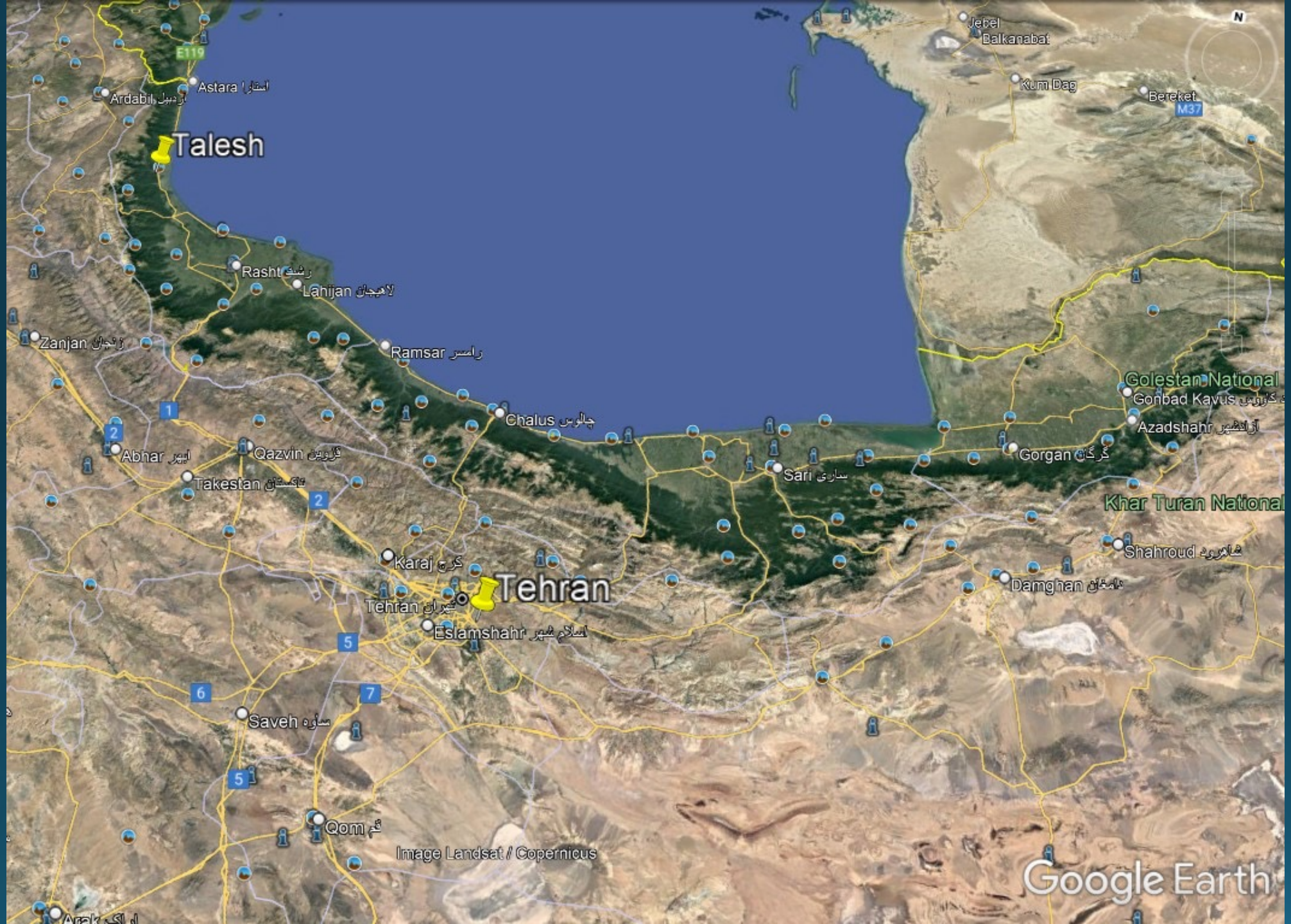
Evolution of Computing

(As Seen Through My Eyes)

