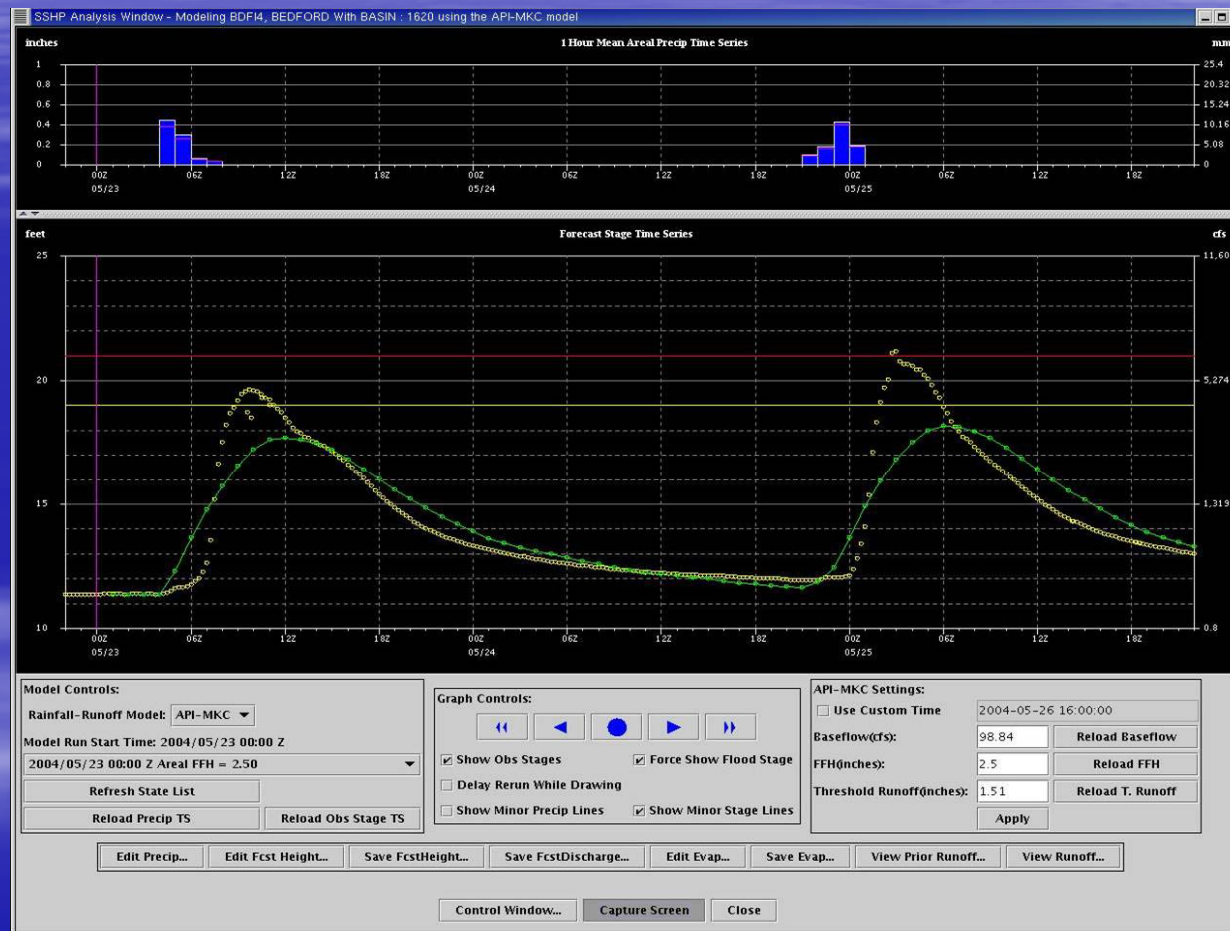# Site Specific Hydrologic Predictor
