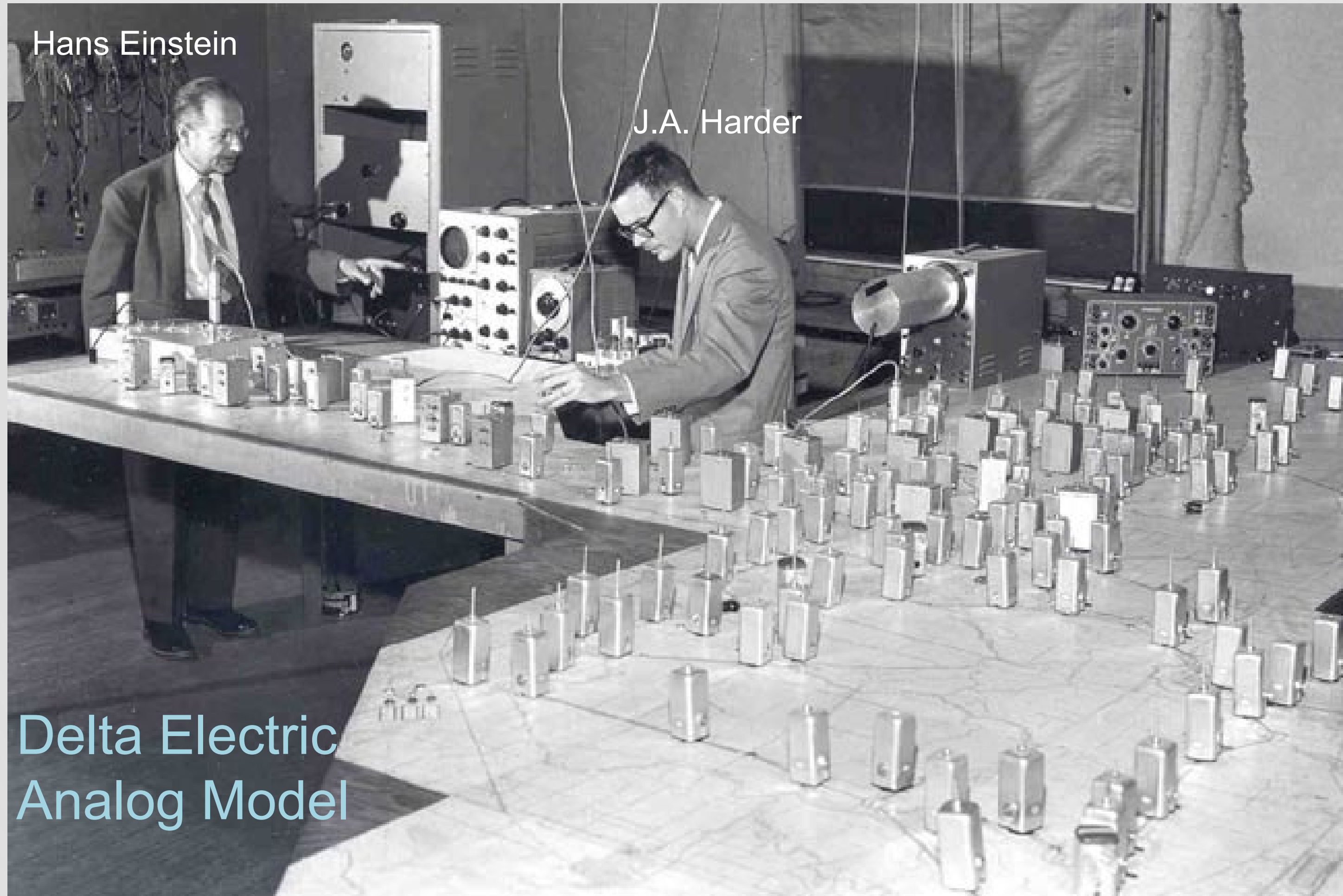


DSM2 Learning Series: Quick Start

June 23, 2023



Origins of Delta Modeling



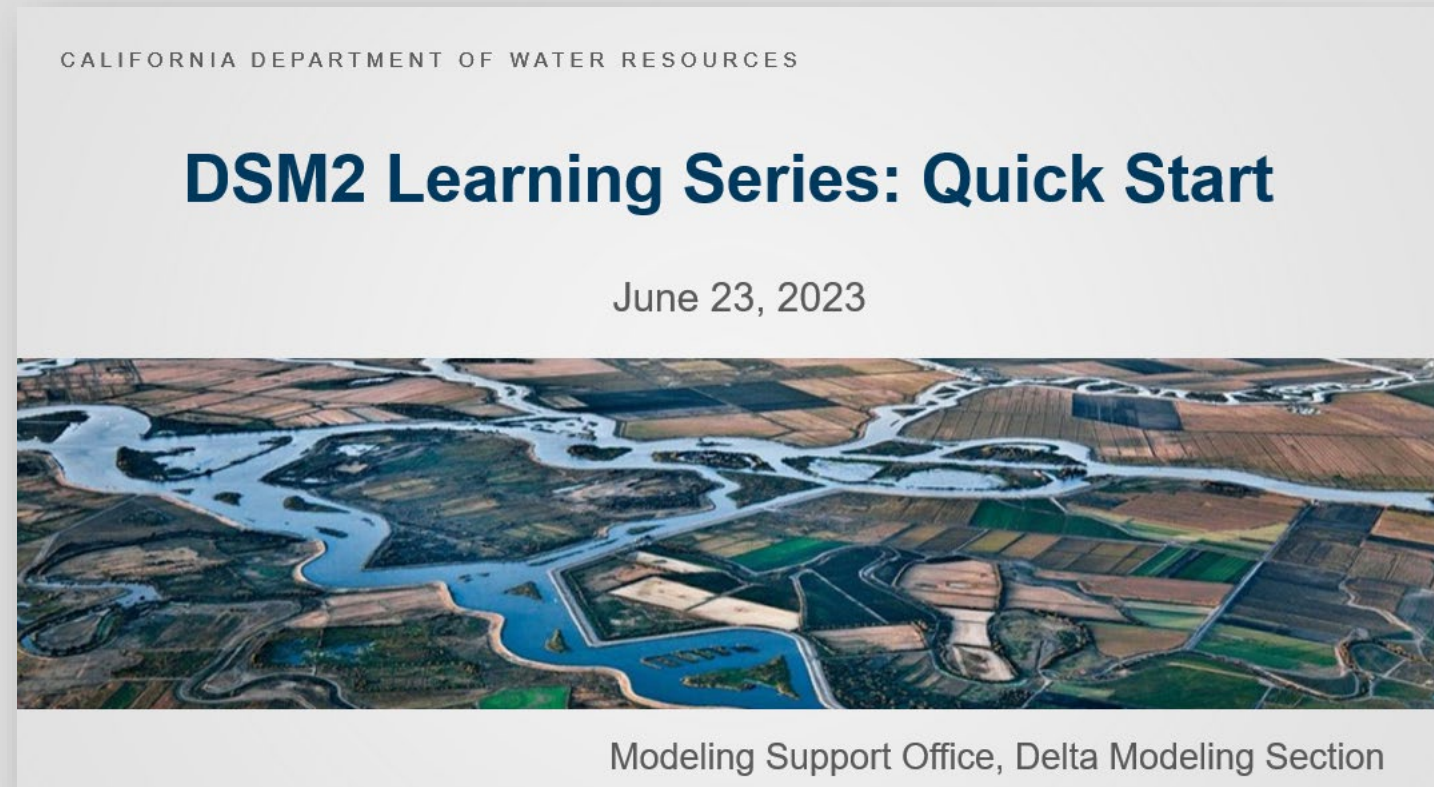
Hans Einstein

J.A. Harder

Delta Electric
Analog Model

Welcome: DSM2 Learning Series

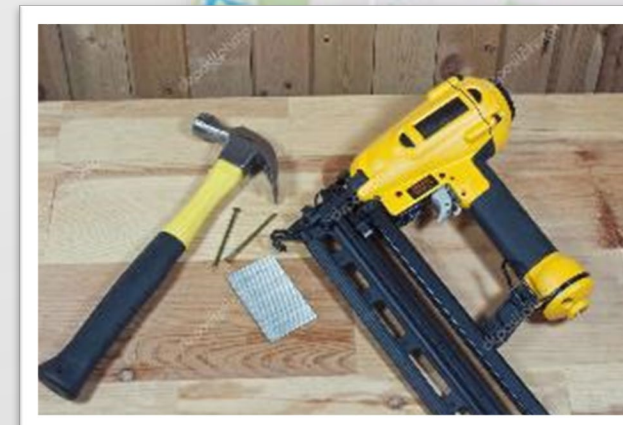
Why is DSM2 still useful?