Parviz Nader-Tehrani

April 4 2022


Talesh
Tehran
Astara
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Rasht
Lahijan
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Abhar
Qazvin
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Karaj
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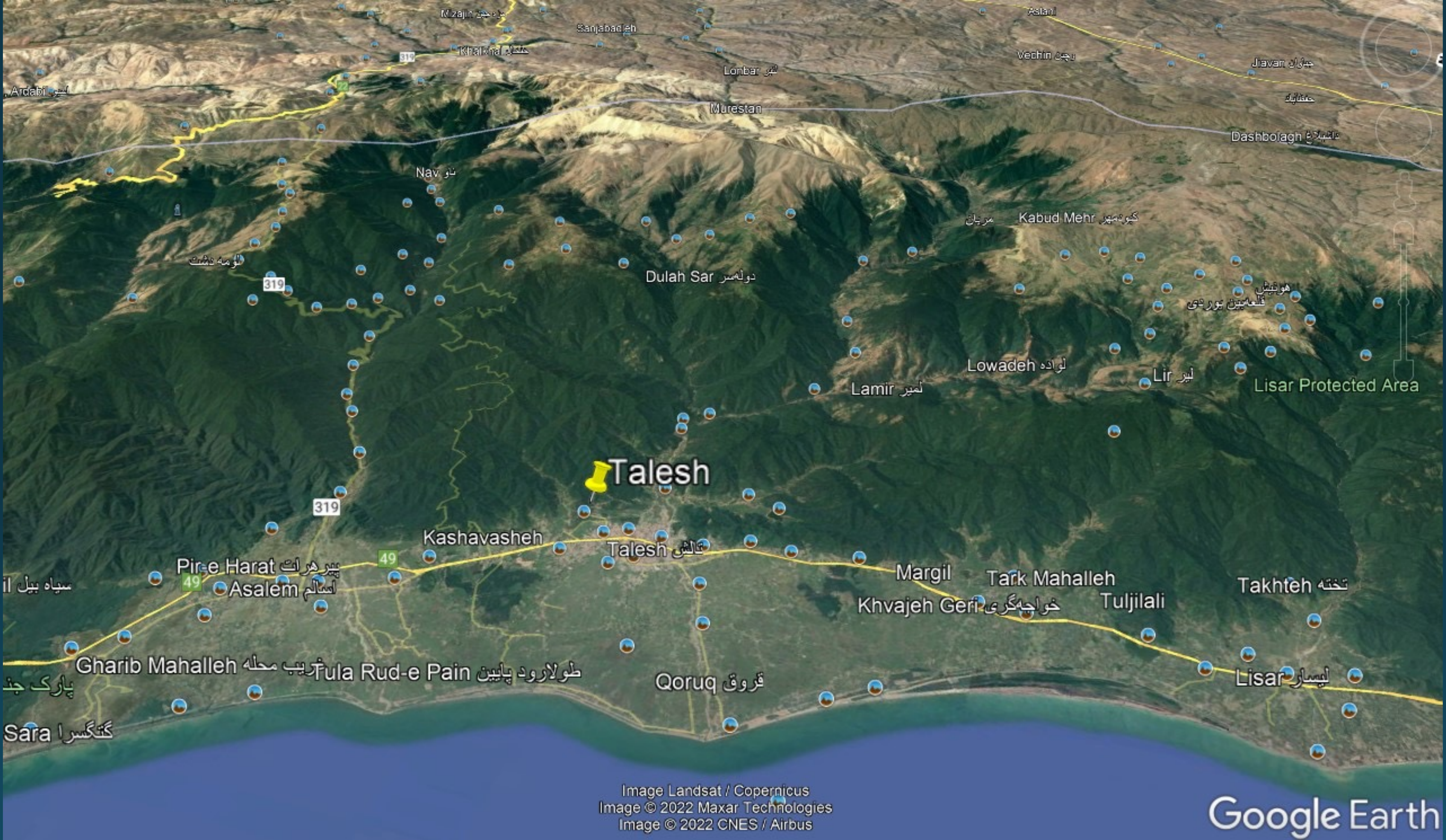
Eslamshahr
Saveh
Qom
Sari
Gorgan
Gonbad Kavus
Azadshahr
Golestan National
Khar Turan National
Shahroud
Damghan
Kum Dag
Bereket
Jebel
Balkanabat
E119
M37
Image Landsat / Copernicus
Google Earth


Talesh
Talesh تالش
Kashavasheh
Pir-e Harat پیرهرات
Asalem اسالم
Gharib Mahalleh
Tula Rud-e Pain طولارود پایین
Qoruq قروق
Margil
Tark Mahalleh
Khvajeh Geri خواجه‌گری
Tuljilali
Takhteh تخته
Lisar لیسار
Lowadeh لواده
Lamir لمیر
Lir لیر
Lisar Protected Area
Dulah Sar دوله‌سر
Kabud Mehr کبودمهر
Nav ناو
Murestan
Lonbar
Dashbolagh
Sara گتگسرا
319
49
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Google Earth

