

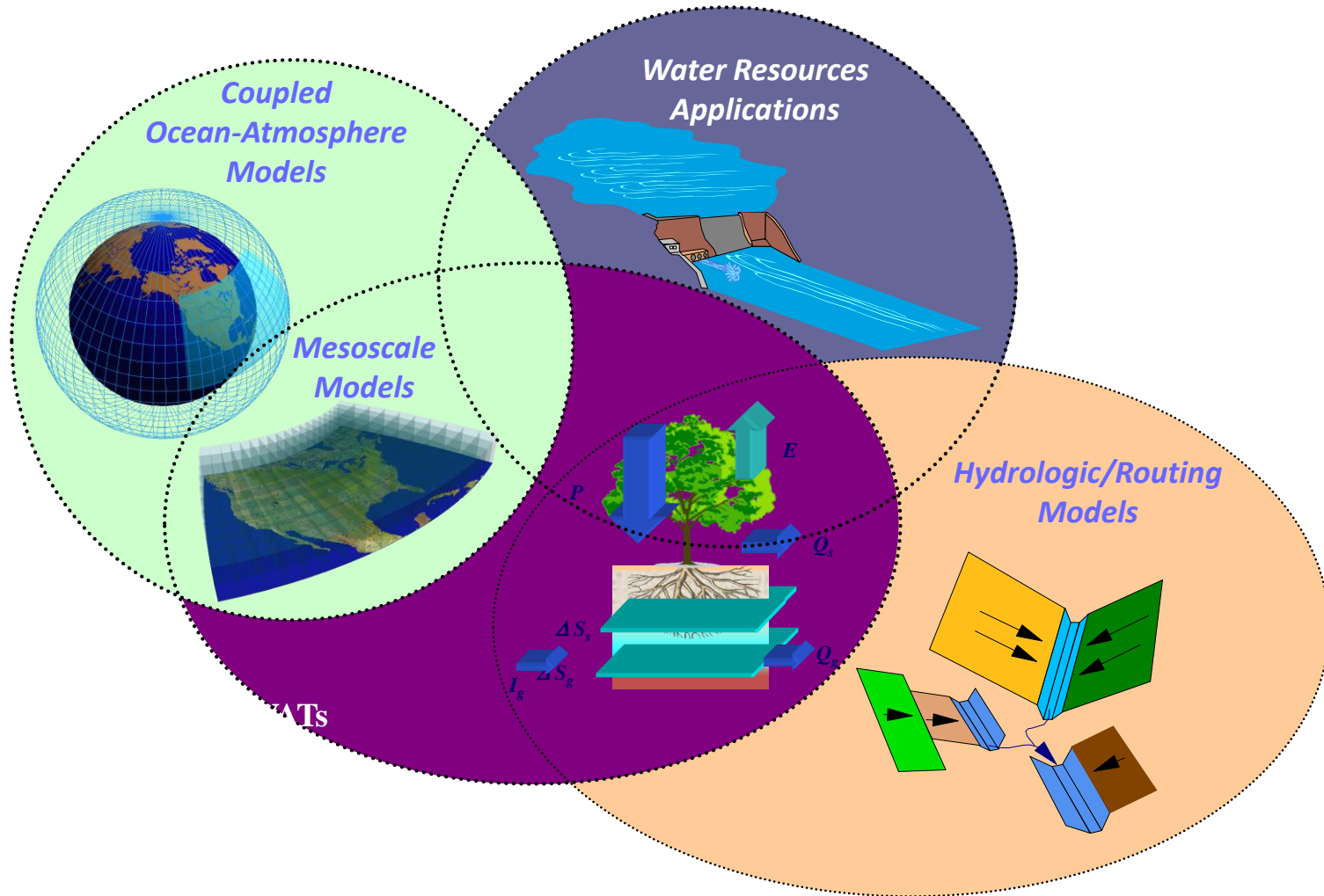
***World Water Forum -  
Istanbul  
Section 6.4.1***