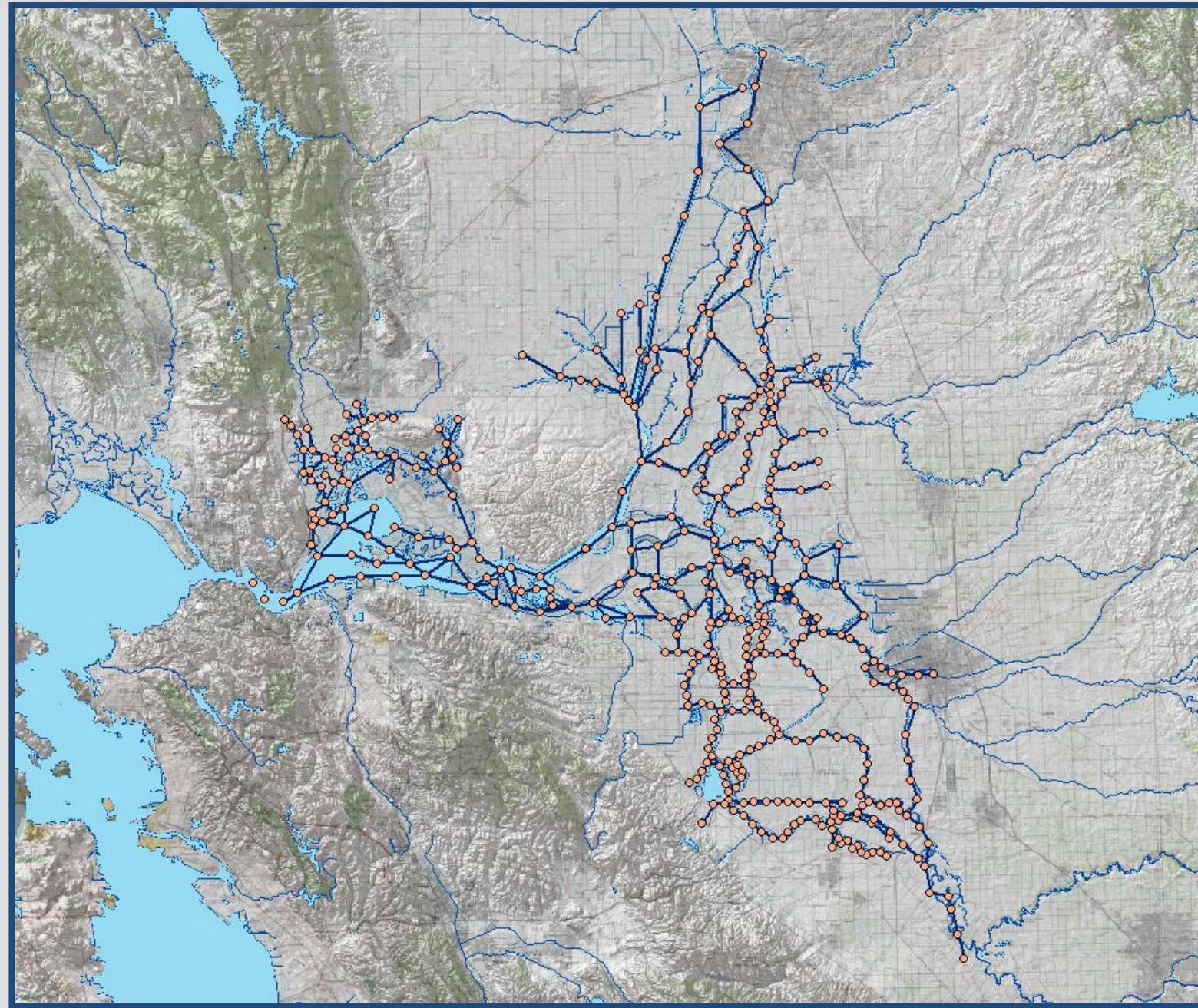
Future Topic TBD

Future Topic TBD

Follow-up survey asks for ideas for future Learning Series topics



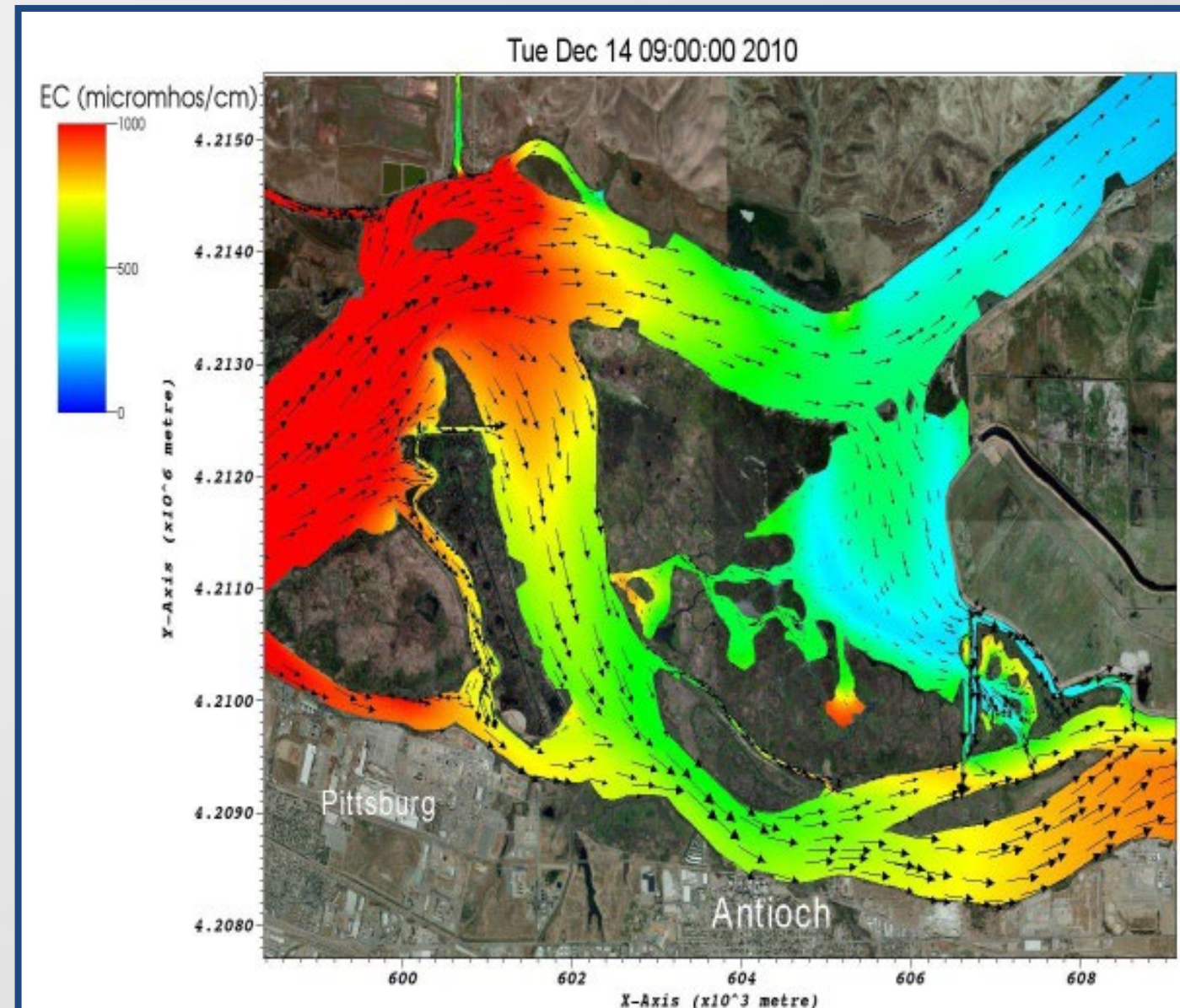
DWR Delta Models



SCHISM
Multi-dimensional model
for detailed studies

DSM2

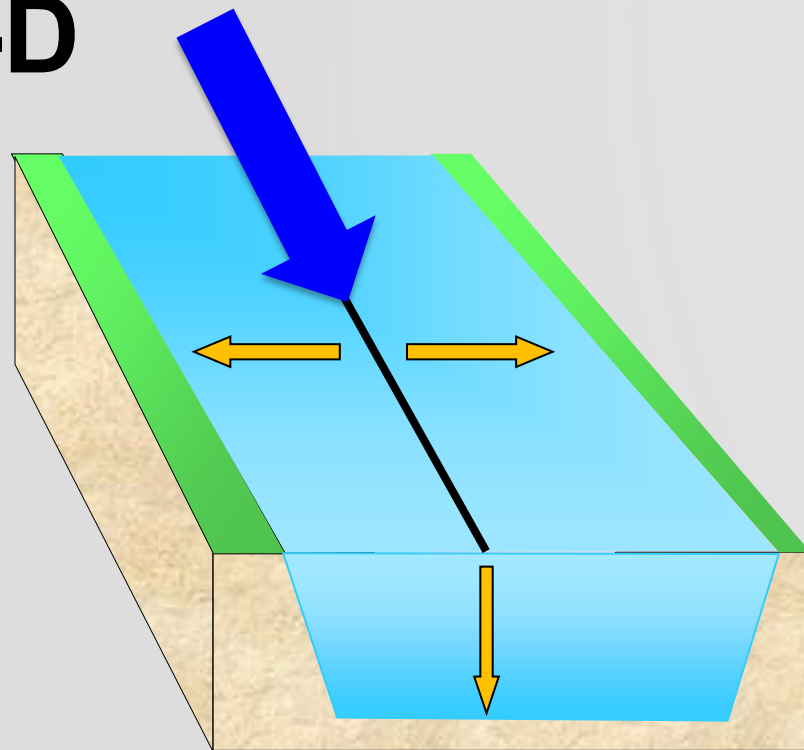
One-dimensional model for simulating
historical conditions and long-term planning



Delta Simulation Model II (DSM2)

- **What is DSM2?**
 - A 1-dimensional hydrodynamic and water quality model
 - Publicly available
 - Developed and maintained by CA Dept. Water Resources

1-D



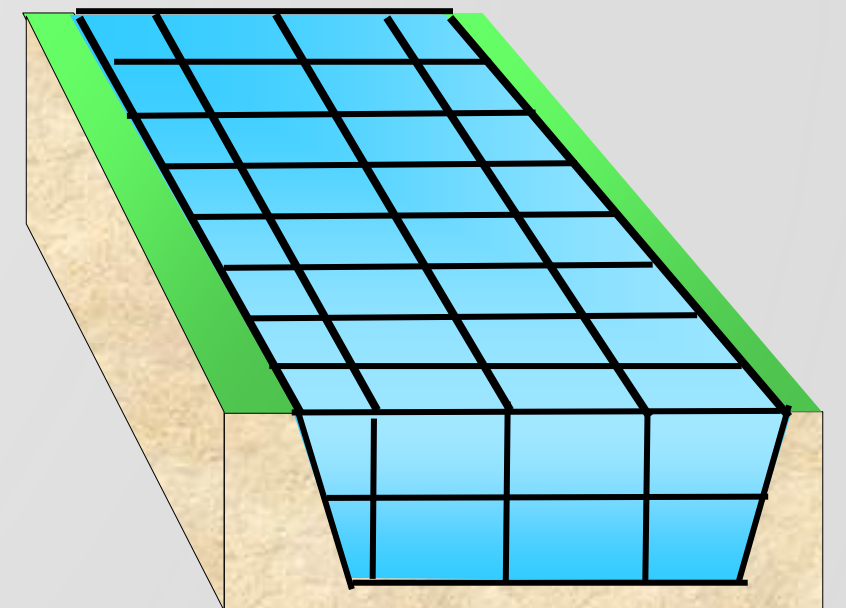
**Model values along the length
of the channel**

Characteristics Averaged

**Complexity, Amount of Input Data Needed,
Computational Resources and Time**

Ease of Use, Length of Simulation


3-D



**Model horizontal, vertical
and lateral values**

DSM2 official releases: CNRA Open Data

Organization



California Department of Water Resources

DWR manages California's water resources, systems, and infrastructure, including the State Water Project (SWP), in a responsible, sustainable way. [read more](#)


Dataset

Topics

Activity Stream

Showcases

Data and Resources




DSM2 2023.01 Historical Update

Historical update 2023.01 validated with DSM2 v8.2.2

More Info

Download




DSM2 2023.01 Historical Update Output

DSS output files for 2023.01 Historical Update

More Info

Download




DSM2-Hg / Open Water Mercury Program inputs

A zip file containing the DSM2-Hg model, and inputs for the Open Water Mercury Program.

More Info

Download




DSM2 2022.01 Historical Update

Historical update 2022.01 validated with DSM2 v8.2.2.