Talesh 1964 Flood


FACIT

TALESH

AMIN EZZATIPARD

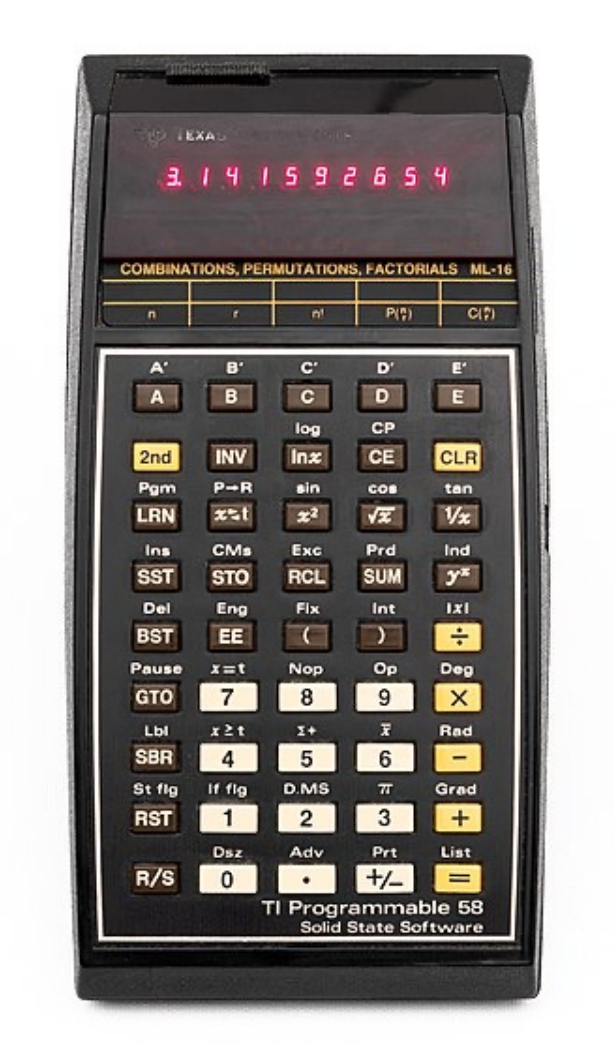

SHARP
micro Compet

$BaSO_4$

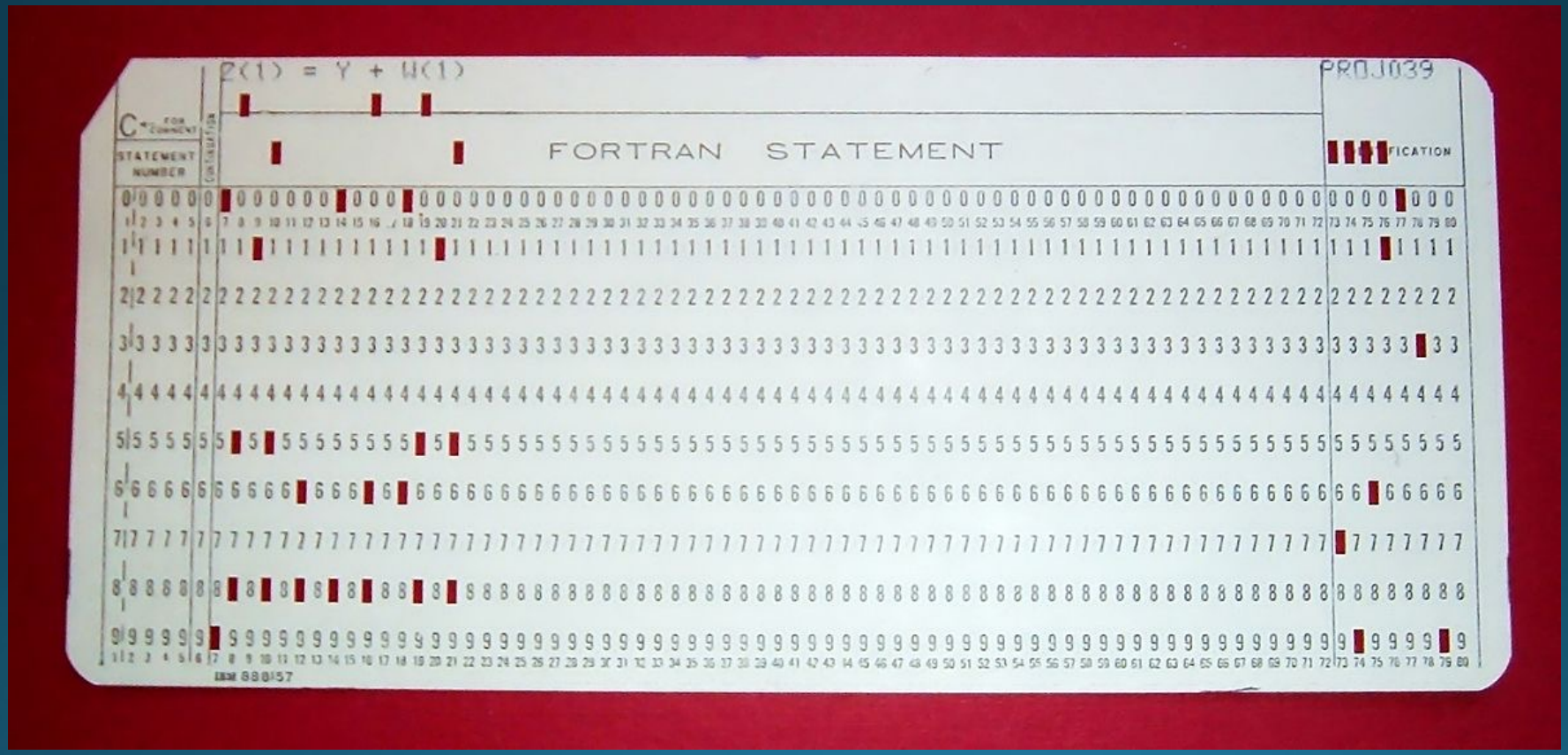
(233)

