Leading the Way in Electricity℠

SOUTHERN CALIFORNIA EDISON®
An EDISON INTERNATIONAL® Company

SNOW COOPERATORS MEETING

BIG CREEK PROJECT

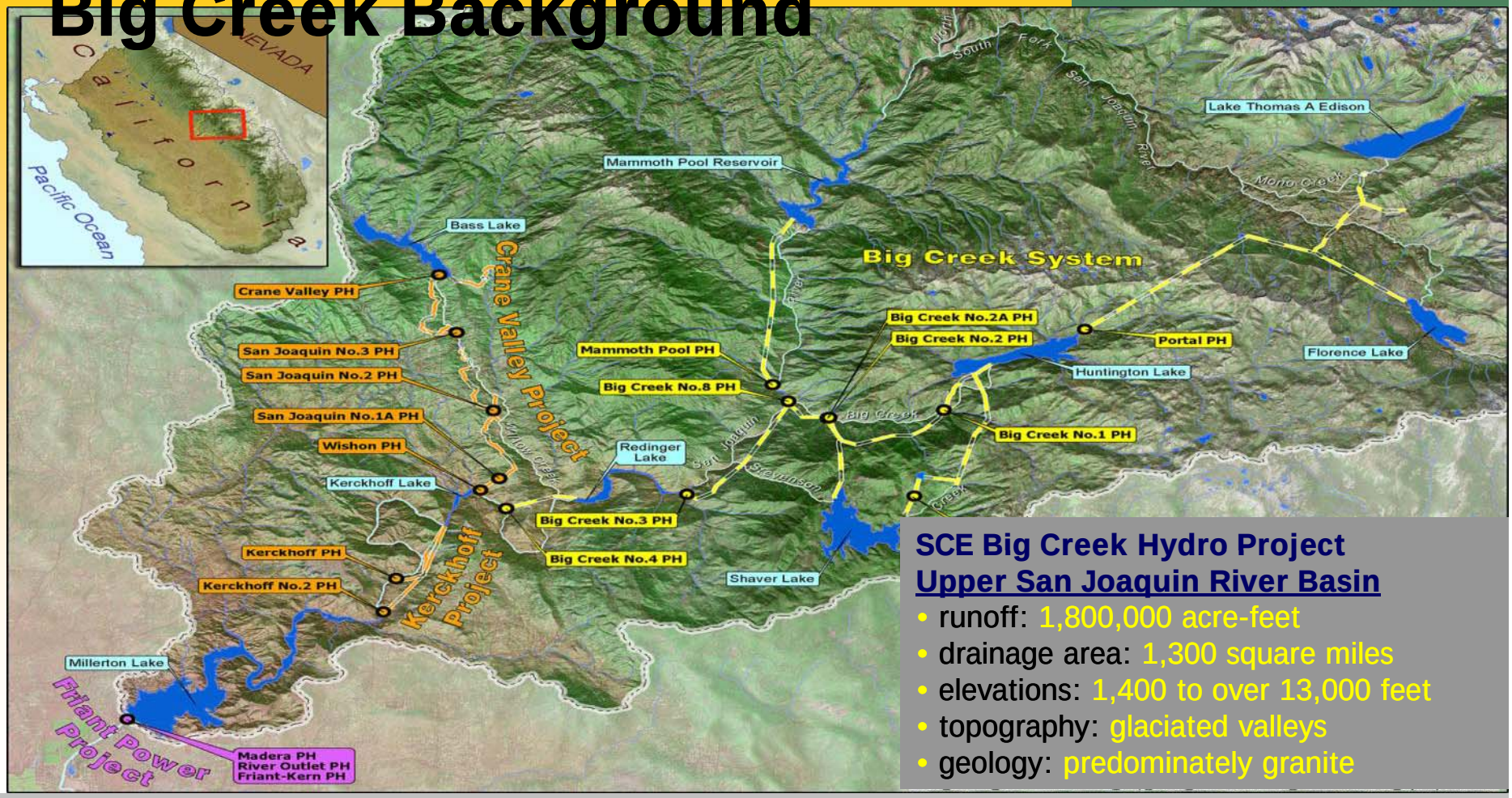
2012 Total Inflow =0.74 MAF

2011 Total Inflow =2.81 MAF

Marco A. Bell, P.E.