Preview

Go to resource




DSM2 2022.01 Historical Update Output

DSS output files for 2022.01 Historical Update

More Info

Download



DSM2 v8.2.2

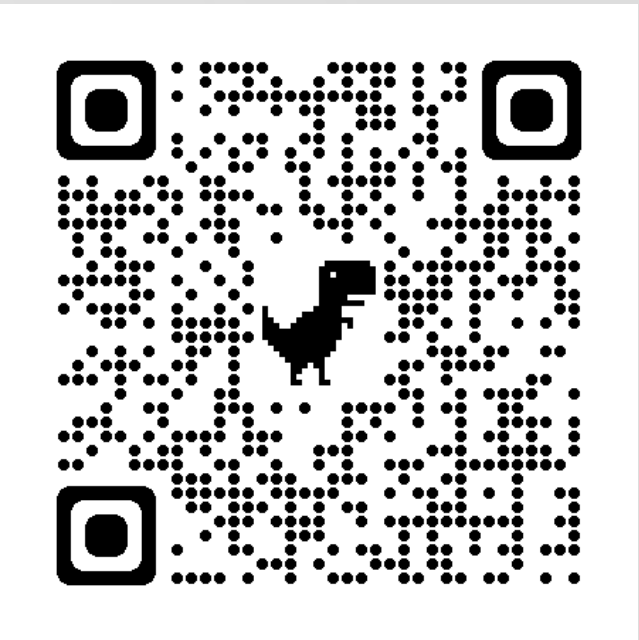
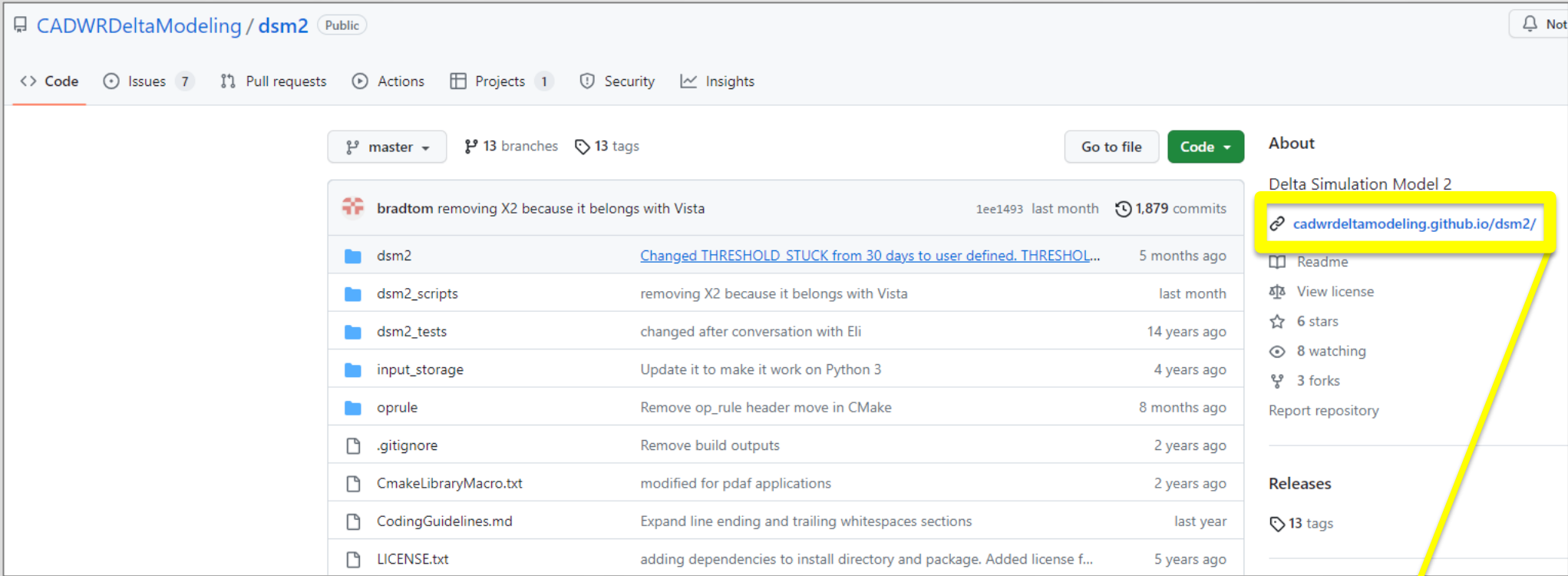
Preview