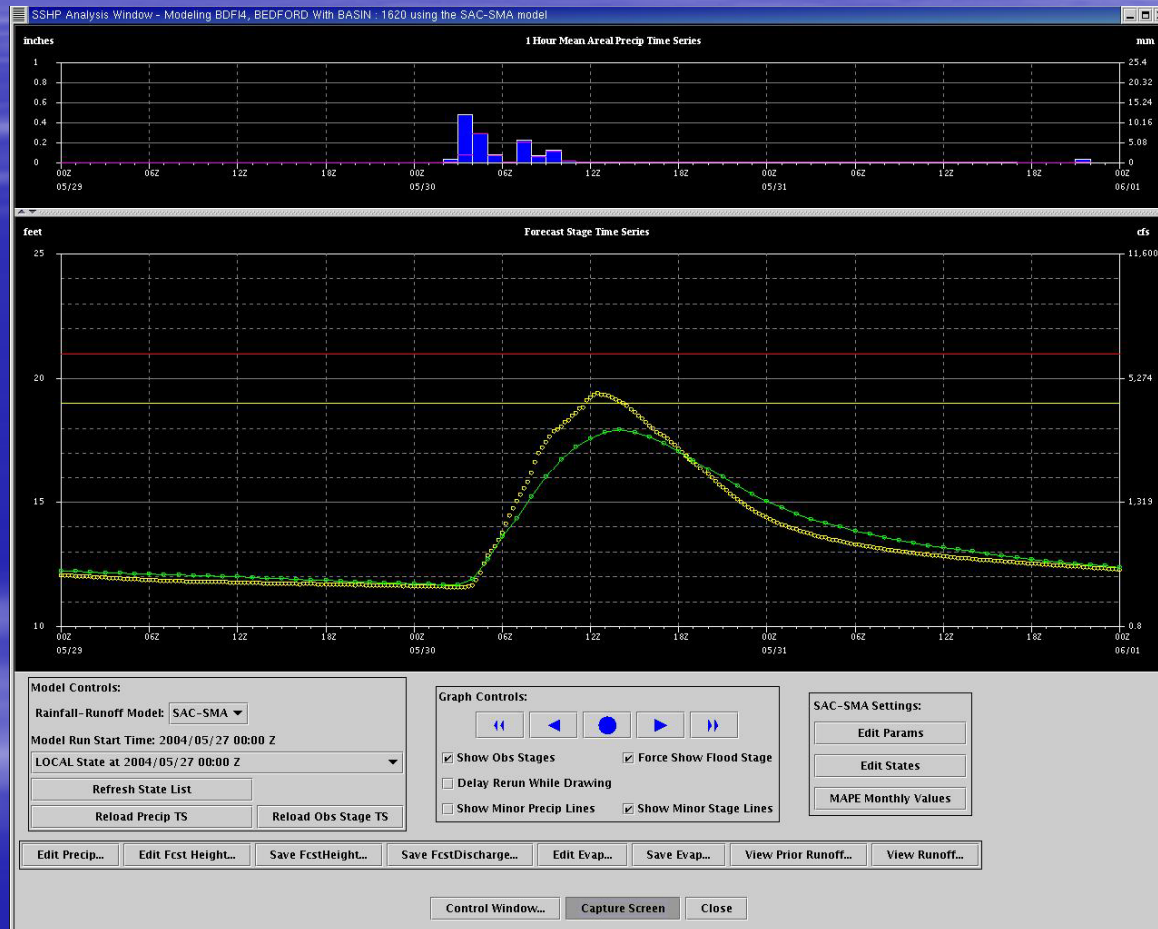
## DOH Workshop Presentation