© Edison International

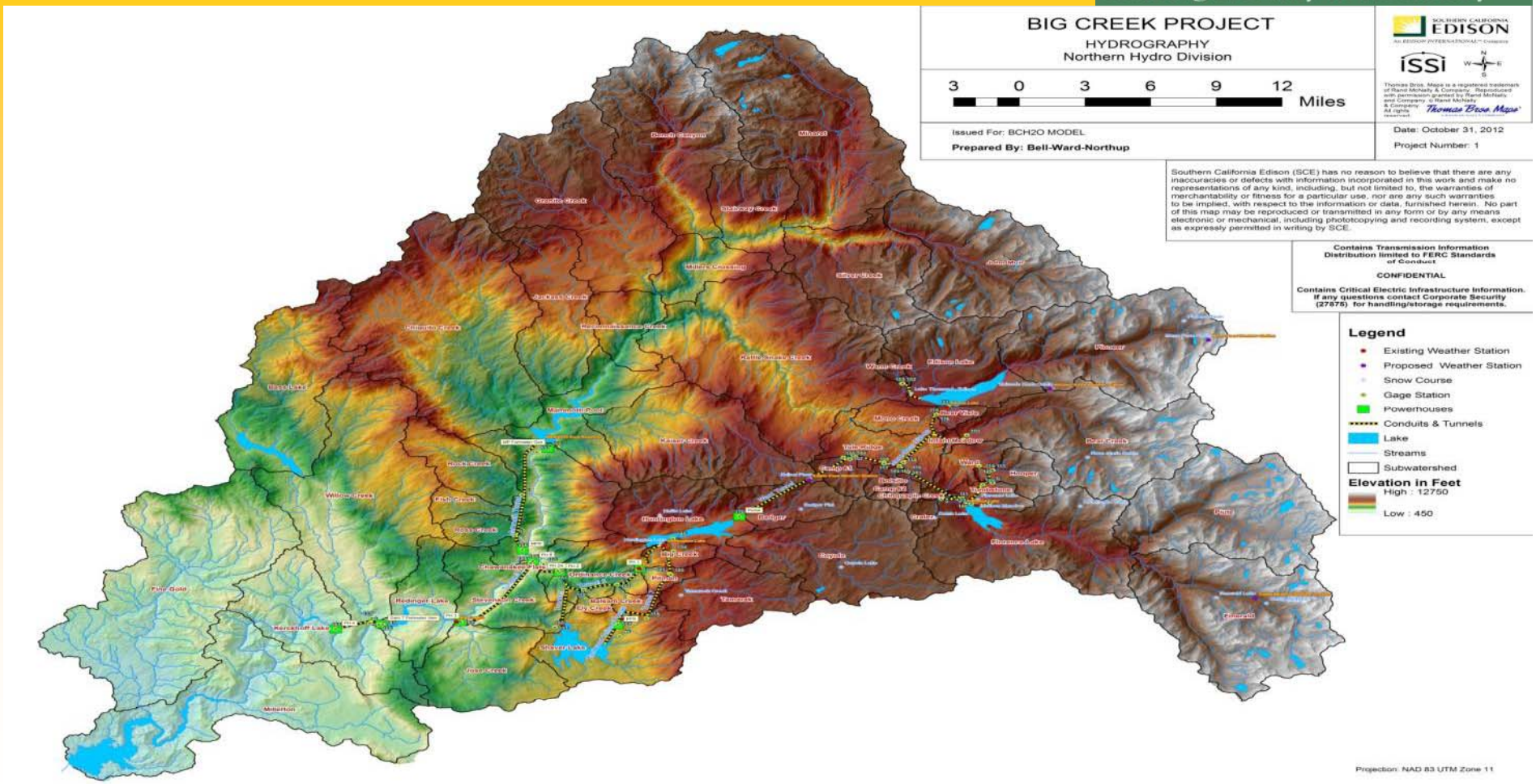
Big Creek Background



SCE Big Creek Hydro Project

Upper San Joaquin River Basin

- runoff: 1,800,000 acre-feet
- drainage area: 1,300 square miles
- elevations: 1,400 to over 13,000 feet
- topography: glaciated valleys
- geology: predominately granite


BIG CREEK PROJECT
HYDROGRAPHY
Northern Hydro Division
3 0 3 6 9 12
Miles
Issued For: BCH2O MODEL
Prepared By: Bell-Ward-Northup
SOUTHERN CALIFORNIA EDISON
ISSI
Date: October 31, 2012
Project Number: 1
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Contains Transmission Information Distribution limited to FERC Standards of Conduct
CONFIDENTIAL
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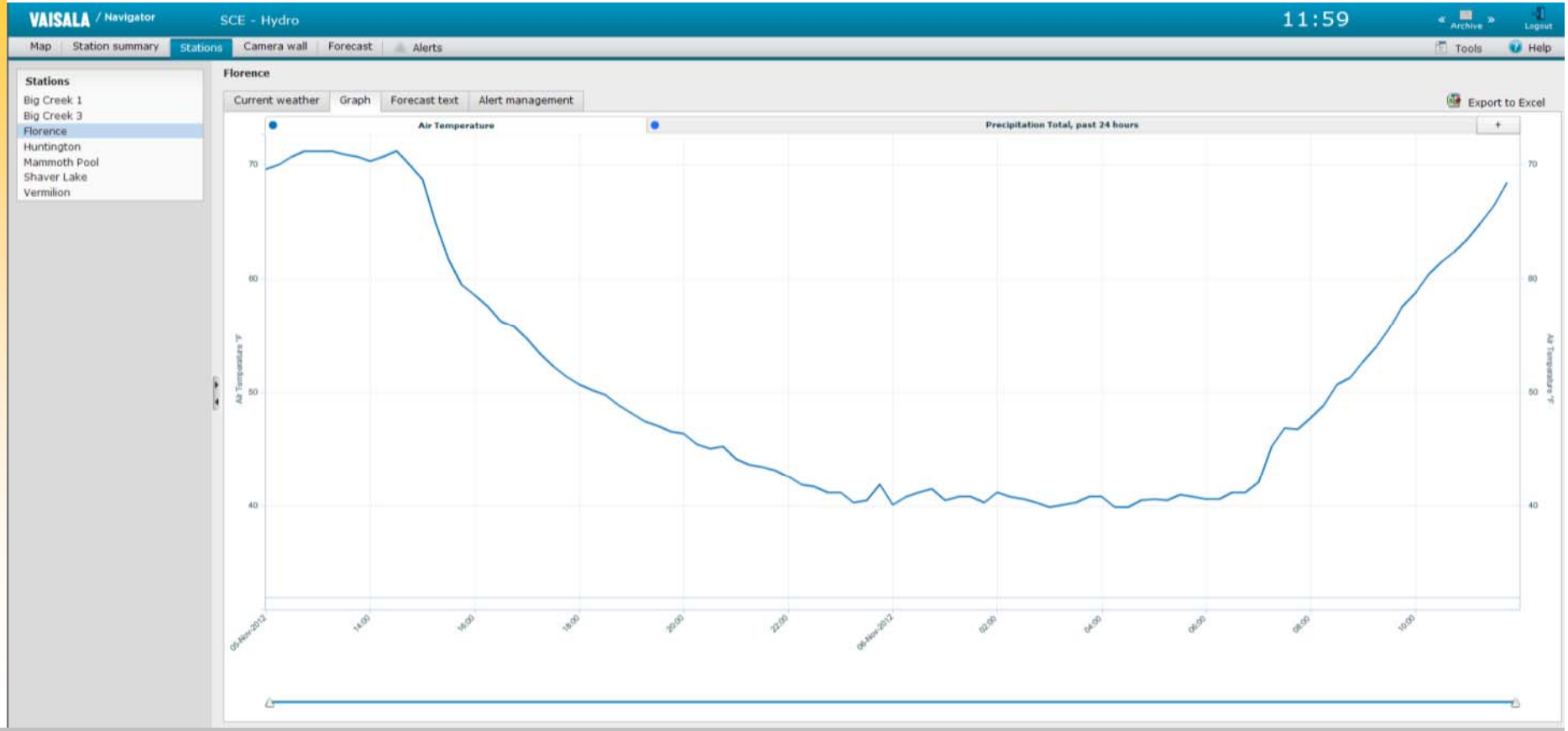
Legend
Existing Weather Station
Proposed Weather Station
Snow Course
Gage Station
Powerhouses
Conduits & Tunnels
Lake
Streams
Subwatershed
Elevation in Feet
High : 12750
Low : 450
Projection: NAD 83 UTM Zone 11

