

ECI 141 - Engineering Hydraulics

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Engineering Hydraulics

Hydraulics is a name that we give to the study of problems associated with water motion. Water in particular is a FLUID.

At the same time, we focus on ENGINEERING, because we need to use water to satisfy the needs of the population: potable water, treatment of sewage, navigation, recreation purposes, etc.

We make predictions in order to design hydraulic structures, for instance.

What do we need to know?

ECI-141 Engineering Hydraulics:

- 1) Laws and principles of water motion.
- 2) Flow of water in pipes.
- 3) Flow of water in channels and rivers.
- 4) Backwater curves.
- 5) Design of weirs.
- 6) Design of spillways.
- 7) Energy losses.
- 8) Pumps and turbines.
- 9) Lift and drag (solid objects immersed in flows).

HOLLYWOOD DOES IT BETTER !



Why we study the motion of water in particular?

Engineering “problems” in water resources:

- 1) Floods.
- 2) Water quality in rivers.
- 3) Sediment transport in rivers.
- 4) Water quality in bays and estuaries.
- 5) Water quality in lakes.
- 6) Design and construction of dams for energy production, water storage, water diversion and navigation.
- 7) Design and construction of civil works for potable water.
- 8) Sewage treatment.

Why we study the motion of water in particular (Engineering Hydraulics)?



Paraná River, Argentina, South America

Why we study the motion of water in particular?