*Building the Database*

***Remote Sensing***

*Professor Ian Cluckie, IAHS ICRS*

# A General Scenario



*Sorooshian, HEPEx, 2004*

# Satellite Earth Observation

Polar Orbiting

800 km

$1/16\phi$



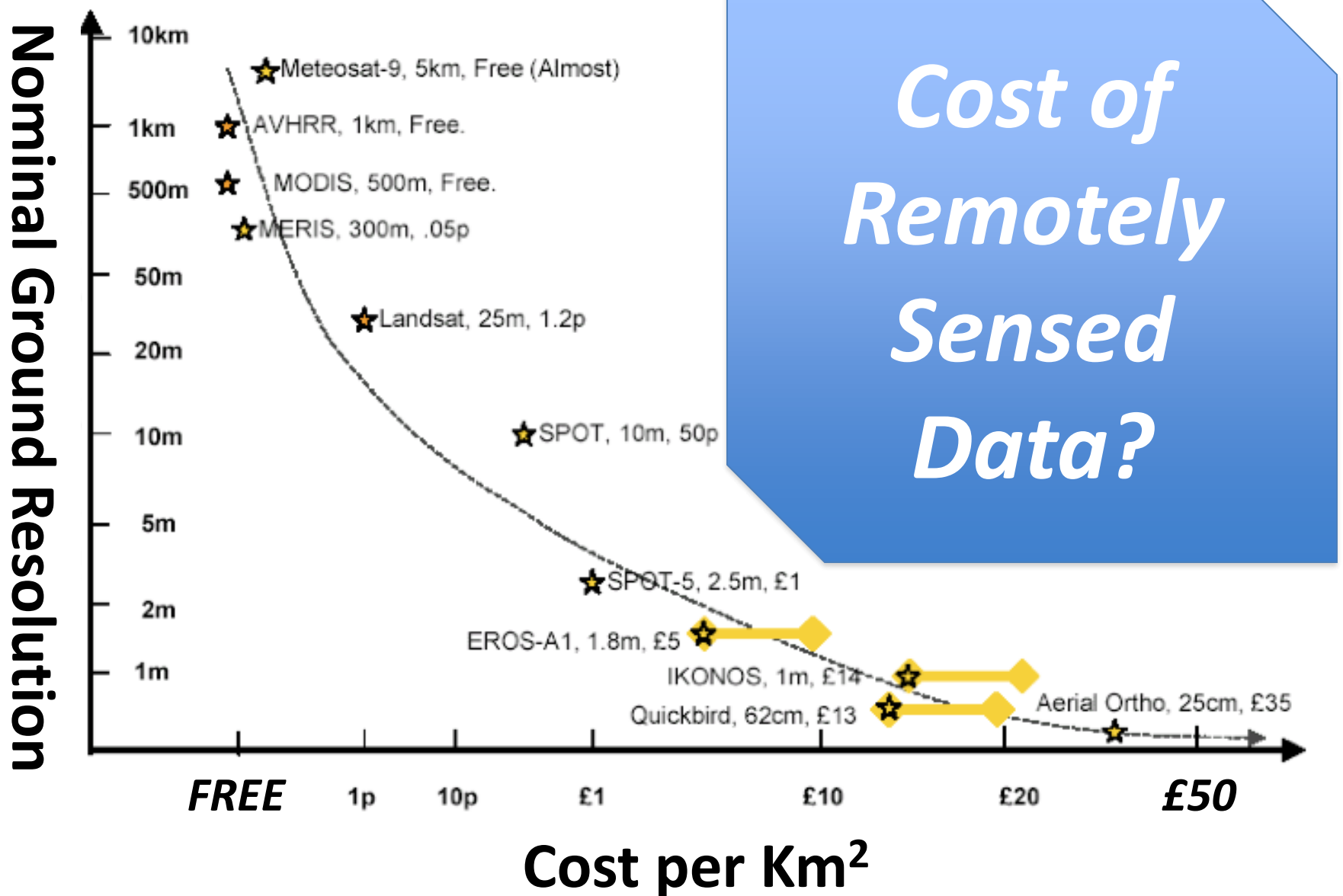
Geostationary



35000 km

$3\phi$

Source: Modified from Patenaude, Edinburgh



Sensors	Cost/km <sup>2</sup>	Type and Spatial Resolution
Landsat 5 & 7 1982 -	£0.01	Multispectral Med. Res. – 30m
Aster 2000 -	£0.01	Multispectral Med. To High Res. 15 to 90m
Spot 1986 -	£0.5	Multispectral Med. Res. 10 to 20m
Ikonos 1999 -	£9	Multispectral High Res. 1 to 4m
Aerial Photography	£25	Variable High
Lidar	£250	Supplier Dependent