Go to resource

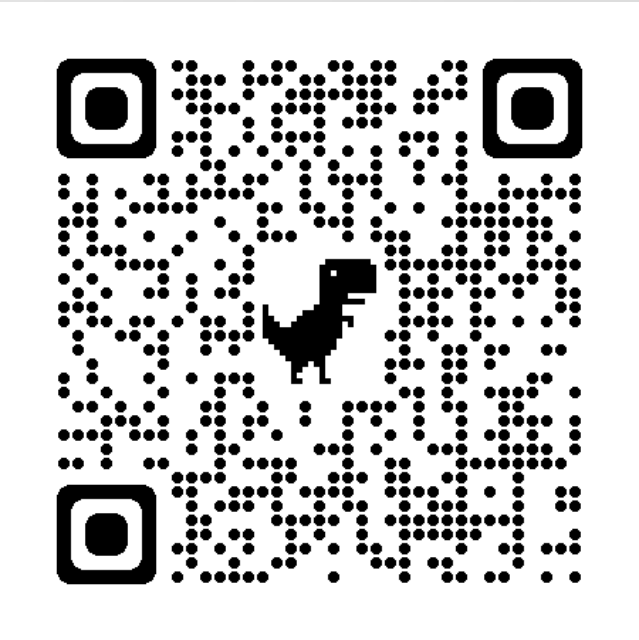
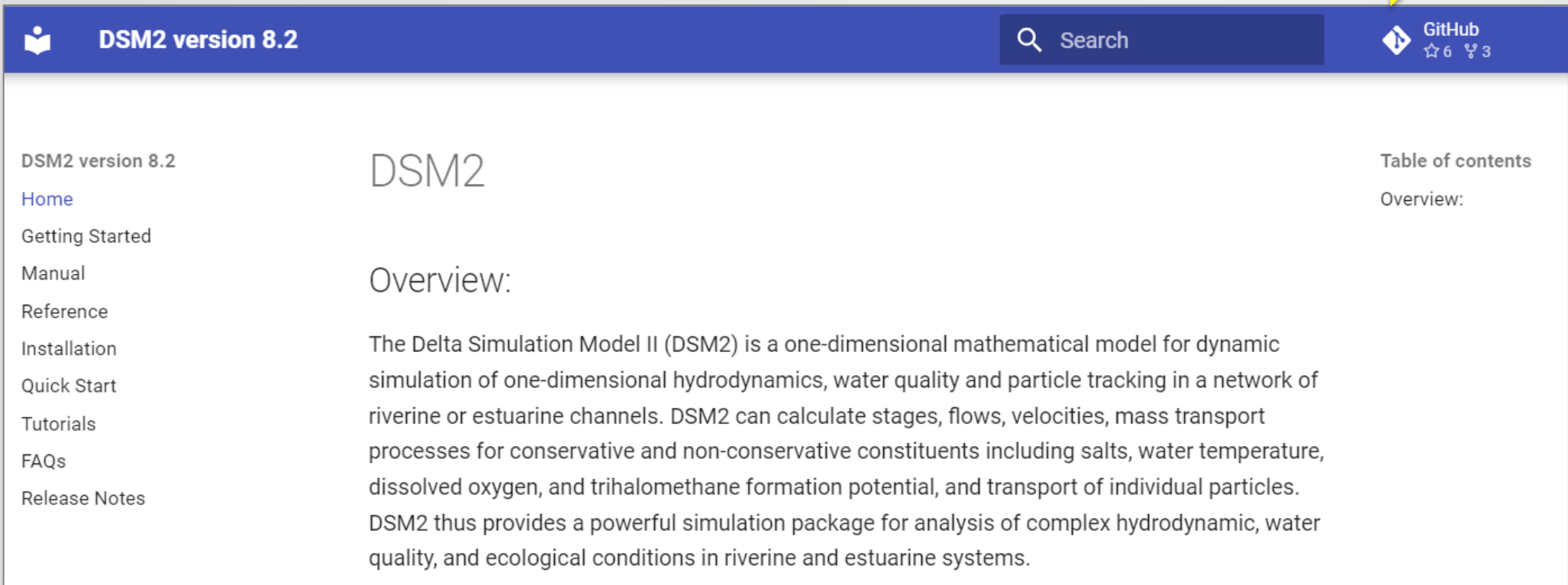
<https://data.cnra.ca.gov/dataset/dsm2>

GitHub

<https://github.com/CADWRDeltaModeling/dsm2>
<https://cadwrdeltamodeling.github.io/dsm2/>



DSM2 code



DSM2 documentation

Delta Simulation Model II (DSM2)

- Where has DSM2 been applied in California?

Sacramento- San Joaquin Delta



California Aqueduct



Delta Simulation Model II (DSM2)

- How is DSM2 used?