Monte Carlo Simulations

My First Programmable Calculator



My first computer programming language Fortran 77



My first computer

My first real computer

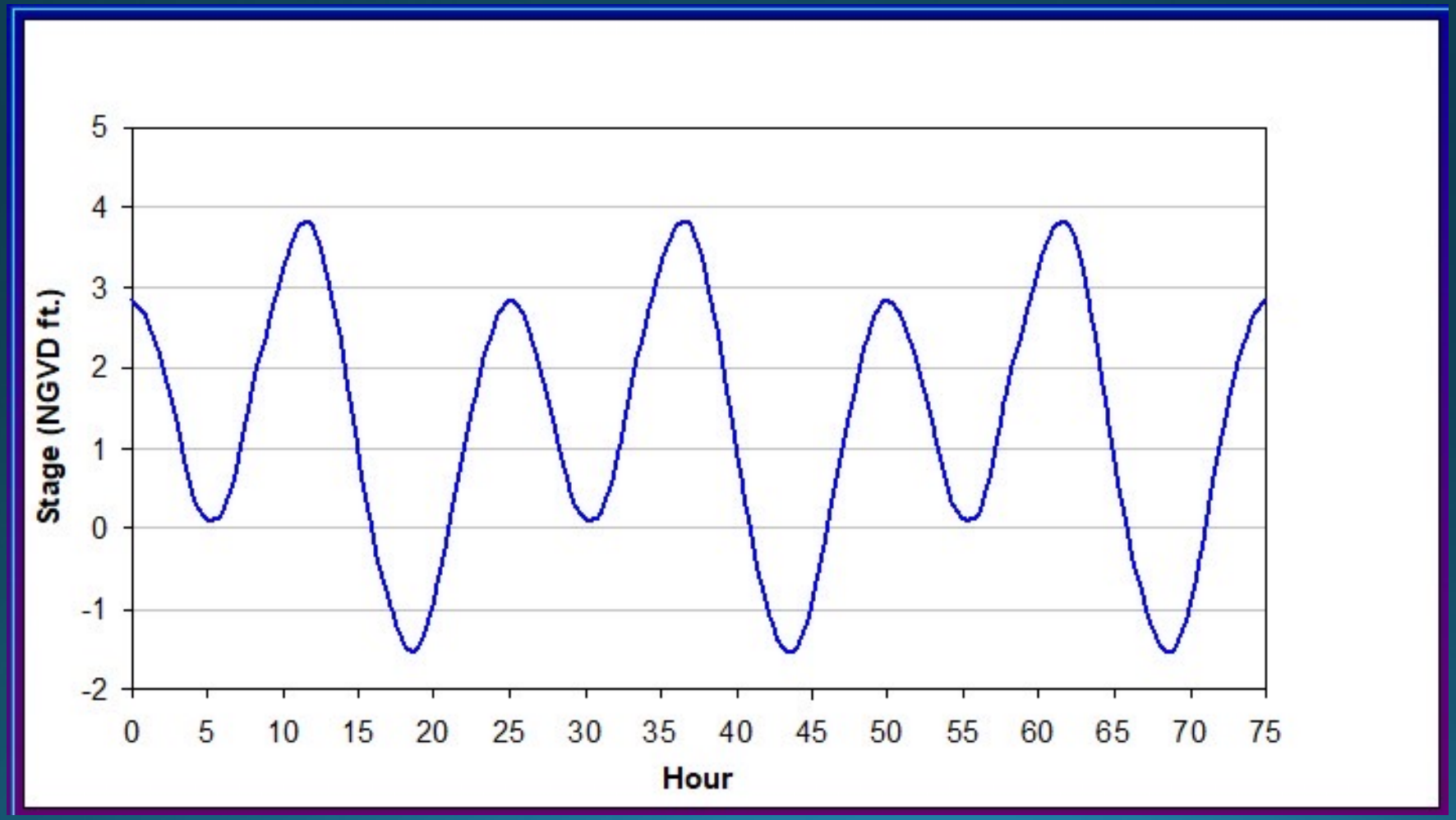

Sierra ON-LINE INC
ScreenWriter II
PROGRAM DISK
Insert disk in your floppy disk drive (A or B); click on the File menu of your Windows Program Manager; select Run; then type A:\SETUP (or B:\SETUP) and press OK.
AMERICA Online
FOR WINDOWS™
Sierra ON-LINE INC
ScreenWriter II

