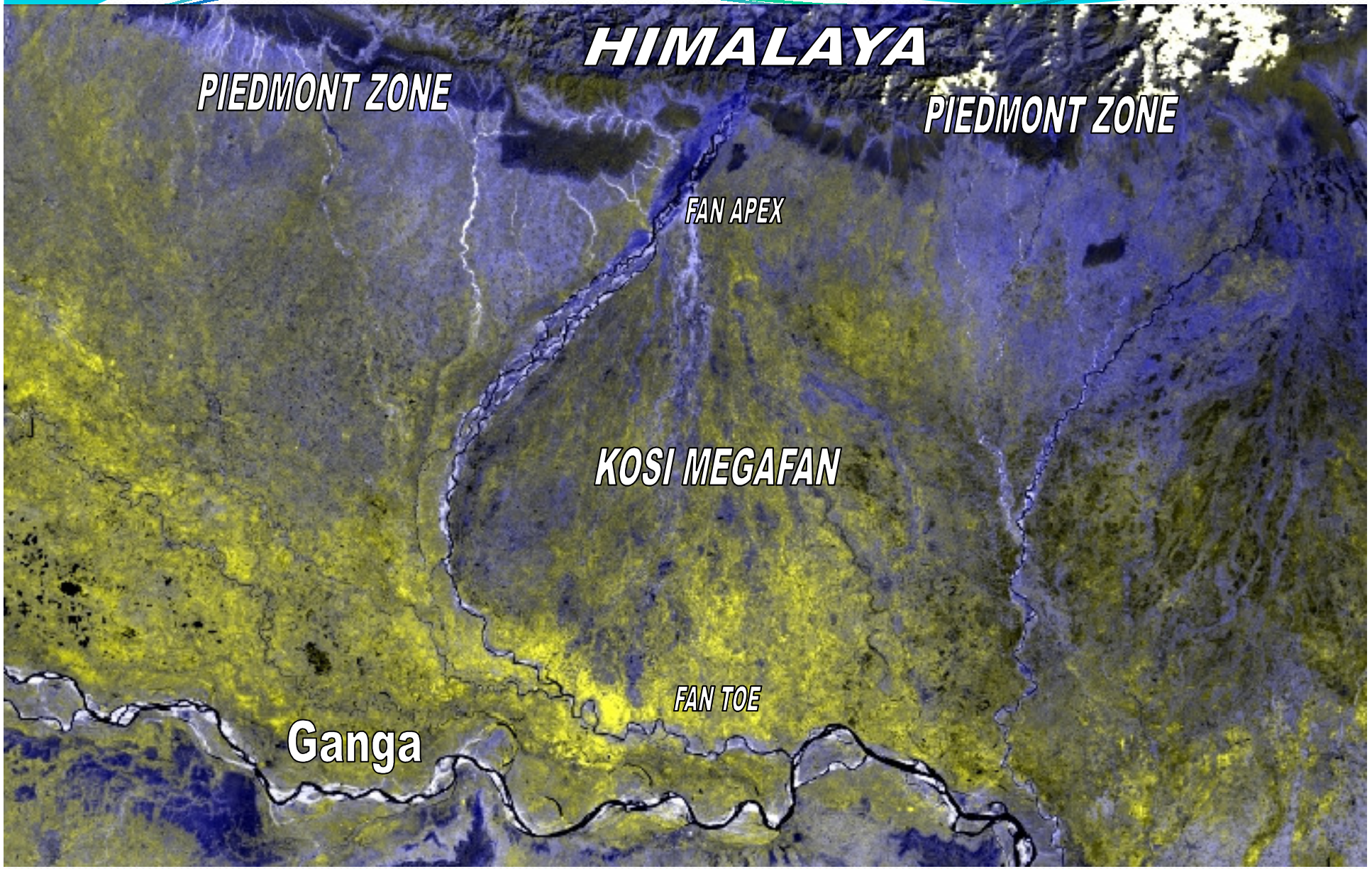
Evaluation and Assessment of Kosi River flood disaster using RemoteSensing and GIS Techniques

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HIMALAYA
PIEDMONT ZONE
PIEDMONT ZONE
FAN APEX
KOSI MEGAFAN
FAN TOE
Ganga

Data used

- The regional interpretation of the fluvial landforms have been carried out using IRS P6 (Resourcesat I) 1.AWiFS(56 m resolution) multitemporal data.

