



**Geography 38/42:477**  
**Advanced Geomatics**

---

**Topic 1:**  
**Introduction to Geomatics**  
**and IGIS**

---

---

---

---

---

---

---

---

**What is a Geomatics?**

---

- Science and technology of gathering, analyzing, interpreting, distributing and using geographic information
- Geomatics includes:
  1. surveying
  2. mapping
  3. remote sensing (RS)
  4. geographic information systems (GIS)
  5. the global positioning system (GPS)

---

---

---

---

---

---

---

---

---

**What is an IGIS?**

---

- Integration of geomatics technologies
- Dobson (1993) – a conceptual framework
- Gao (2002) – models of integration

---

---

---

---

---

---

---

---

---

## Linear Model

- Integration is linear and unidirectional

GPS -> RS -> GIS

- Separate, isolated stages
- No connection between GPS and GIS

---

---

---

---

---

---

---

---

## Interactive Model

- Linear, but linkages flow in both directions

GPS <-> RS <-> GIS

- Limited interaction between GPS and GIS

---

---

---

---

---

---

---

---

## Hierarchical Model

- Two tiers of integration with unidirectional flow



- Tier 1 involves GPS and RS components
  - possible map overlay operation
- Tier 2 development of a model

---

---

---

---

---

---

---

---

## Complex Model

- Linkages between all three in both directions



- Real-time data acquisition

---

---

---

---

---

---

---

---

## Prospects?

- Variations of four basic models exist
- Gao predicted trend toward complex model
- Geodatabase becomes isolated entity

---

---

---

---

---

---

---

---