Joined DWR 1989

DWRDSM

- Modified Version of FDM
- Explicit formulation (using Method of Characteristics)
- Relatively fast
- Limited to rectangular/prismatic x-sections (flat bottom slope)
- Exhibited some numerical leakage

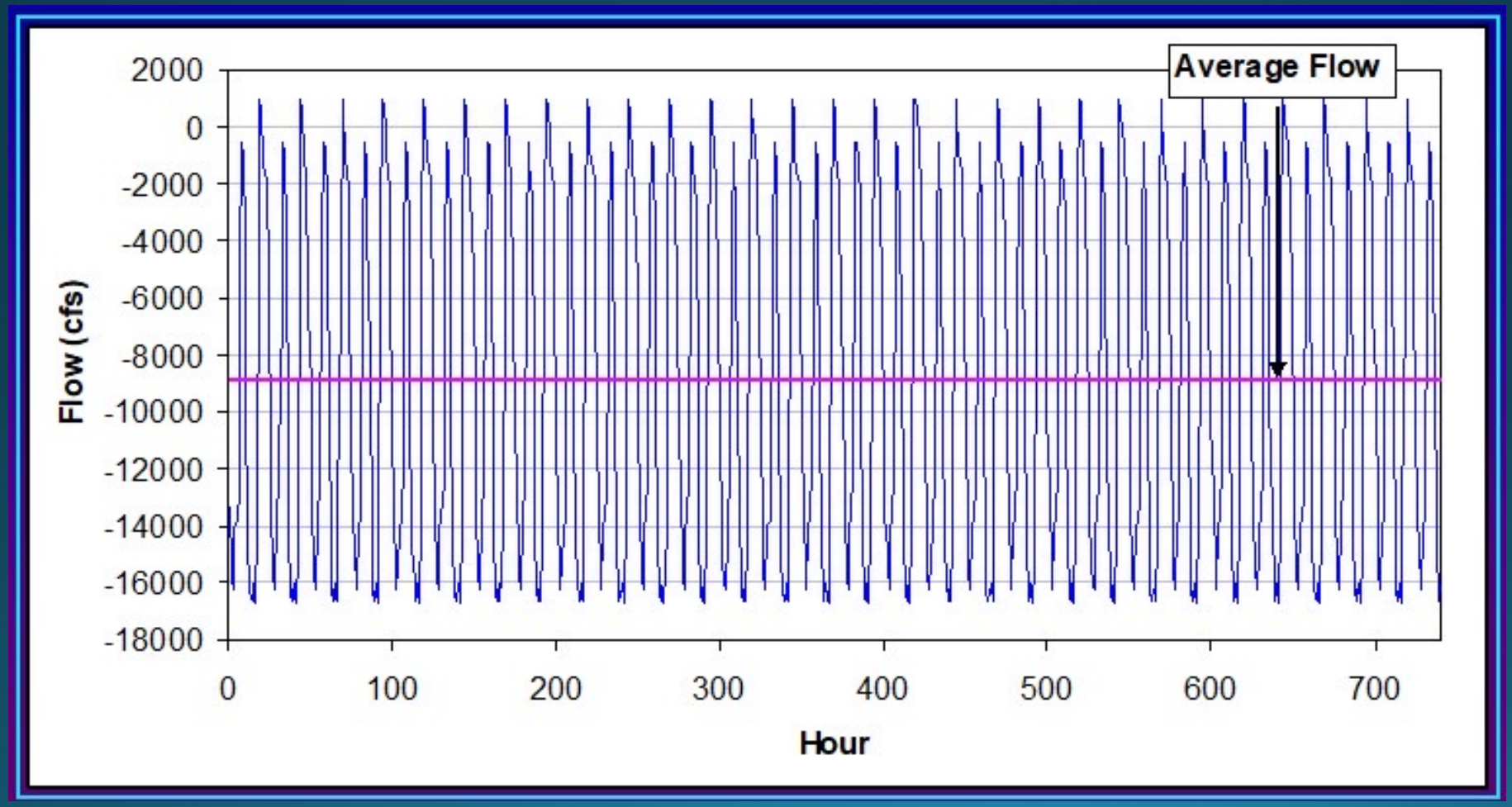
19 Year Repeating Tide Use in Planning Simulations