  Pre-monsoon : April ,2008
  Monsoon : September, 2008
  Post- monsoon : March , 2009

  2. LISS IV (5.6 m resolution) for mapping detailed features.

- SRTM DEM to generate slope data

- Topographic maps (SOI) :Base maps

- Prepared geomorphic maps have been used to calculate different parameters such as sinuosity, braid channel ratio, bar area etc.

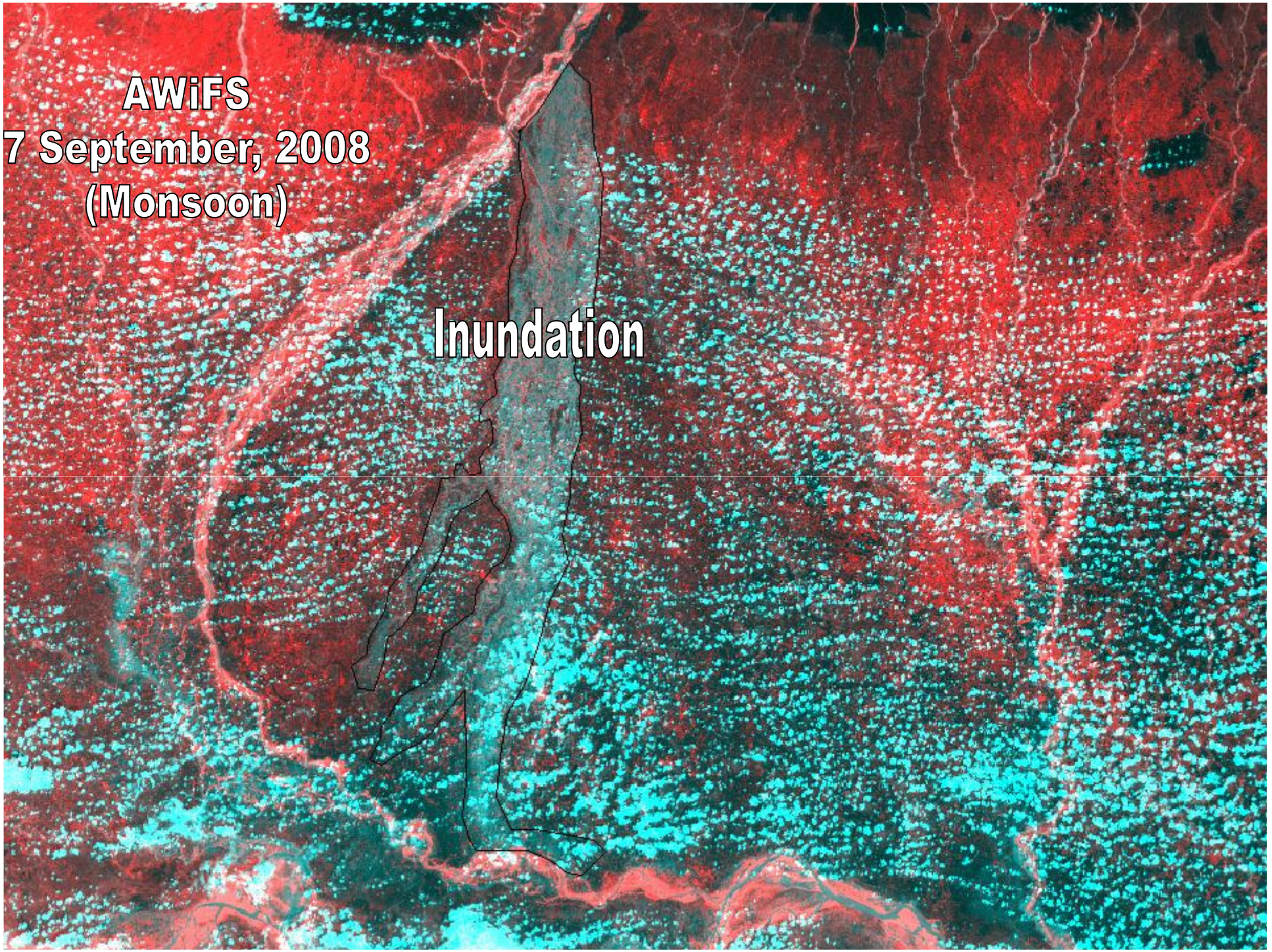
- Field observation: To characterize bed material texture, sediment character and structure inherent in them.