FLOODS!!! New Orleans, United States

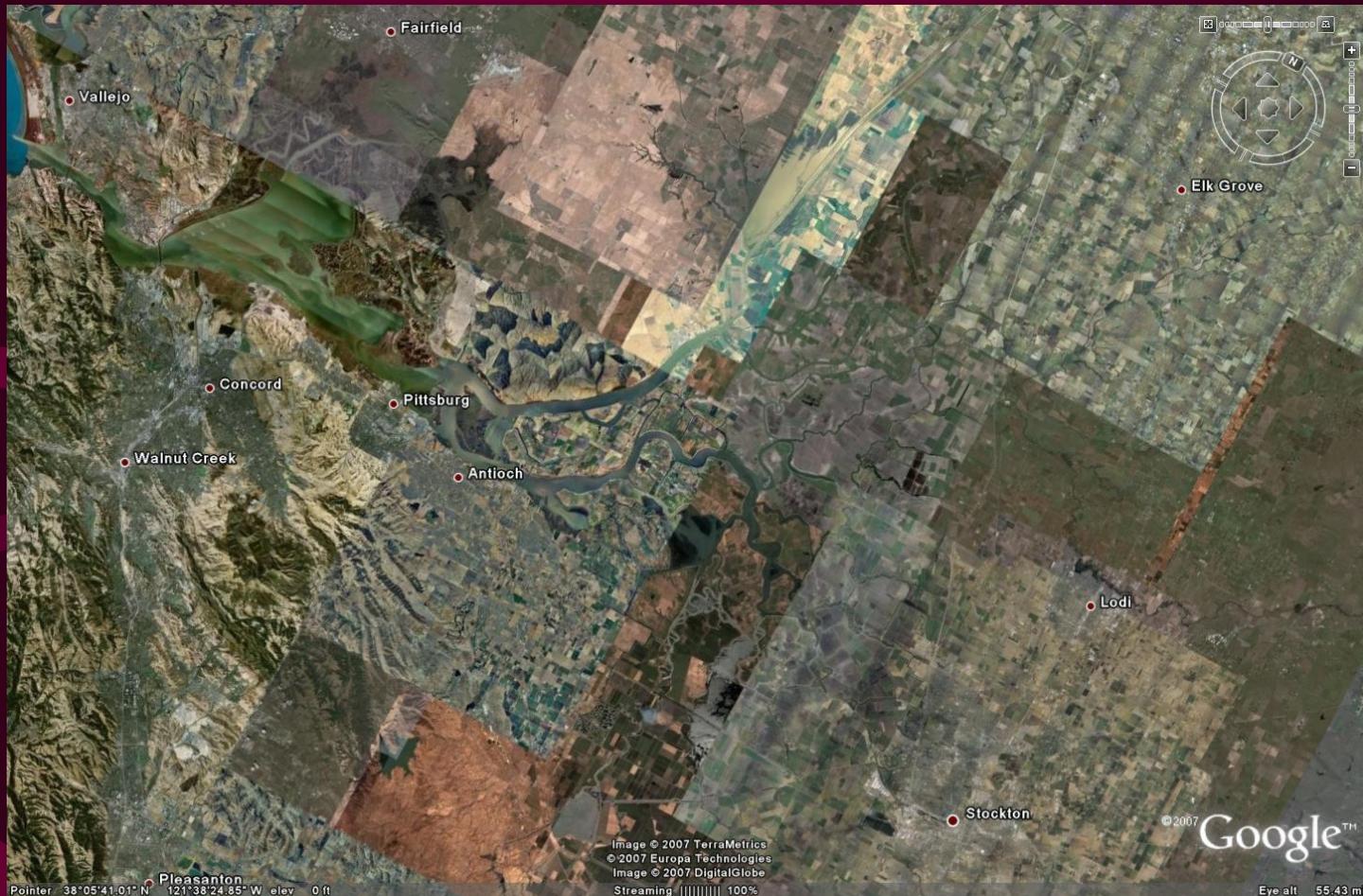


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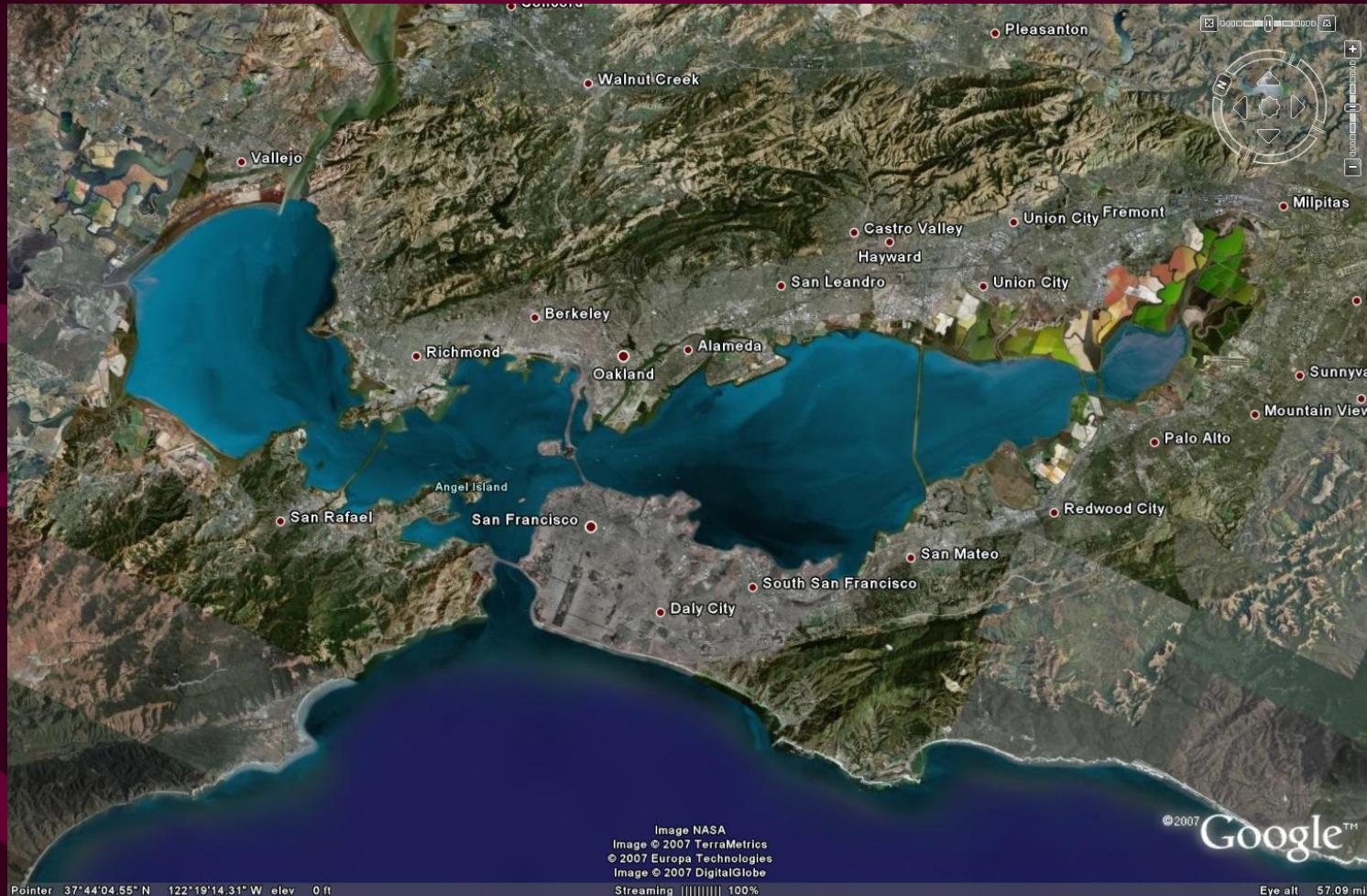
FLOODS!!! New Orleans, United States

