



**King Fahd University of Petroleum & Minerals**

**City and Regional Department**

**CRP 514: Introduction to GIS**

**Presented by**

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# Content

- Introduction in GIS
- Purpose of Proposal
- Arc GIS Hydro Data Model
- Conclusion

# Introduction

- A GIS is a Geographic Information System, a software package for creating, viewing, and analyzing geographic information or spatial data. GIS is a class of software, just as word processors or databases .

# Purpose of Proposal

- Rivers and watersheds have long been modeled by engineers. They have long been mapped by cartographers. Rarely have these two elements been coupled together in order to take advantage of the spatial analysis built into GIS programs and the hydrologic and hydraulic analyses available in engineering models

# Arc GIS Hydro Data Model

- **Hydro Network**
- **Hydro Feature**

# Hydro Network

- **Hydro Edge**

- Hydro Edge is the parent class representing most of the water features in the object model

- **Water Bodies**

- A Water body is defined to be a region of contiguous water represented as an area on a map

# Hydro Network

- **Hydro Junctions**

- Junctions are the locations at which Hydro Edges intersect one another

- **Hydro Events**

- Hydro Events describe information located on the Hydro Network by linearly referenced addresses.

# Hydro Network

- **Catchments and Watersheds**

- Edge Catchments are portions of the landscape that drain to a particular Edge.

- **Hydrologic Response Units**

- Hydrologic Response Units are polygon features related to Watersheds and Catchments.



# Hydro Features

- **Hydro Points**

- There are four child classes, or subclasses, of Hydro Points, Structures, Flow Change Points, Monitoring Points, and User Points.

- **Hydro Lines**

- There are five basic types of hydrographic lines that participate in the network

# Hydro Features

- **Hydro Areas**
  - Ordinary landmark areas have already been mentioned as types of lines stored in Hydro Line
- **Use of subtypes and subclasses**
  - The subtypes Flow Edge, Virtual Flow Edge and Shoreline Edge inherit from Hydro Edge.

# Conclusion

- The Arc GIS Hydro data model is the first user-created model produced to work with the new Arc GIS architecture. It has set a mark outside the water resources field for other GIS user groups to reach for. The full development of ESRI's Arc FM Water model took two years, so the Arc GIS Hydro effort is in good position for future growth by all accounts

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Thank you