- Detailed mapping of the major geomorphic units have been undertaken. Broadly, two segments of the River basin are being mapped on different scale.

- In stream:
  1. Alluvial Island
  2. Mid channel bar
  3. Lateral bar
  4. Point bar
  5. Tributary bar
  6. Transverse Bar

- Fan surface / Flood plain:
  1. wetland/ water body
  2. Levee
  3. Meander scroll, meander cut-off
  4. Ox bow lake

- Mapping of drainage and related parameters:
  1. Direction/Trend
  2. Length
  3. Sinuosity
  4. Braid-Channel ratio
  5. Preferred alignment of rive
  6. Sudden change in the direction of the river course.
  7. Drainage Knick point
  8. Straightening of the river course for appreciable length.


AWiFS
7 September, 2008
(Monsoon)
Inundation

Devastation on August 18,2008











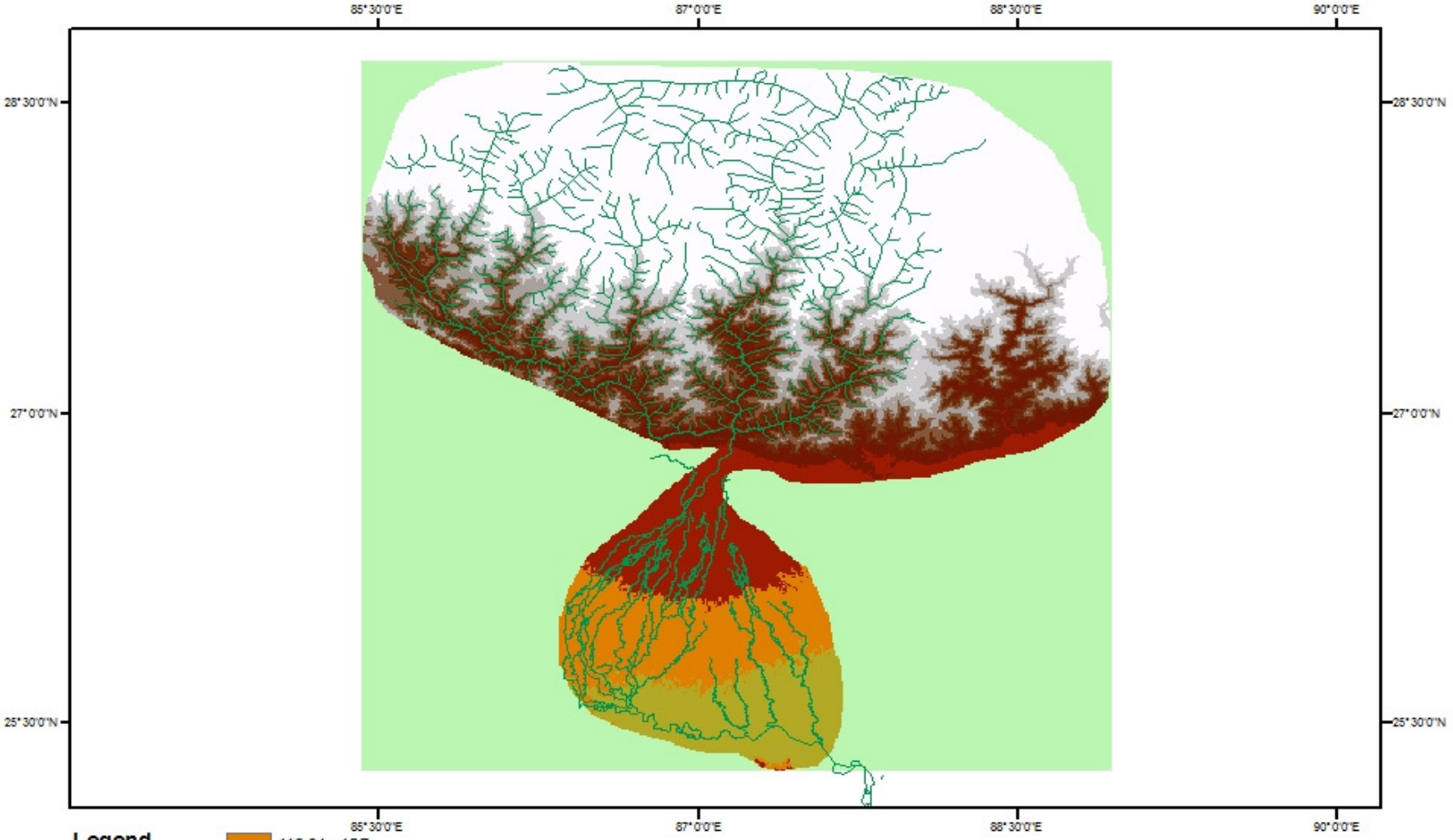