*Source: Modified from Patenaude, Edinburgh*





***100m***





***30m***



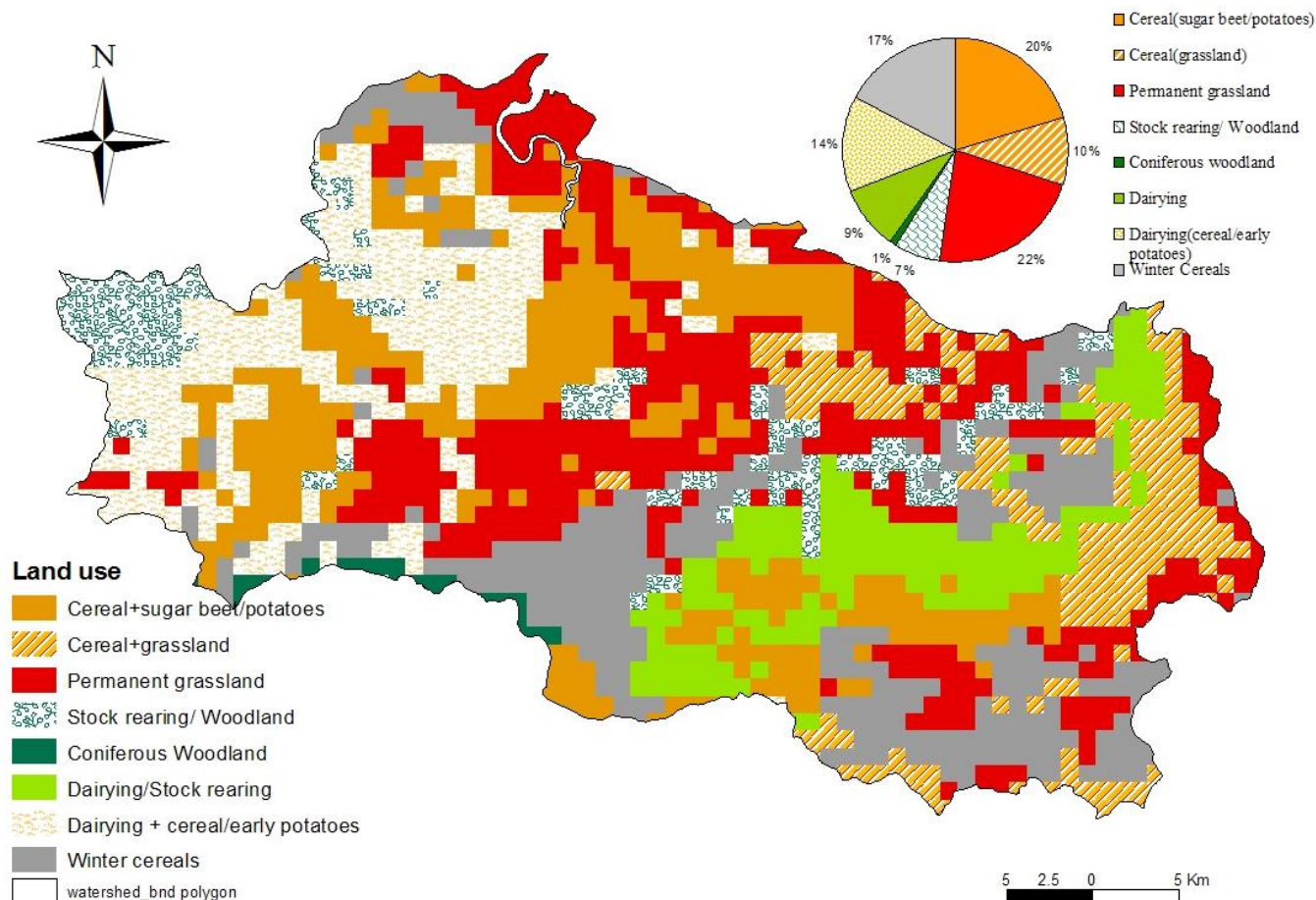


***5m***



# Land Use Pattern

- The catchment is composed of 70% grassland and 30% arable
- More than 80% of the total catchment area is used for agriculture
- Flood risk can be mitigated with better land use management

