

# SIO 15 LECTURE 13: THE PRINCIPLES OF FLOODS

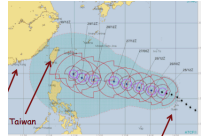
Leftovers from Lecture 12

## Miscellaneous

### Floods

Current Events

DIVERTED SHIP MAKES A SPLASH



The 1900 Galveston, TX Hurricane and Flood



The 1889 Johnstown, PA Flood



2011 Thailand Flood - Global Reach



### The Causes of Floods

#### The Longitudinal Profile - Stream Profile

watch short video 13a

The Gradient

Base Level

Flow Speeds along the profile

**Meanders** inner and outer bank of a meander; oxbow lakes

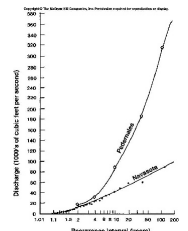
watch short video 13b

Discharge

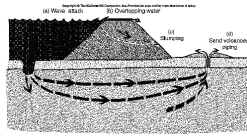
Energy, Erosion, Sedimentation

Flow Speeds in cross section

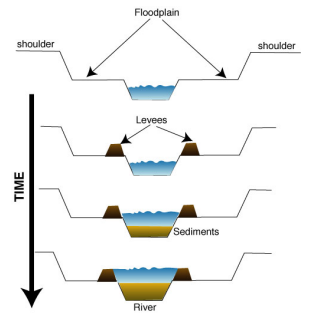
### Flood Frequency Curves



# The Role of Levees



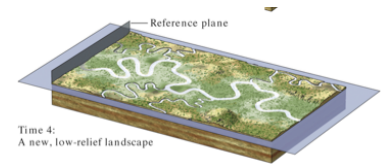
# The Impact of Levees



Floodplain

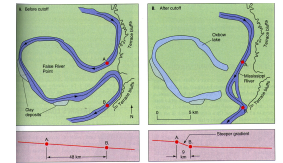
# Levees: Pros and Cons - Understanding Flood Risks II

# The Mississippi River Drainage Basin



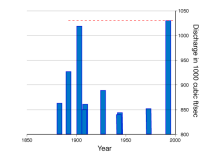
Time 4: A new, low-relief landscape

# Changing the Mississippi discharge



# The 10 worst Mississippi Floods

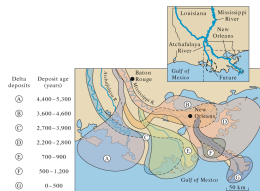
Top Ten Mississippi River Floods at St. Louis, 1861-1994



# The 1993 Mississippi Flood



# The Mississippi Delta



# Atchafalaya 1831