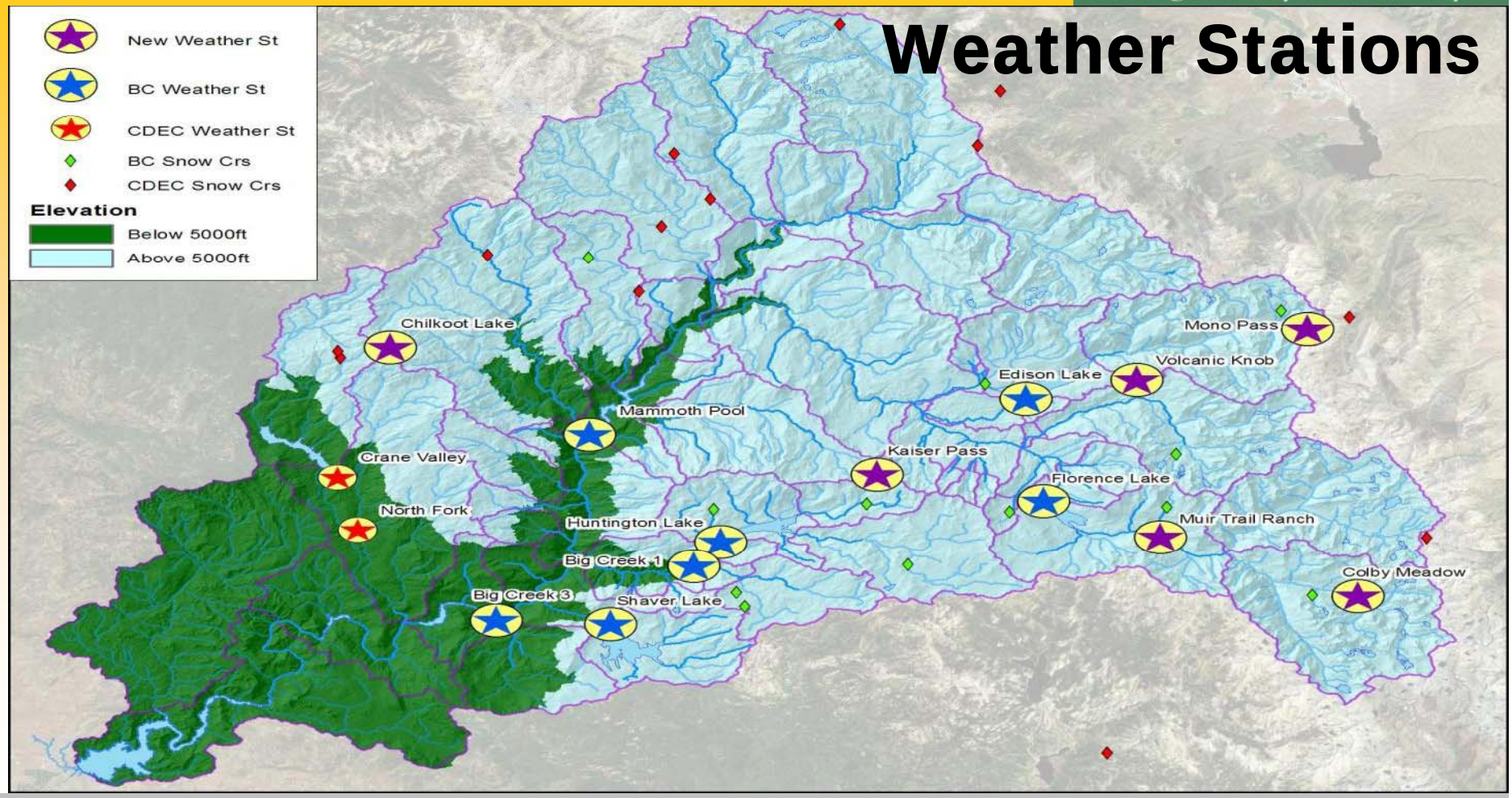
New Weather Stations

- 7 New Stations 2011
- 1 Portable Station 2011
- 6 New Stations 2012 – Purchased but not Installed
- Complete Stations Measuring Various Parameters
- Enhanced Local Hydrological Understanding