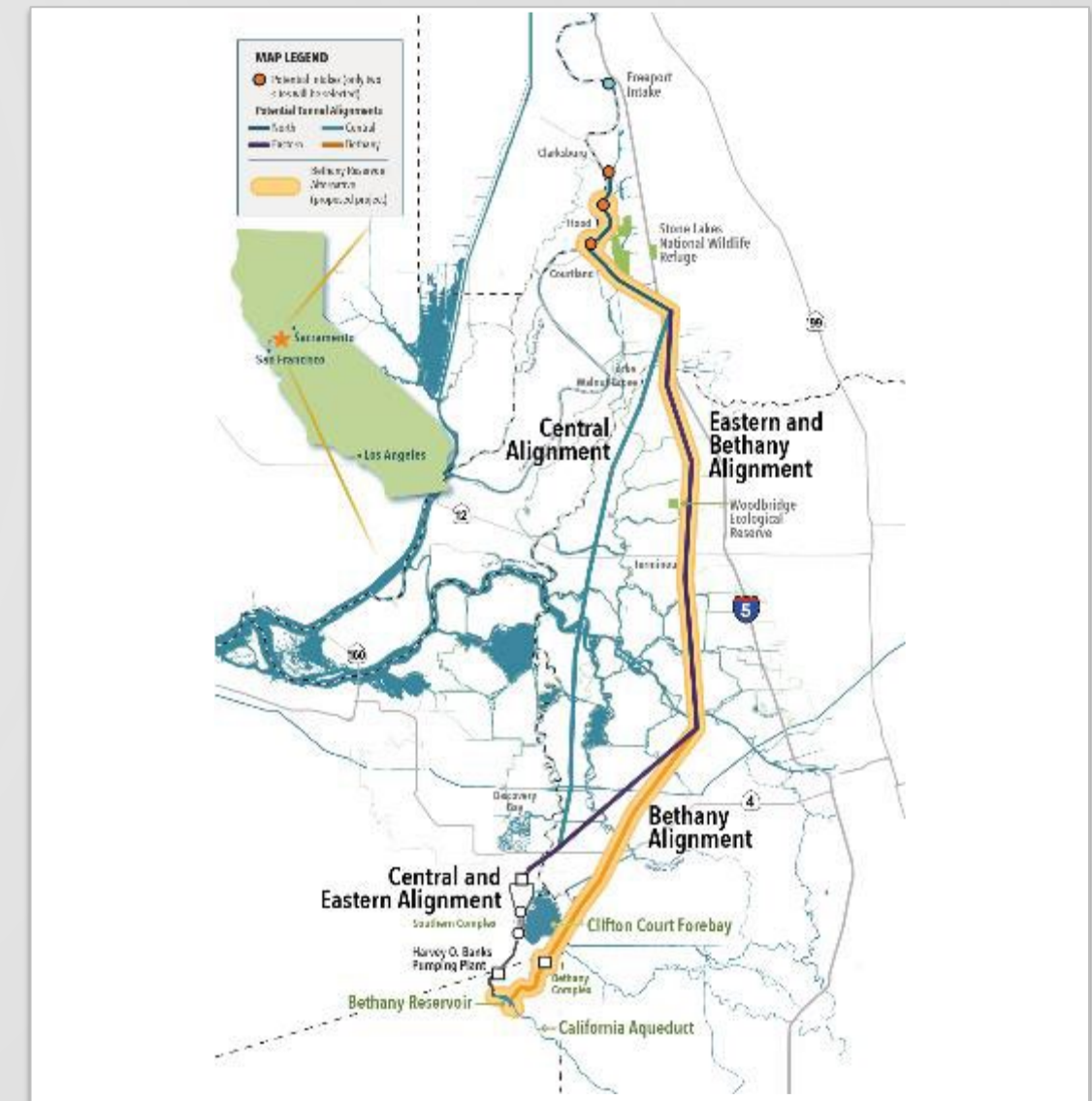
Historical



Real-Time



Planning



e.g. Delta Conveyance,
Climate Change

Delta Simulation Model II (DSM2)

- How is DSM2 used?

Historical

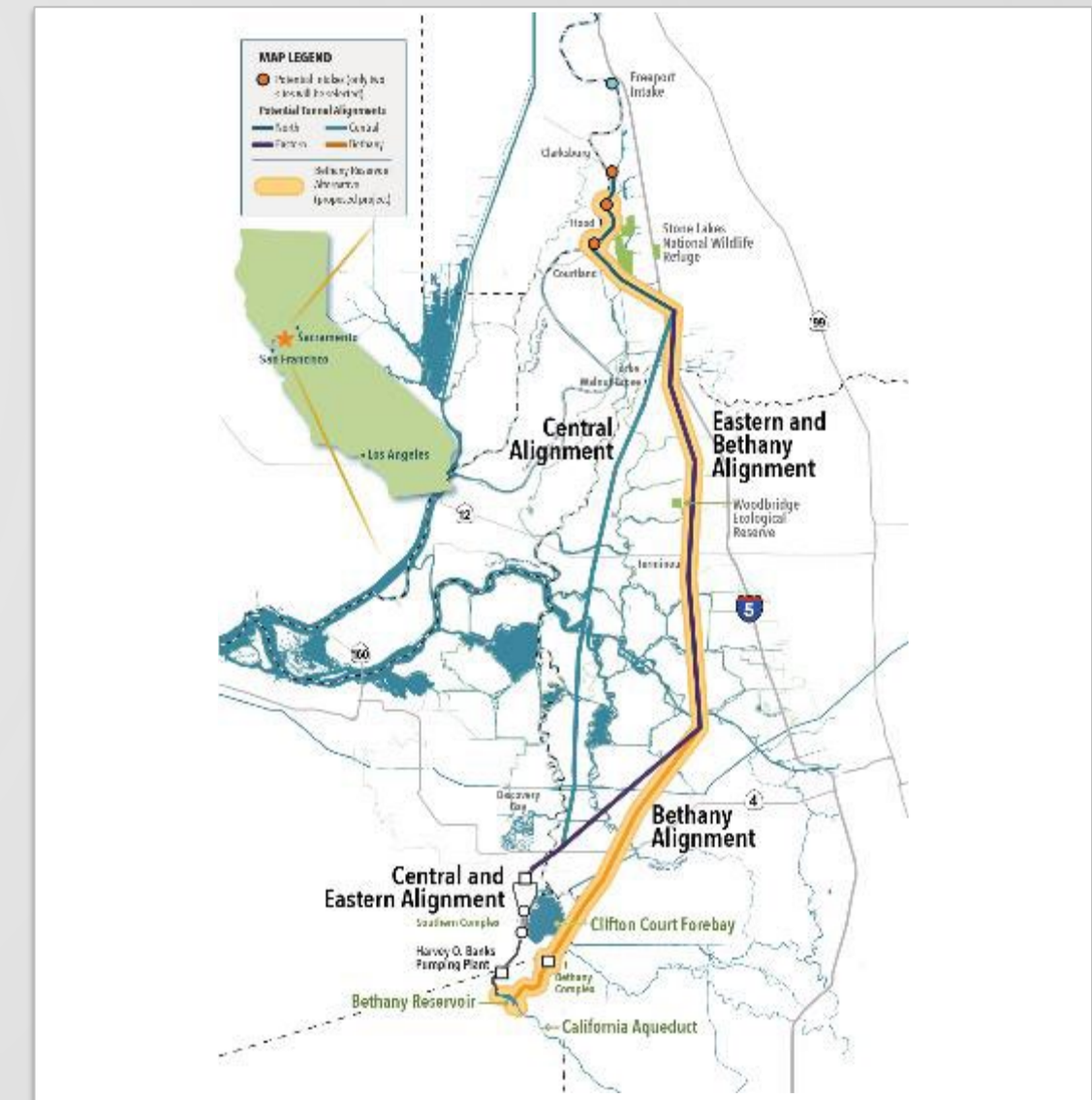


Used for today's class

Real-Time



Planning



e.g. Delta Conveyance,
Climate Change

Delta Simulation Model II (DSM2)