## June 8, 2004

# API-MKC Model Screenshot

# SAC-SMA Model Screenshot

# OB4 Enhancements to SSHP

- Addition of SAC-SMA Rainfall-Runoff Model

- Reads MAP data from IHFS database
  - Uses MAP Preprocessor to read MPE QPE files
  - Can use 1-hour QPF

- GUI changes
  - Graphical editing of Precipitation Time Series
  - Graphical editing of Forecast Hydrograph

# Current Field Test Sites
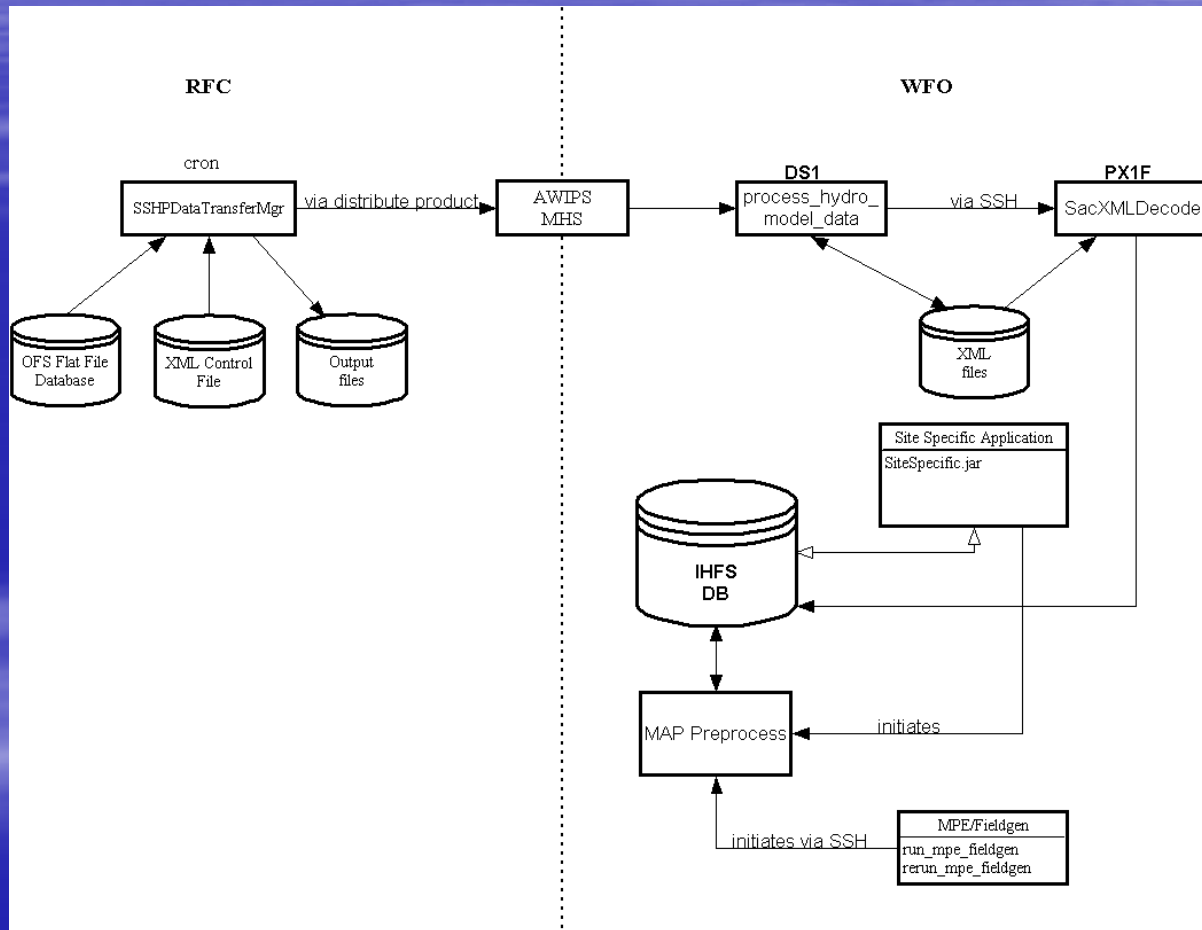
- MBRFC

- SERFC / SJU  Combination

# SAC-SMA Rainfall-Runoff Model

- 1-hour Time Step

- Uses Data Transfer from RFC to WFO
  - Segments modeled at RFC

# Data Transfer From RFC to WFO

- Occurs after 12Z model run

  - Data Transferred from OFS
  - SAC-SMA State Variables
  - SAC-SMA Parameters
  - Prior Computed Runoff Time Series
  - ET-Demand Curve or MAPE Time series with Adjustment Values

# Data Transfer Diagram

# Mean Areal Precip

- **MAP Preprocessor**
  - Reads MPE's best estimate QPE files
  - Computes 1-hour Mean Areal QPE values
  - Inserts MAP values into IHFS database
  - Does not process QPF data

- **Application**
  - Reads 1-hour Mean Areal QPE from database
  - Reads 1-hour Mean Areal QPF from database

# Operational Concerns

- Calibration
  - SAC-SMA parameters
  - Unit Hydrograph
  - Issues:
    - Collection of necessary data sets
    - Level of Effort

- SAC-SMA Model State Maintenance
  - Level of Effort

# Operational Concerns (cont.)

- MAP Data Source
  - Current MPE output less useful in West
  - General Quality Control

- Application database access speed

- MAP Preprocessor Speed

# Addressing Concerns

- Calibration
  - Are there baselined tools that need to be created or enhanced to reduce the Level of Effort?


- State Maintenance
  - VAR under consideration (no decision yet)
    - To reduce need for manual RFC SAC-SMA State Updating
    - To improve short-term forecasts

# Addressing Concerns (cont.)

- **MAP Data Source**
  - Add Functionality to MPE
  - Add Optional MAP Preprocessor

- **Application Data Access Speed**
  - Database Tuning

- **MAP Preprocessor Speed**
  - Faster Version being tested at OHD

# Other Ideas For Enhancements

- Observed/Forecast Blending for SAC-SMA

- Option to Transfer MAP time series to WFO (what to do when RFC not staffed?)

- Snow Modeling

- Routing

- Concept of Operations