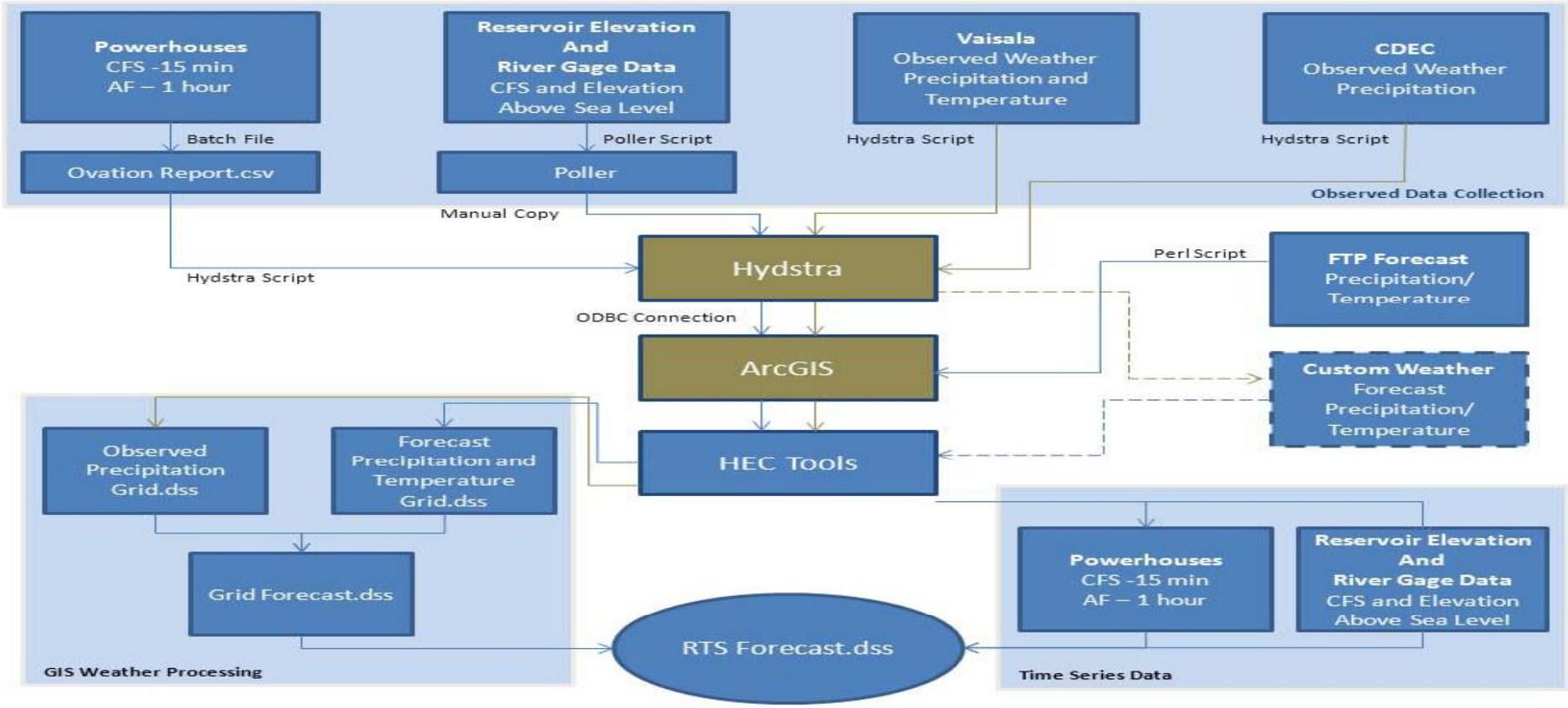
NAVIGATOR

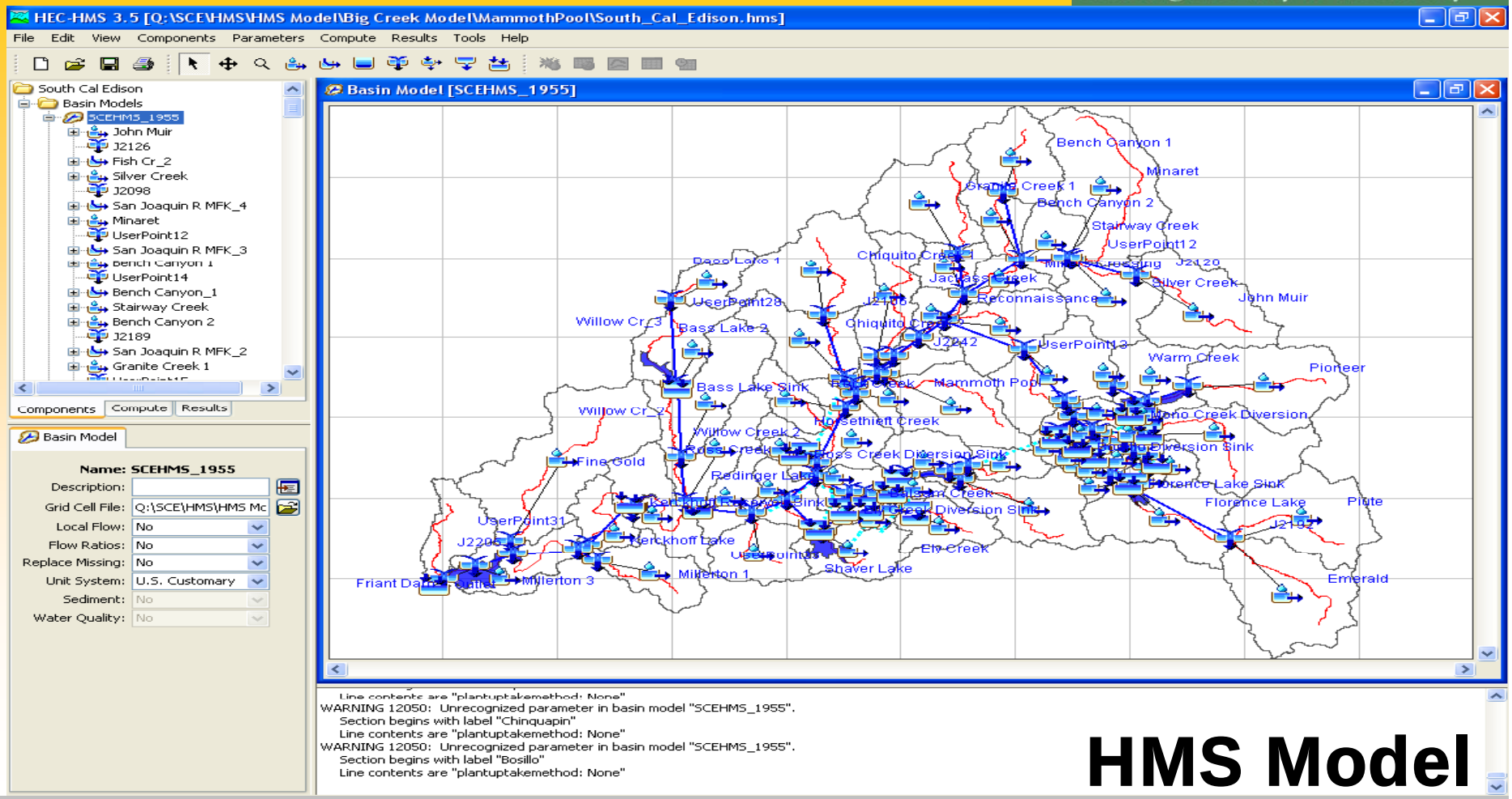

VAISALA / Navigator
SCE - Hydro
11:59
Archive
Logout
Map
Station summary
Stations
Camera wall
Forecast
Alerts
Tools
Help
Stations
Big Creek 1
Big Creek 3
Florence
Huntington
Mammoth Pool
Shaver Lake
Vermilion
Florence
Current weather
Graph
Forecast text
Alert management
Export to Excel
Air Temperature
Precipitation Total, past 24 hours
70
60
50
40
Air Temperature °F
05-Nov-2012
14:00
16:00
18:00
20:00
22:00
06-Nov-2012
02:00
04:00
06:00
08:00
10:00