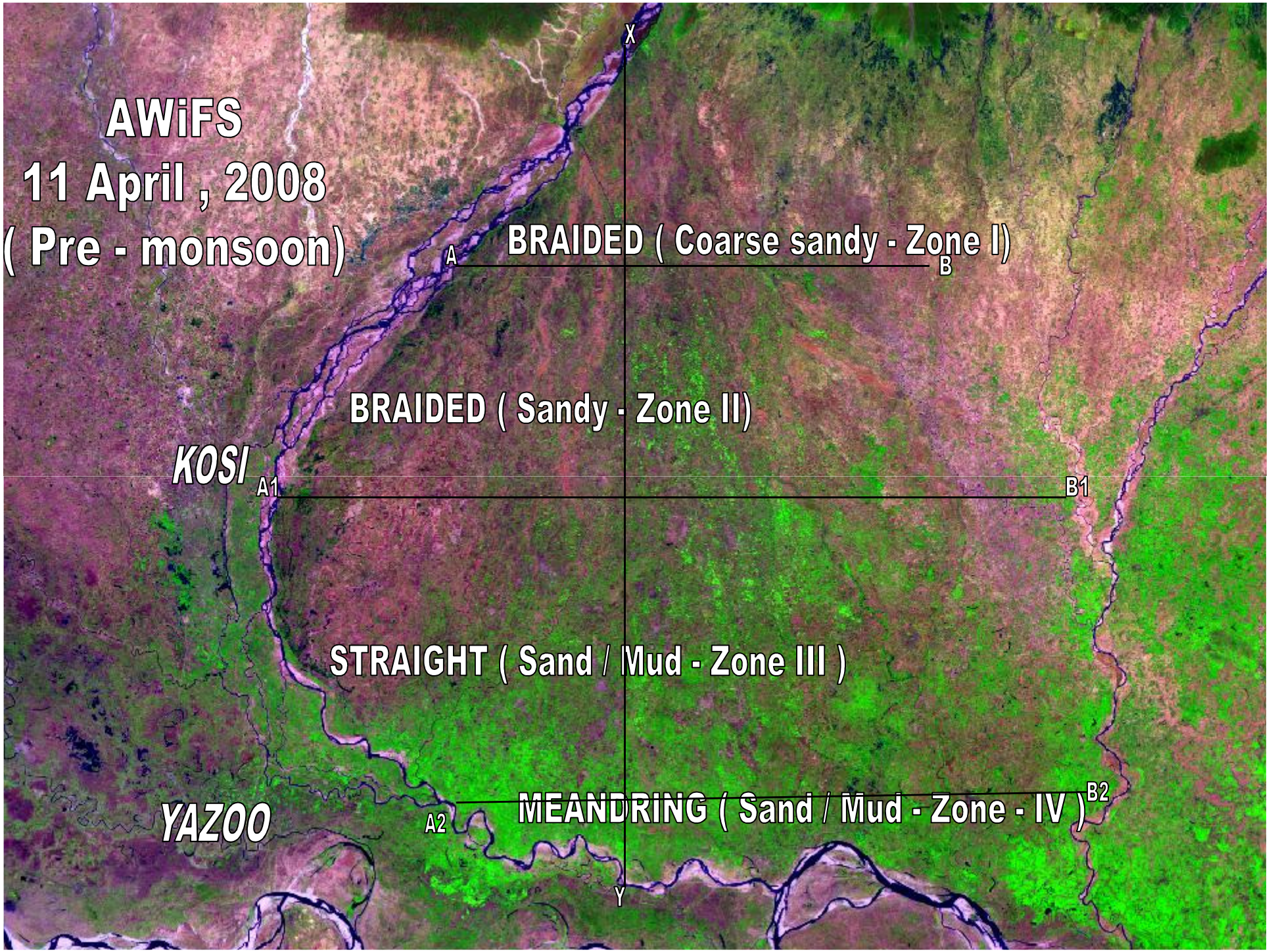




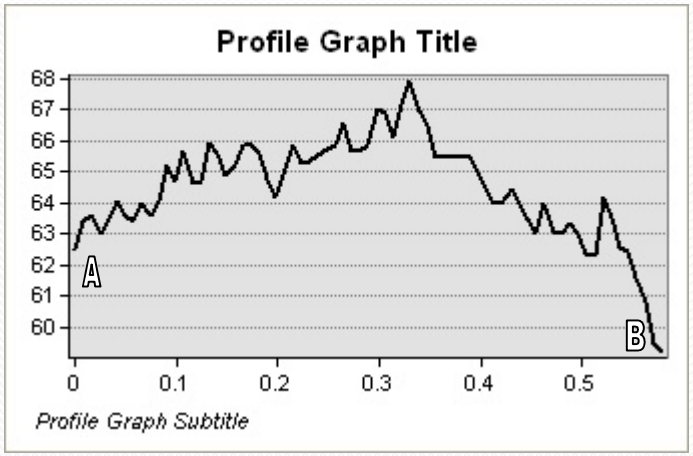
Elevation Image of Basin

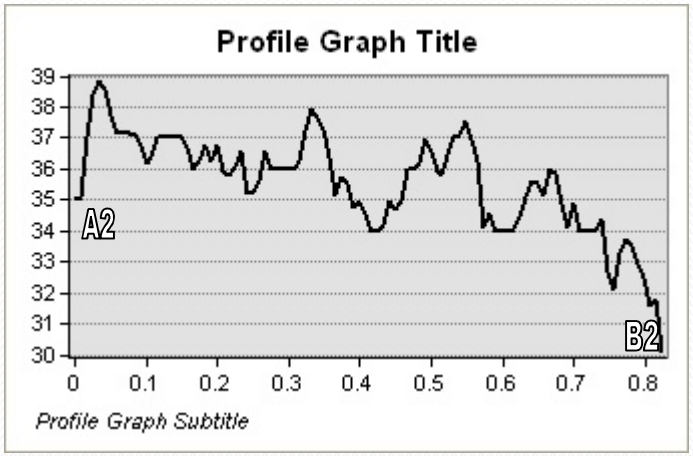


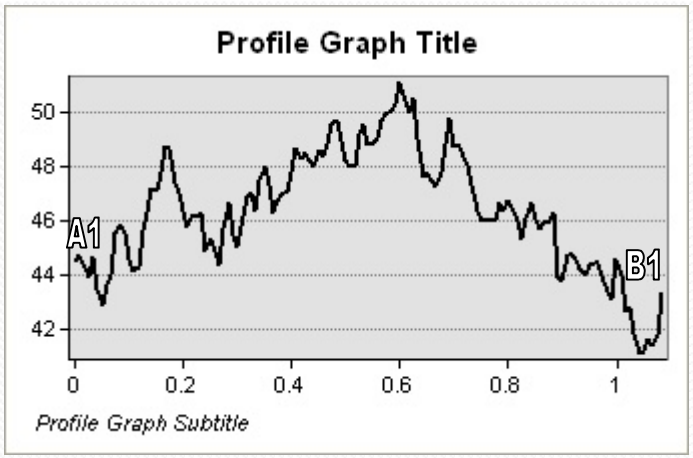
Source: SRTM

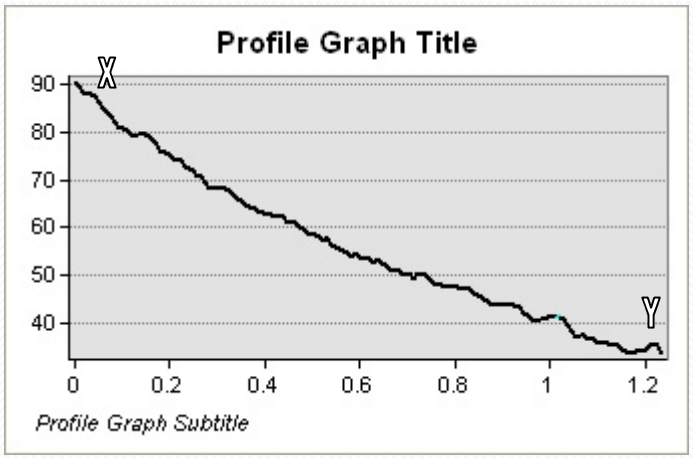

AWiFS
11 April , 2008
(Pre - monsoon)
X
A
B
BRAIDED (Coarse sandy - Zone I)
BRAIDED (Sandy - Zone II)
KOSI
A1
B1
STRAIGHT (Sand / Mud - Zone III)
YAZOO
A2
B2
MEANDRING (Sand / Mud - Zone - IV)
Y

