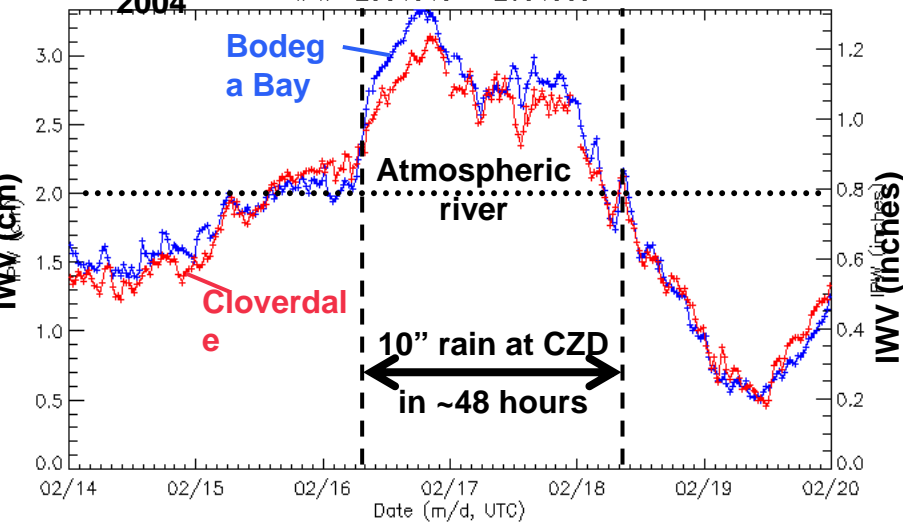


photo courtesy of David Kingsmill



GPS IWV data from near CZD: 14-20 Feb 2004

IPW 2004045 - 2004050



**White Mtn Summit, 14246 ft  
Reconfigured July 2004  
Highest live weather station  
in North America (Kelly  
Redmond)**



# Example Topics

- Guidelines/criteria for climate model downscaling
- Modification of reservoir flood control rule curves
- Rainfall/runoff relationships (e.g. USGS Publication 17B)/severe weather
- Weather/climate forecasting improvements
- Comprehensive evaluation of monitoring needs
- More use of remote sensing

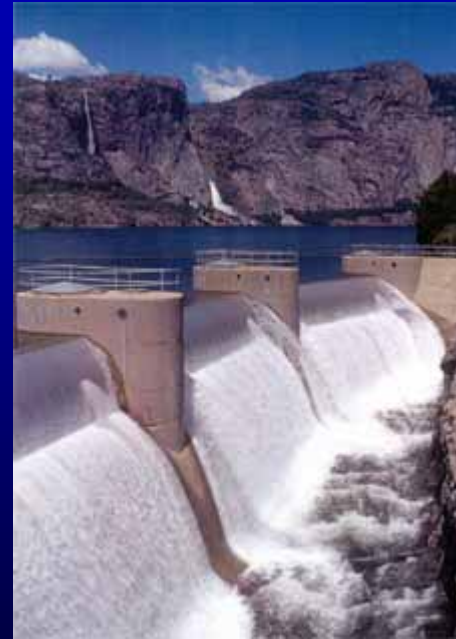
# Illustrative Scenario

- Snow level rises  
(need to monitor)
- Storm severity & frequency changes  
(how much?)
- Runoff changes  
(USGS Publication 17B)



# Illustrative Scenario – con't

- Make flood control release or store it?  
(modifying reservoir rule curves)
- How much will it rain the rest of the season?  
(improving climate forecast)
- How much water will we have? (water supply forecast)



# Ways Forward

- ▶ Partnership with WEST FAST  
(Opportunities for administrative changes)
- ▶ NIDIS approach  
(New legislative authorizations)
- ▶ Pilot/demo project opportunities
- ▶ Direction from this workshop