Weather Stations

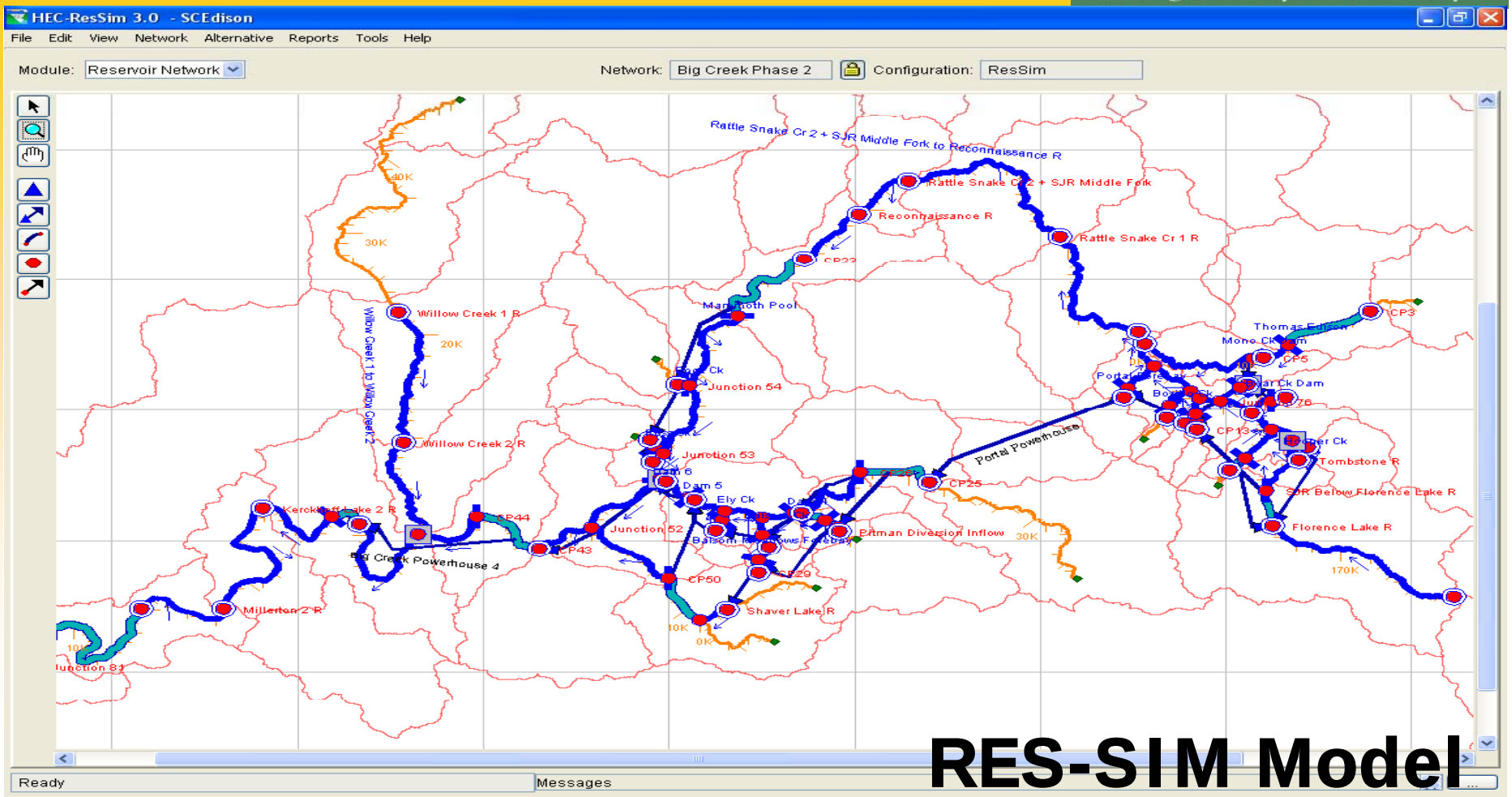


BCH20 INPUTS AND OUTPUTS

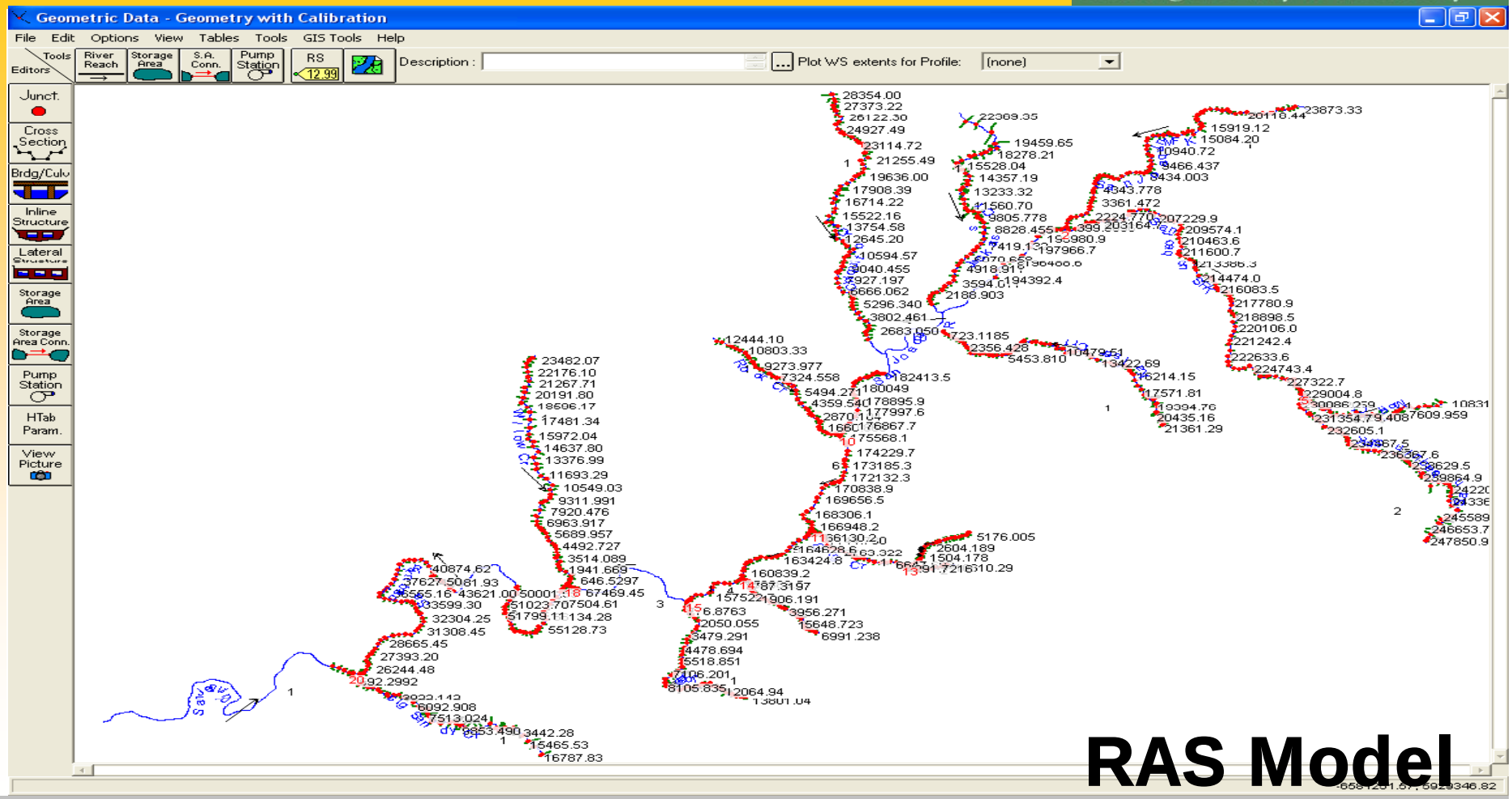



HEC-HMS 3.5 [Q:\SCE\HMS\HMS Model\Big Creek Model\MammothPool\South_Cal_Edison.hms]
File Edit View Components Parameters Compute Results Tools Help
South Cal Edison
Basin Models
SCEHMS_1955
John Muir
J2126
Fish Cr_2
Silver Creek
J2098
San Joaquin R MFK_4
Minaret
UserPoint12
San Joaquin R MFK_3
UserPoint14
Bench Canyon_1
Stairway Creek
Bench Canyon 2
J2189
San Joaquin R MFK_2
Granite Creek 1
Components Compute Results
Basin Model
Name: SCEHMS_1955
Description:
Grid Cell File: Q:\SCE\HMS\HMS Mc
Local Flow: No
Flow Ratios: No
Replace Missing: No
Unit System: U.S. Customary
Sediment: No
Water Quality: No
Basin Model [SCEHMS_1955]
Bench Canyon 1
Minaret
Granite Creek 1
Bench Canyon 2
Stairway Creek
UserPoint12
J2126
Silver Creek
John Muir
Reconnaissance
Willow Cr_3
Bass Lake 2
UserPoint28
J2042
UserPoint13
Warm Creek
Pioneer