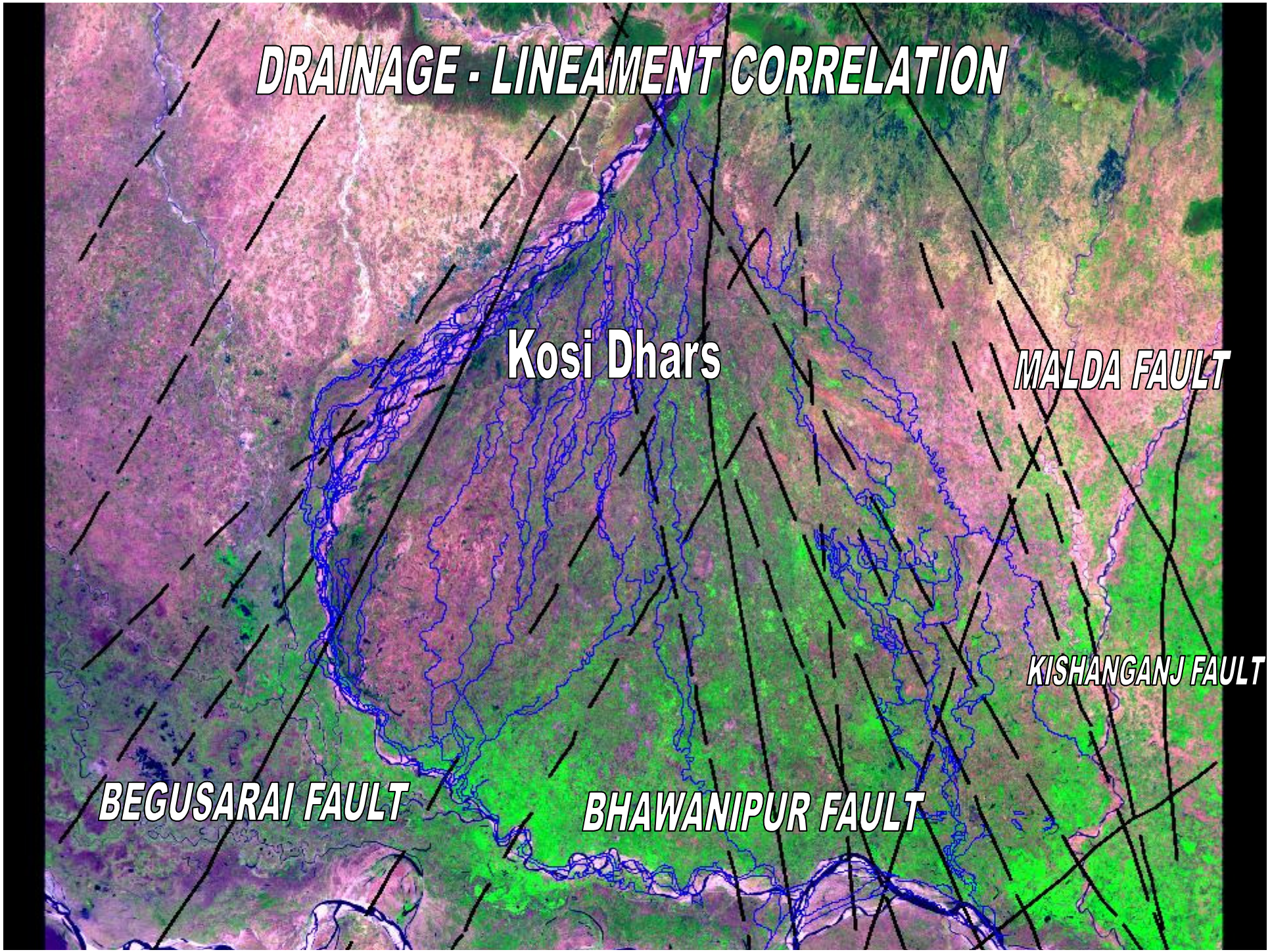
Cross Profile of Kosi Megafan










DRAINAGE - LINEAMENT CORRELATION
Kosi Dhars
MALDA FAULT
KISHANGANJ FAULT