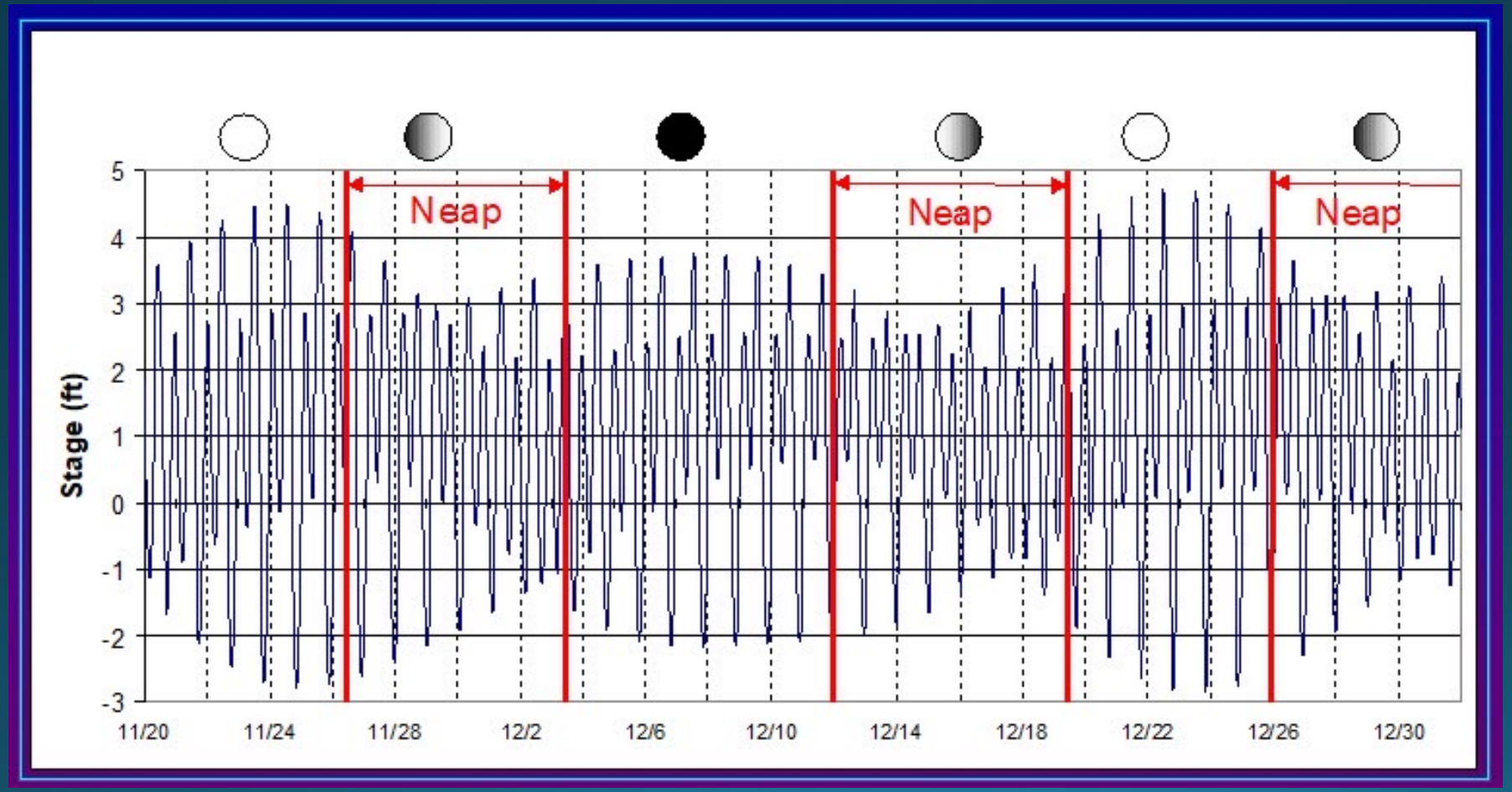
Planning Model Simulations Using DWRDSM

- Flow input from DWRSIM
- Individual run for each month using 19-year repeating tide until reaching dynamic steady-state (Output: 25 hours of a repeating cycle flow/stage/velocity) representing each month
- Only hourly stage for all channels were included in the Tide-File (0.1 MB/25 hour cycle). Water quality module recalculated flow at each end of all channels using information about change-in storage. This resulted in a slight mismatch.
- Storage cost was an issue