Bass Lake Sink
Mammoth Pool
Willow Cr_2
Horsethief Creek
Mono Creek Diversion
Willow Creek 2
Fine Gold
Redinger Lake
Florence Lake Sink
Florence Lake
Pine
UserPoint31
J2205
Kerckhoff Lake
Elk Creek
Shaver Lake
Millerton 3
Millerton 1
Emerald
WARNING 12050: Unrecognized parameter in basin model "SCEHMS_1955".
Section begins with label "Chinquapin"
Line contents are "plantuptakemethod: None"
WARNING 12050: Unrecognized parameter in basin model "SCEHMS_1955".
Section begins with label "Bosillo"
Line contents are "plantuptakemethod: None"

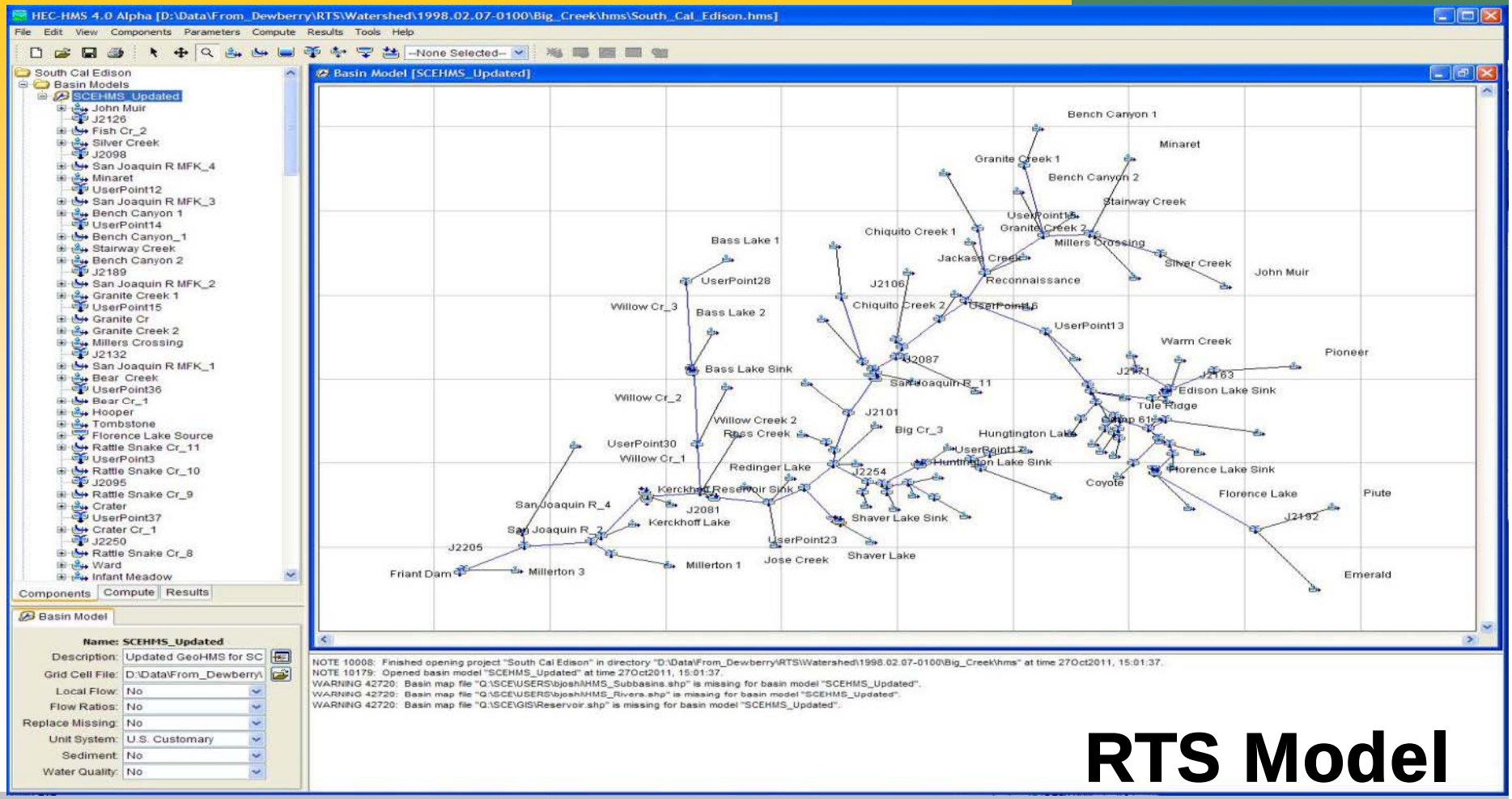
HMS Model



RES-SIM Model


Geometric Data - Geometry with Calibration
File Edit Options View Tables Tools GIS Tools Help
Tools
Editors
River Reach
Storage Area
S.A. Conn.
Pump Station
RS
12.99
Description :
Plot WS extents for Profile:
(none)
Junct.
Cross Section
Brdg/Culv
Inline Structure
Lateral Structure
Storage Area
Storage Area Conn.
Pump Station
HTab Param.
View Picture