Hydro

Flow, velocity, water levels

Qual

Water Quality Model

- Salinity including chloride, bromide, ...
- Water Temperature
- Dissolved oxygen

GTM

General Transport Model

- Salinity
- Suspended sediment
- Sediment bed
- Mercury
- Modular for easy expansion

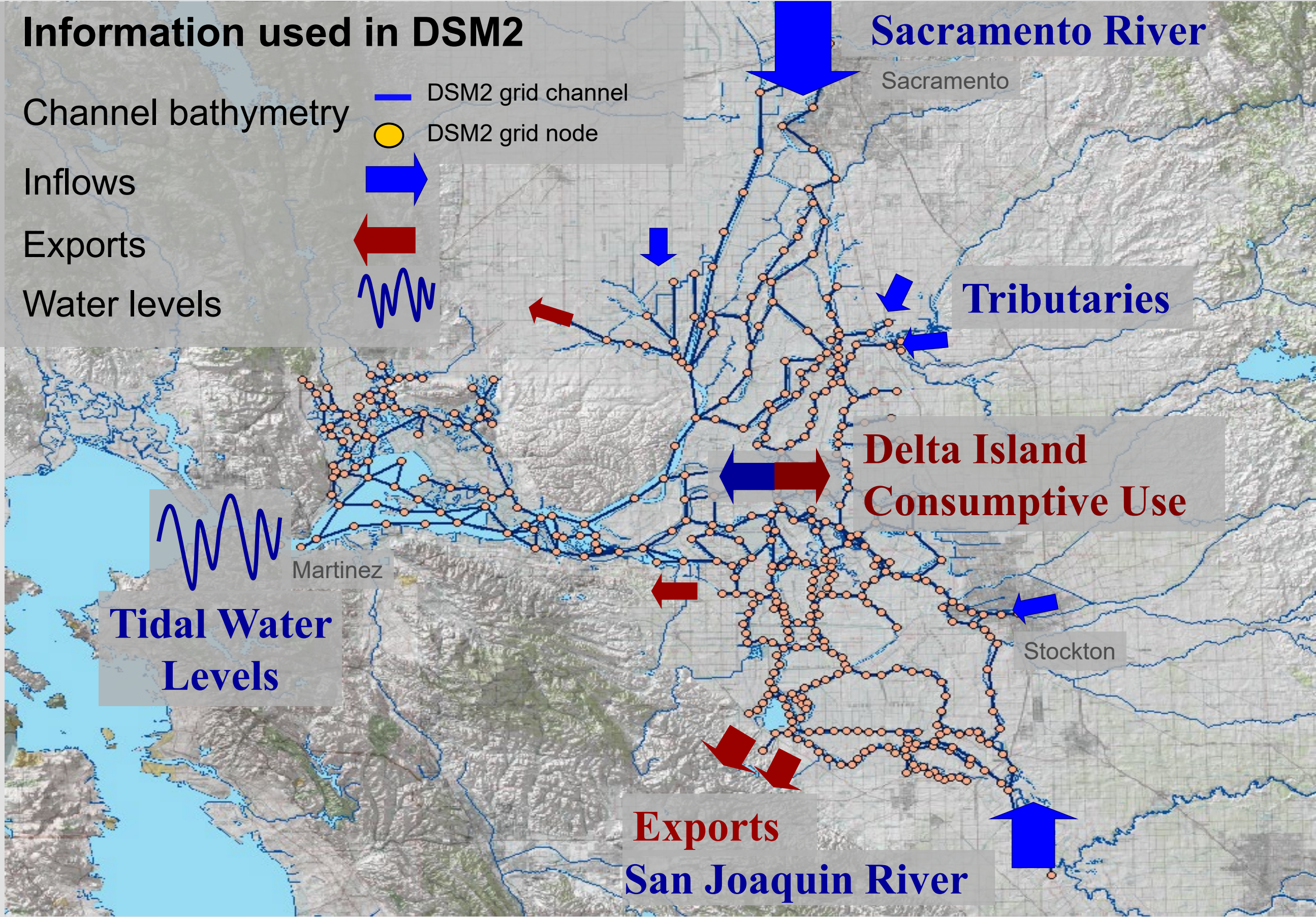
ECO-PTM

Ecological Particle Tracking Model

- Neutrally buoyant particles
- Position oriented particles
- Salmon particles

DSM2 Boundary Conditions

Information
input into DSM2



DSM2 Learning Series: Quick Start

Skills Learned

- Overview of input & output
- Download and run DSM2 historical simulation
- Simple input changes (scaling flow, increasing barrier width)
- Viewing output in HEC-DSSVue
- Comparing results from two simulations using HEC-DSSVue
- DSM2 Animator

Topics Not Covered

How to

- extending a historical DSM2 simulation to include more recent data
- use CalSim results as input to DSM2 for planning studies
- change channel geometry

Questions?

Please enter questions into the chat



Nicky Sandhu (Prabhjot.Sandhu@water.ca.gov)
Jamie Anderson (Jamie.Anderson@water.ca.gov)