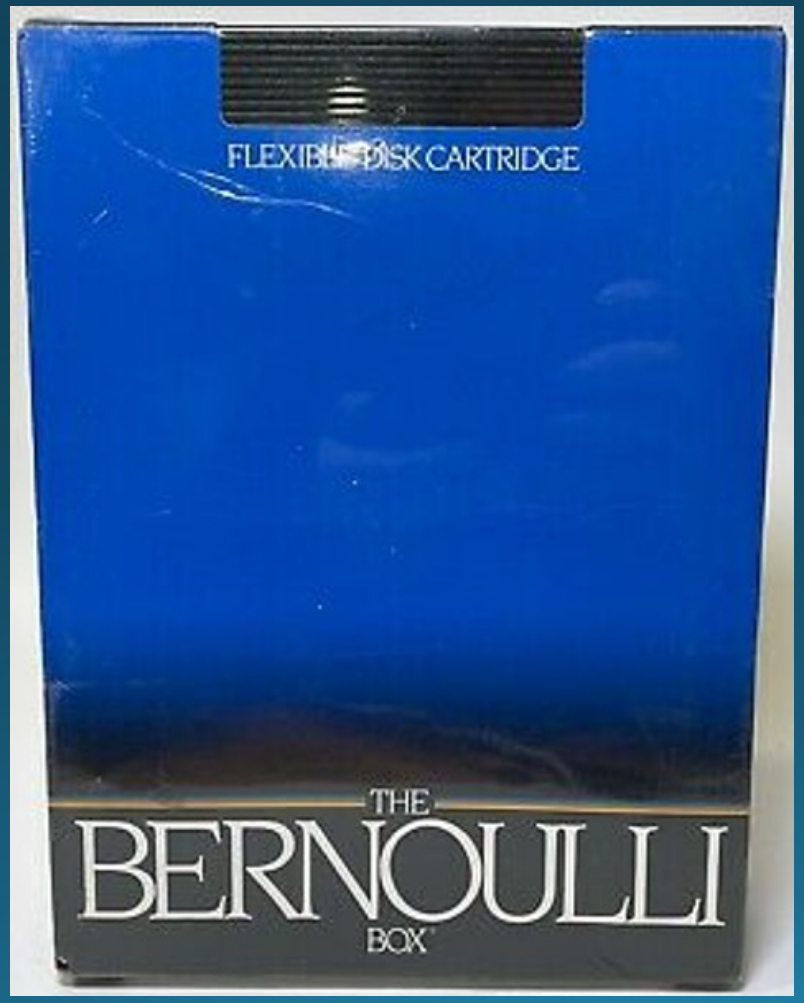
DWRDSM Model output using 19-year Mean-Tide



Varying Tide



Backup Solution



DSM2

- Developed by DWR (big team effort)
- Based on USGS Fourpt/BLTM Models
- Fourpt: 4-Point implicit finite difference formulation
- Capable of handling irregular Cross-Sections
- Capable of simulating multiple conservative and nonconservative constituents (e.g. temperature, dissolved oxygen)
- Calibration/Validation (1997-2021)
- Introduced varying-tide in planning simulations (Capable of simulating spring-neap effects, resulting in a more realistic simulation)
- Currently 93-years of planning simulation (Based on CalSim 3.0 input)

Enhancements in DSM2

(Partial List)

- Particle Tracking Model (PTM)
- DSS format input/output
- Efficient Algorithms
- Complex Operating Rules
- Graphical User Interface/Post Processing Tools
- Finger-Printing (source and time tracking) (Can be used to analyze any conservative constituent)