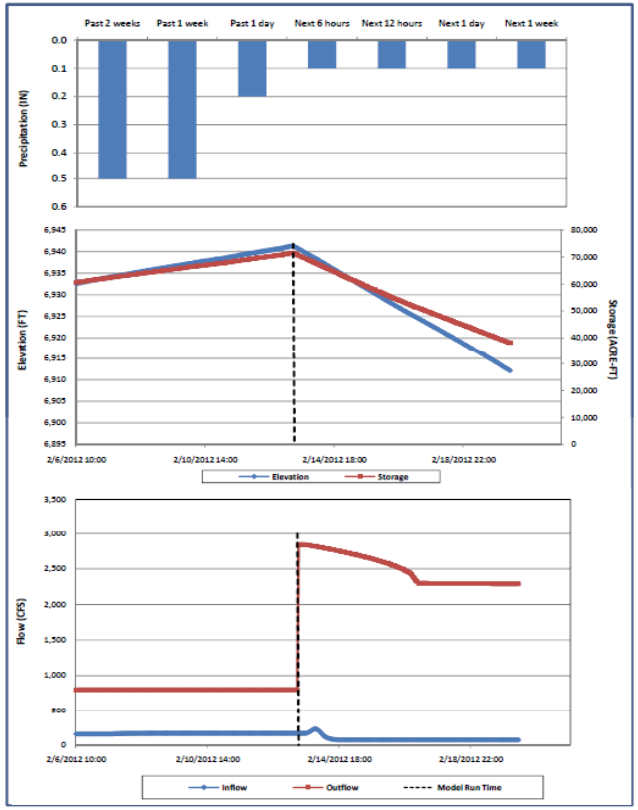
RAS Model


HEC-HMS 4.0 Alpha [D:\Data\From_Dewberry\RTS\Watershed\1998.02.07-0100\Big_Creek\hms\South_Cal_Edison.hms]
File Edit View Components Parameters Compute Results Tools Help
--None Selected--
South Cal Edison
Basin Models
SCEHMS_Updated
John Muir
J2126
Fish Cr_2
Silver Creek
J2098
San Joaquin R MFK_4
Minaret
UserPoint12
San Joaquin R MFK_3
Bench Canyon 1
UserPoint14
Bench Canyon_1
Stairway Creek
Bench Canyon 2
J2189
San Joaquin R MFK_2
Granite Creek 1
UserPoint15
Granite Cr
Granite Creek 2
Millers Crossing
J2132
San Joaquin R MFK_1
Bear Creek
UserPoint36
Bear Cr_1
Hooper
Tombstone
Florence Lake Source
Rattle Snake Cr_11
UserPoint3
Rattle Snake Cr_10
J2095
Rattle Snake Cr_9
Crater
UserPoint37
Crater Cr_1
J2250
Rattle Snake Cr_8
Ward
Infant Meadow
Components Compute Results
Basin Model
Name: SCEHMS_Updated
Description: Updated GeoHMS for SC
Grid Cell File: D:\Data\From_Dewberry\
Local Flow: No
Flow Ratios: No
Replace Missing: No
Unit System: U.S. Customary
Sediment: No
Water Quality: No
Basin Model [SCEHMS_Updated]
Bench Canyon 1
Minaret
Granite Creek 1
Bench Canyon 2
Stairway Creek
UserPoint15
Granite Creek 2
Millers Crossing
Silver Creek
John Muir
Chiquito Creek 1
Jackass Creek
Reconnaissance
Bass Lake 1
UserPoint28
J2106
Willow Cr_3
Bass Lake 2
Chiquito Creek 2
UserPoint16
UserPoint13
Warm Creek
Pioneer
Bass Lake Sink
J2087
San Joaquin R_11
J2171
J2163
Edison Lake Sink
Tule Ridge
Willow Cr_2
J2101
Willow Creek 2
Ross Creek
Big Cr_3
Hungtington Lake
Shop 61
UserPoint30
Willow Cr_1
UserPoint2
Huntington Lake Sink
Redinger Lake
J2254
Florence Lake Sink
Coyote
Kerckhoff Reservoir Sink
Florence Lake
Piute
San Joaquin R_4
J2081
Kerckhoff Lake
Shaver Lake Sink
J2192
San Joaquin R_2
UserPoint23
J2205
Jose Creek
Shaver Lake
Millerton 1
Friant Dam
Millerton 3
Emerald
NOTE 10008: Finished opening project "South Cal Edison" in directory "D:\Data\From_Dewberry\RTS\Watershed\1998.02.07-0100\Big_Creek\hms" at time 27Oct2011, 15:01:37.
NOTE 10179: Opened basin model "SCEHMS_Updated" at time 27Oct2011, 15:01:37.
WARNING 42720: Basin map file "Q:\SCE\USERS\bjosh\HMS_Subbasins.shp" is missing for basin model "SCEHMS_Updated".
WARNING 42720: Basin map file "Q:\SCE\USERS\bjosh\HMS_Rivers.shp" is missing for basin model "SCEHMS_Updated".
WARNING 42720: Basin map file "Q:\SCE\GIS\Reservoir.shp" is missing for basin model "SCEHMS_Updated".