Why we study the motion of water in particular?



FLOW AND WATER QUALITY IN RIVERS

Why we study the motion of water in particular?



WATER QUALITY IN BAYS AND ESTUARIES

Why we study the motion of water in California's Water Systems

California Water Systems



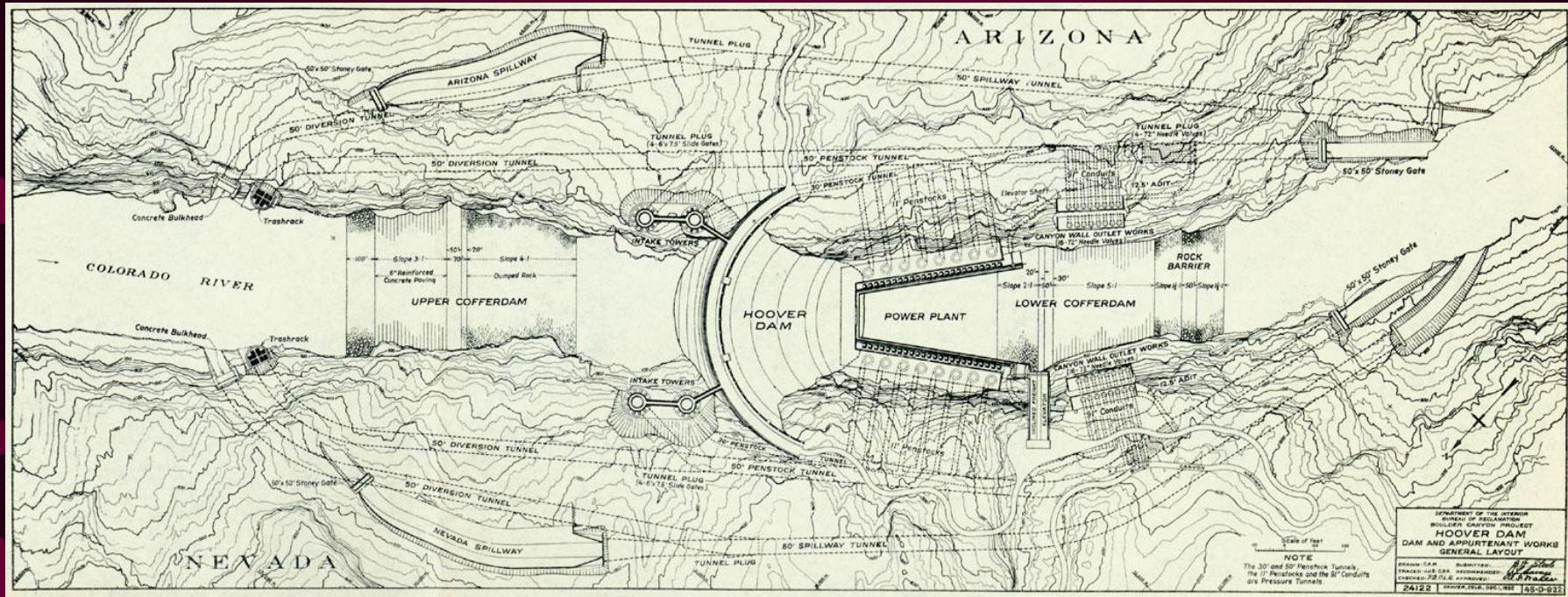
WATER SUPPLY IN CALIFORNIA

Why we study the motion of water in particular?