My Secret List of Best Ways to Learn About the Delta

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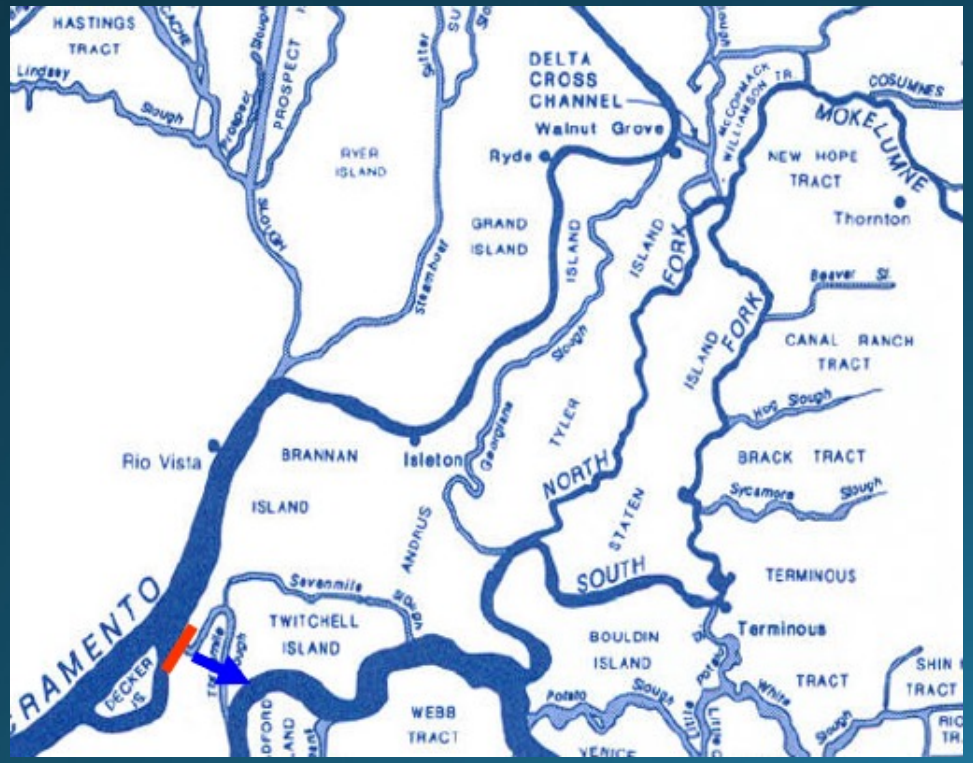
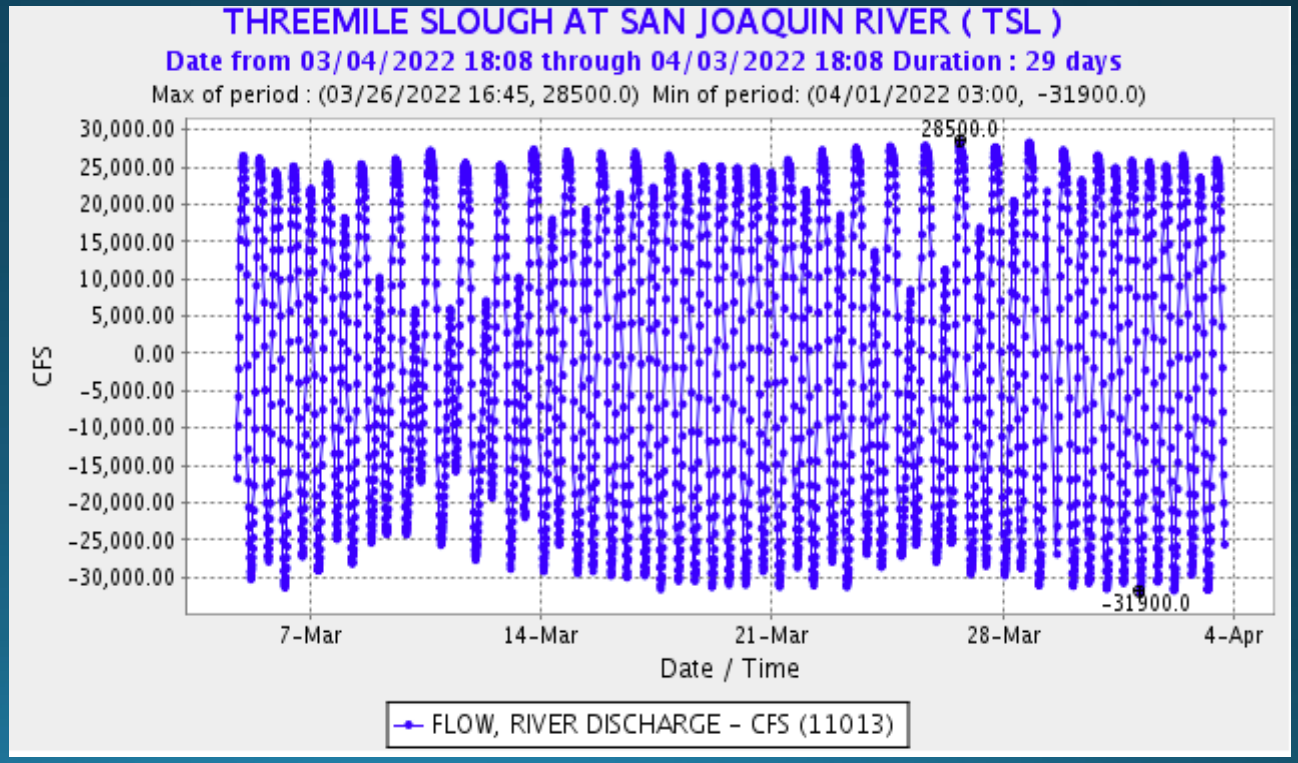
1- Use DSM2 or any other Delta Model (Try some what-if scenarios)





My Secret List of Best Ways to Learn About the Delta

2- Take some field trips

Rocks on Paradise Cut Weir

March 2011 High Flows

My Secret List of Best Ways to Learn About the Delta

3- Use CDEC or other data libraries to check out current or past conditions throughout the Delta and the major reservoirs