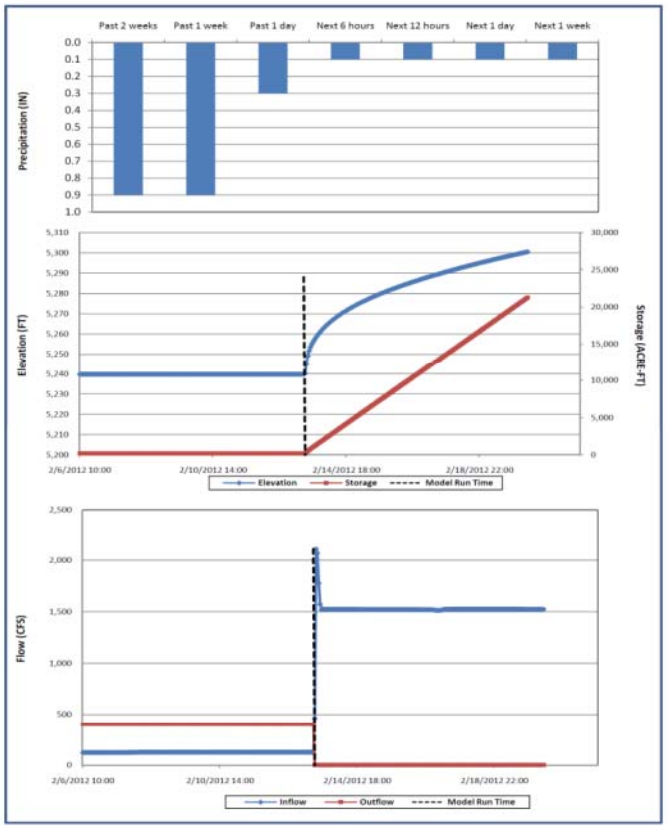
RTS Model

Actual Project Report

Huntington Lake



Shaver Lake



Snow Surveys Program

Annual Snow Surveys
Sierra National Forest
March - 2011

Name of Survey Location	Lat/Long Coordinates of Location	Name of Wilderness Entered	Type of Mechanical Equipment (i.e. Helicopter, Sno-Cat)	Date of Occurrence
Huntington Lake	N37 13' 42.6" W119 13' 13.8"	Sierra National Forest	Sno-Cat	March 28, 2011
Colby Meadow	N37 10' 58.2" W118 43' 42.6"	Kings Canyon National Park	Helicopter	March 29, 2011
Emerald Lake	N37 11' 03.0" W118 45' 54.6"	Kings Canyon National Park	Helicopter	March 29, 2011
Heart Lake	N37 15' 56.4" W118 52' 39.0"	John Muir Wilderness	Helicopter	March 29, 2011
Florence Lake	N37 16' 33.6" W118 57' 44.7"	Sierra National Forest	Helicopter	March 29, 2011
Mono Pass	N37 26' 26.4" W118 46' 30.0"	John Muir Wilderness	Helicopter	March 29, 2011
Pioneer Basin	N37 27' 18.0" W118 47' 38.4"	John Muir Wilderness	Helicopter	March 29, 2011
Volvanic Knob	N37 23' 16.8" W118 54' 17.0"	John Muir Wilderness	Helicopter	March 29, 2011
Rose Marie	N37 19' 02.9" W118 52' 20.7"	John Muir Wilderness	Helicopter	March 29, 2011
Lake Thomas A Edison	N37 22' 55.5" W119 01' 16.4"	Sierra National Forest	Helicopter	March 29, 2011
Dutch Lake	N37 15' 34.7" W119 00' 03.4"	John Muir Wilderness	Helicopter	March 30, 2011
Badger Flat	N37 16' 03.0" W119 06' 39.6"	Sierra National Forest	Helicopter	March 30, 2011
Kaiser Pass	N37 17" 41.6" W119 06' 05.9"	Sierra National Forest	Helicopter	March 30, 2011
Nellie Lake	N37 15' 28.2" W119 13' 33.0"	Kaiser Wilderness	Helicopter	March 30, 2011
Coyote Lake	N37 12' 28.9" W119 04' 32.2"	Dinkey Creek Wilderness	Helicopter	March 30, 2011
Tamarack Creek	N37 10' 48.0" W119 12' 31.8"	Sierra National Forest	Helicopter	March 30, 2011

Helicopter Flights

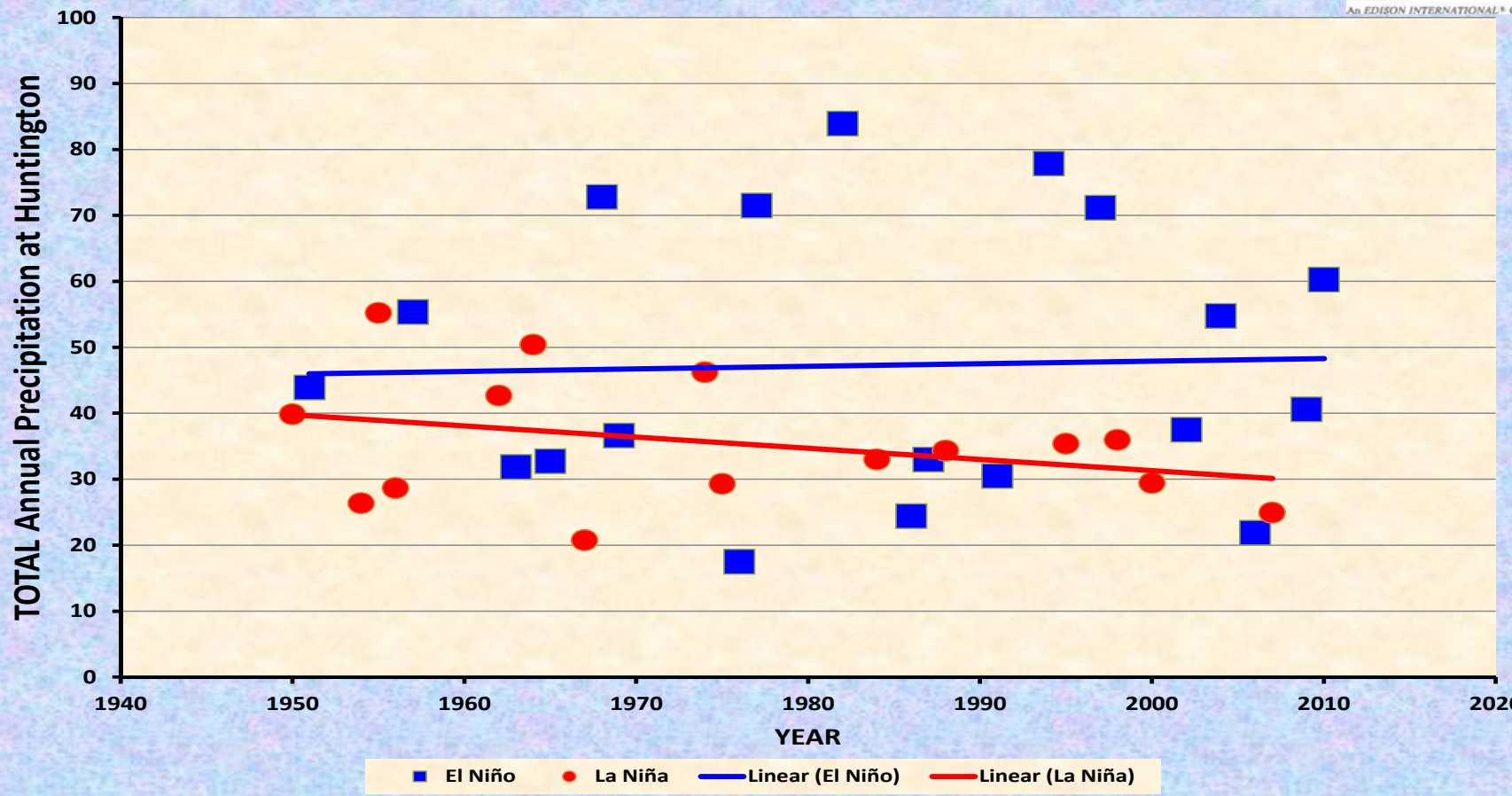
Snow Course Maintenance

Mono

Pioneer

Shaver Membrane Liner

El Niño and La Niña Trends at Big Creek



THANKS!

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