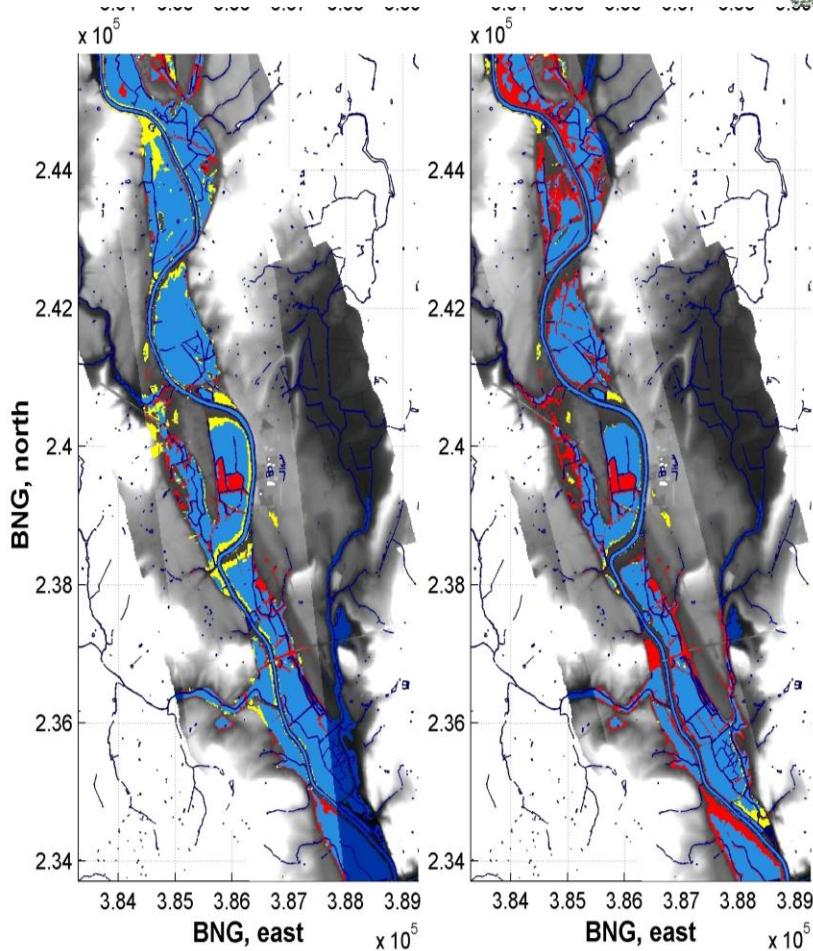


# *Integration of Remotely Sensed Data Sources with Ordnance Survey Map Data.*

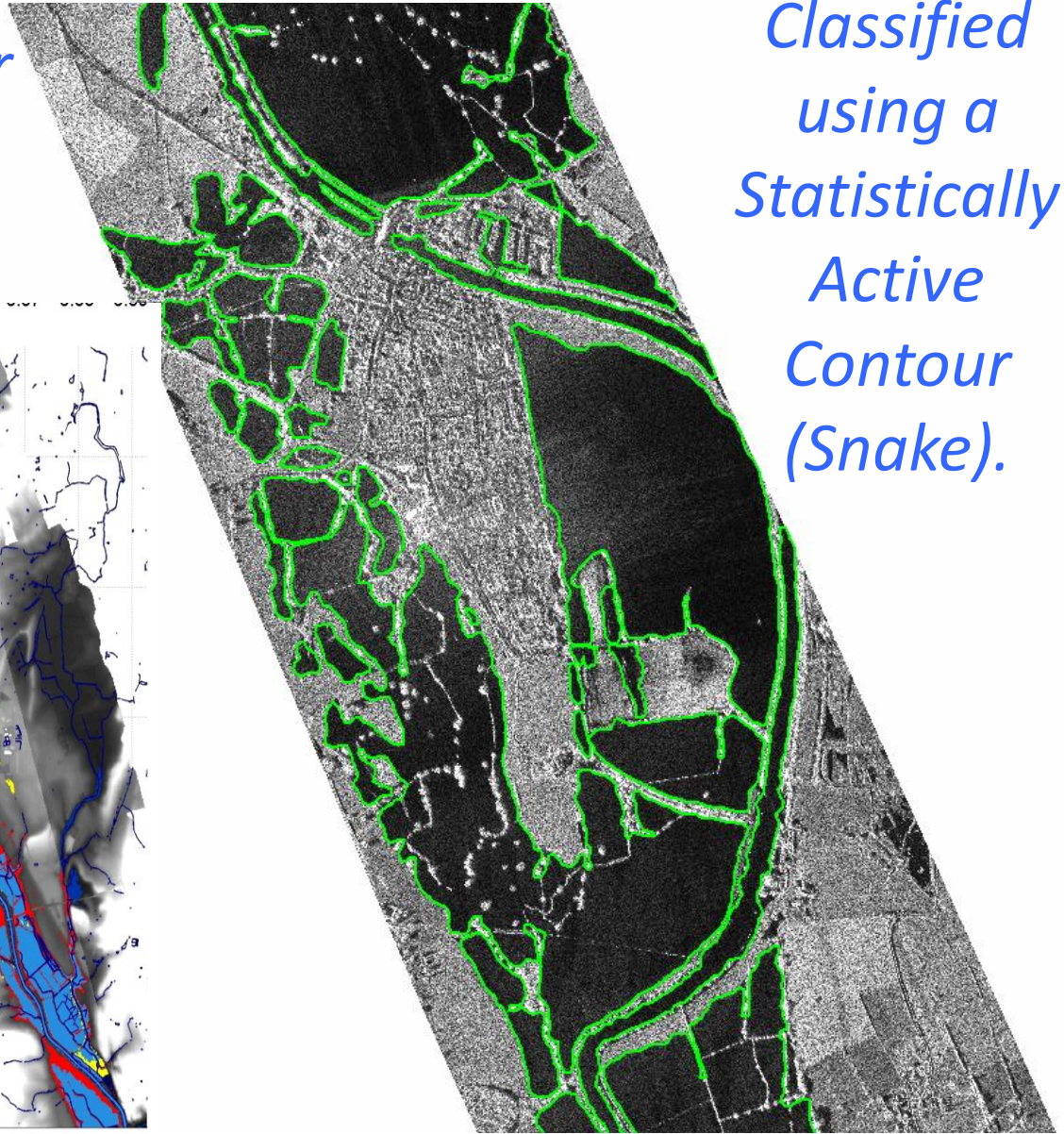




# *ASAR Image of River Severn at Upton- upon-Severn*



*Classified  
using a  
Statistically  
Active  
Contour  
(Snake).*



**ASAR – UAV's**



Radar  
1030 GMT  
16 August 2004

## ***BOSCASTLE FLASH FLOOD***



Bude

Boscastle

Slaughterbridge

Camelford

Exeter



# *How Much Data for a Rainstorm?*

- ◆ *A Single Raingauge – 2 MB*
- ◆ *A Conventional Weather Radar – About 0.25 GB*
- ◆ *A Sophisticated Dual-Polarisation Weather Radar - About 3 GB*
- ◆ *A Coupled Modelling System – About 10 GB*

- In 2002, ESA launched the **TIGER** as a CEOS contribution to implement the recommendations of the World Summit on Sustainable Development.
- The paucity and **poor quality of information on water & land resources** required for Integrated Water Resource Management is considered a key limitation to achieve the WSSD goals;
- TIGER goal is to *“assist African countries to overcome problems faced in the collection, analysis and dissemination of water related geo-information by exploiting the advantages of Earth Observation technology”*.