Hoover Dam, Colorado River

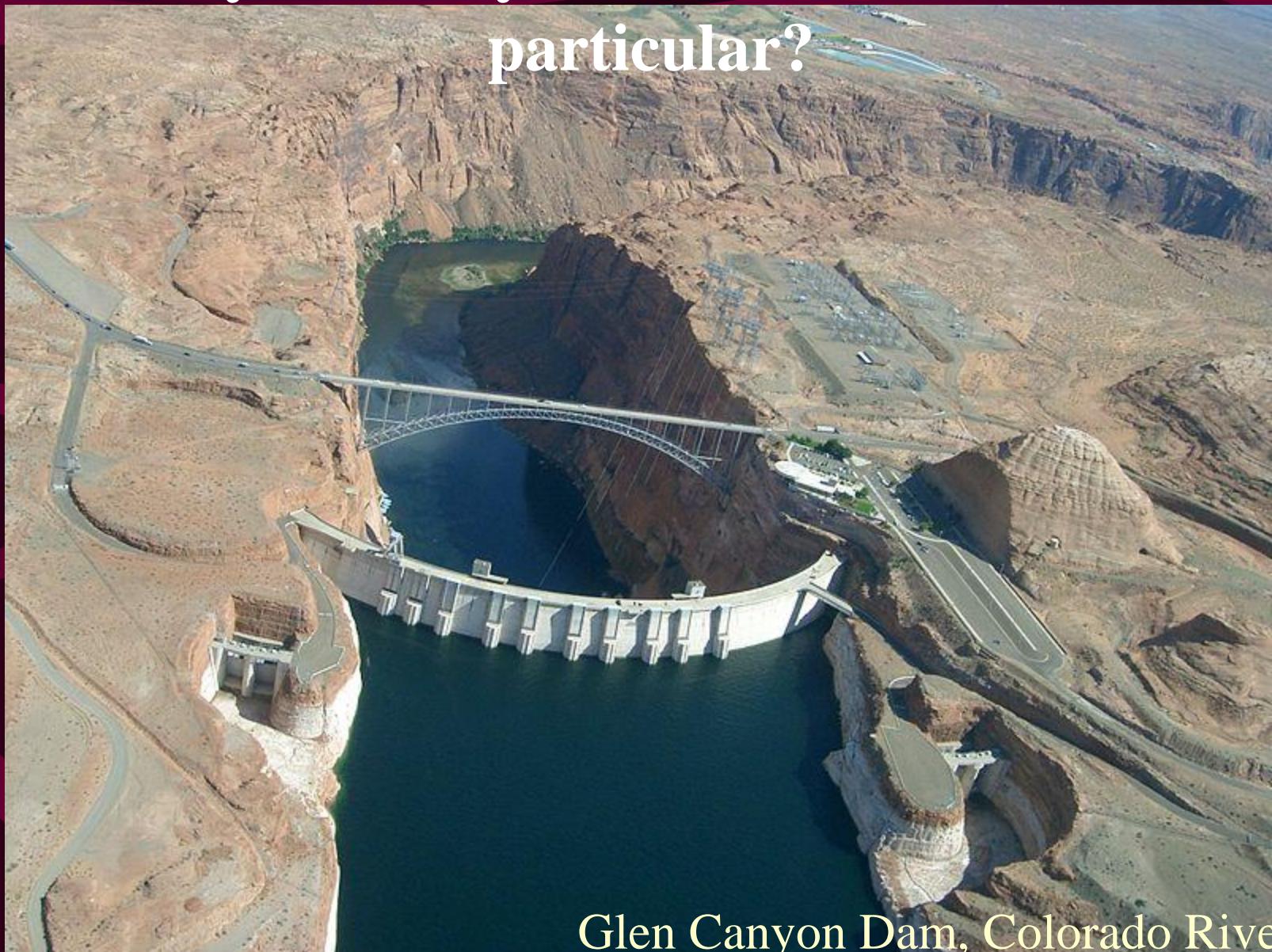
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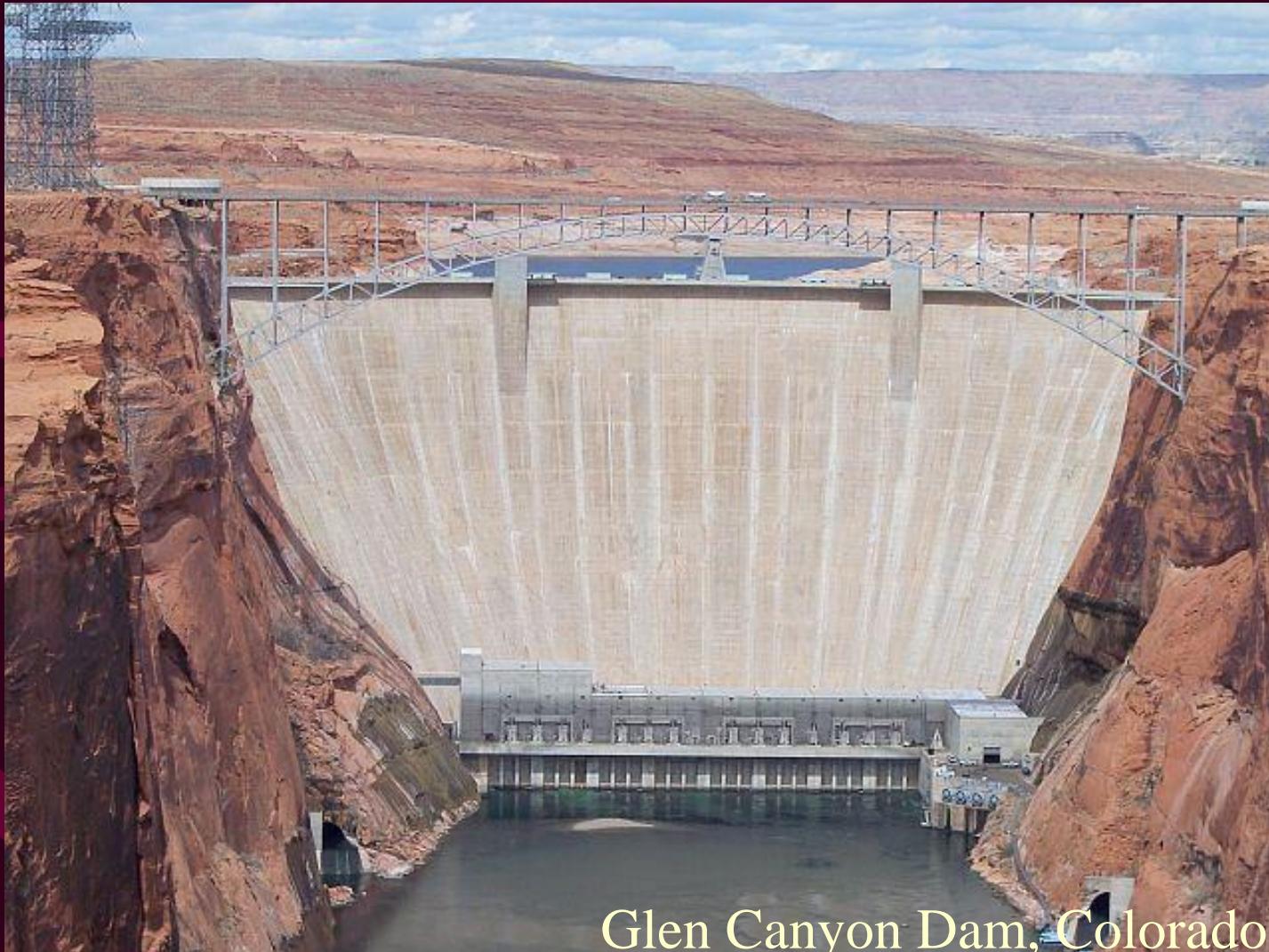


Why we study the motion of water in particular?



Glen Canyon Dam, Colorado River

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Glen Canyon Dam, Colorado River

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