BEGUSARAI FAULT
BHAWANIPUR FAULT

Dhars (Streams)aligned N-S in the Kosi basin









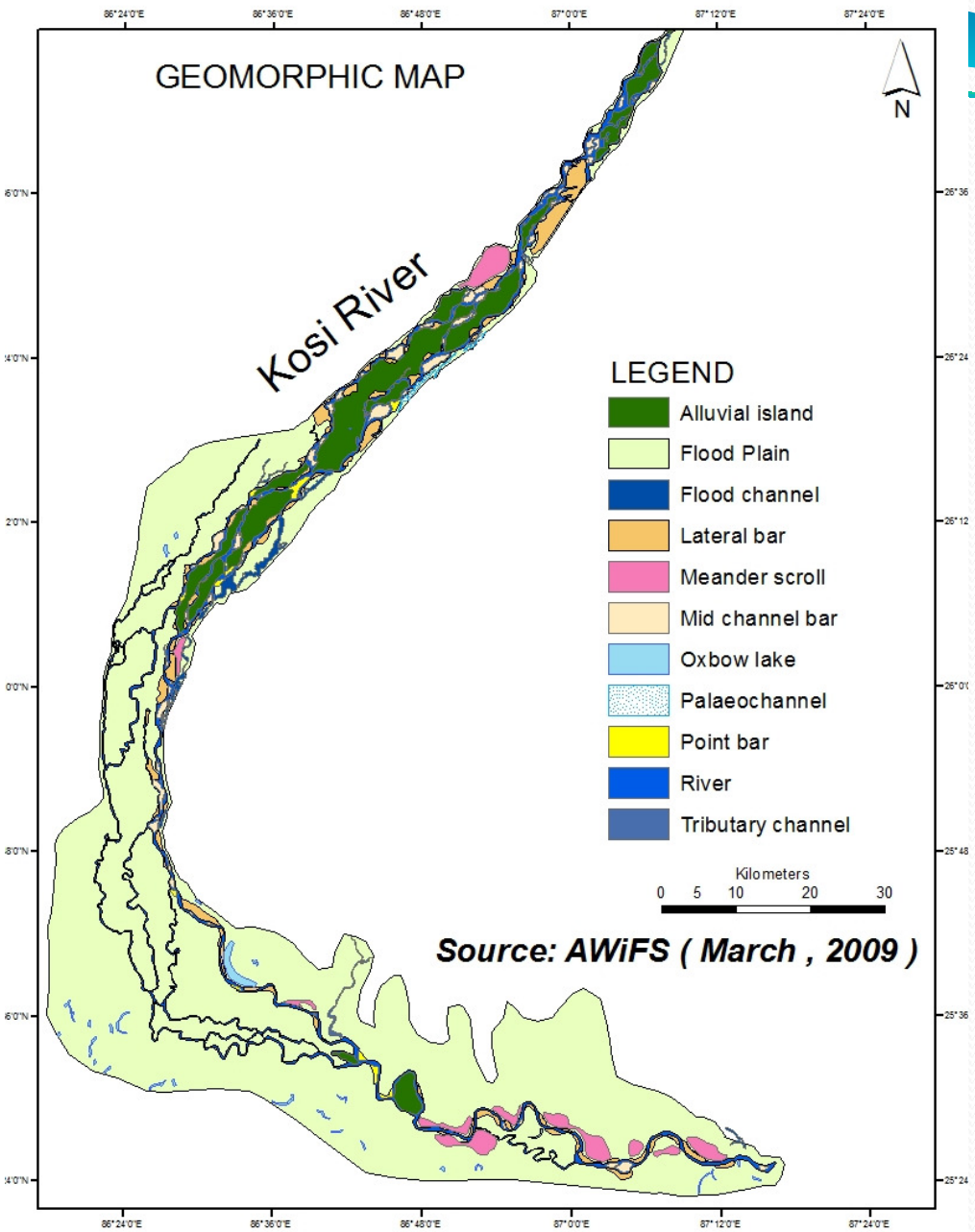
Streams full of Hyacinth





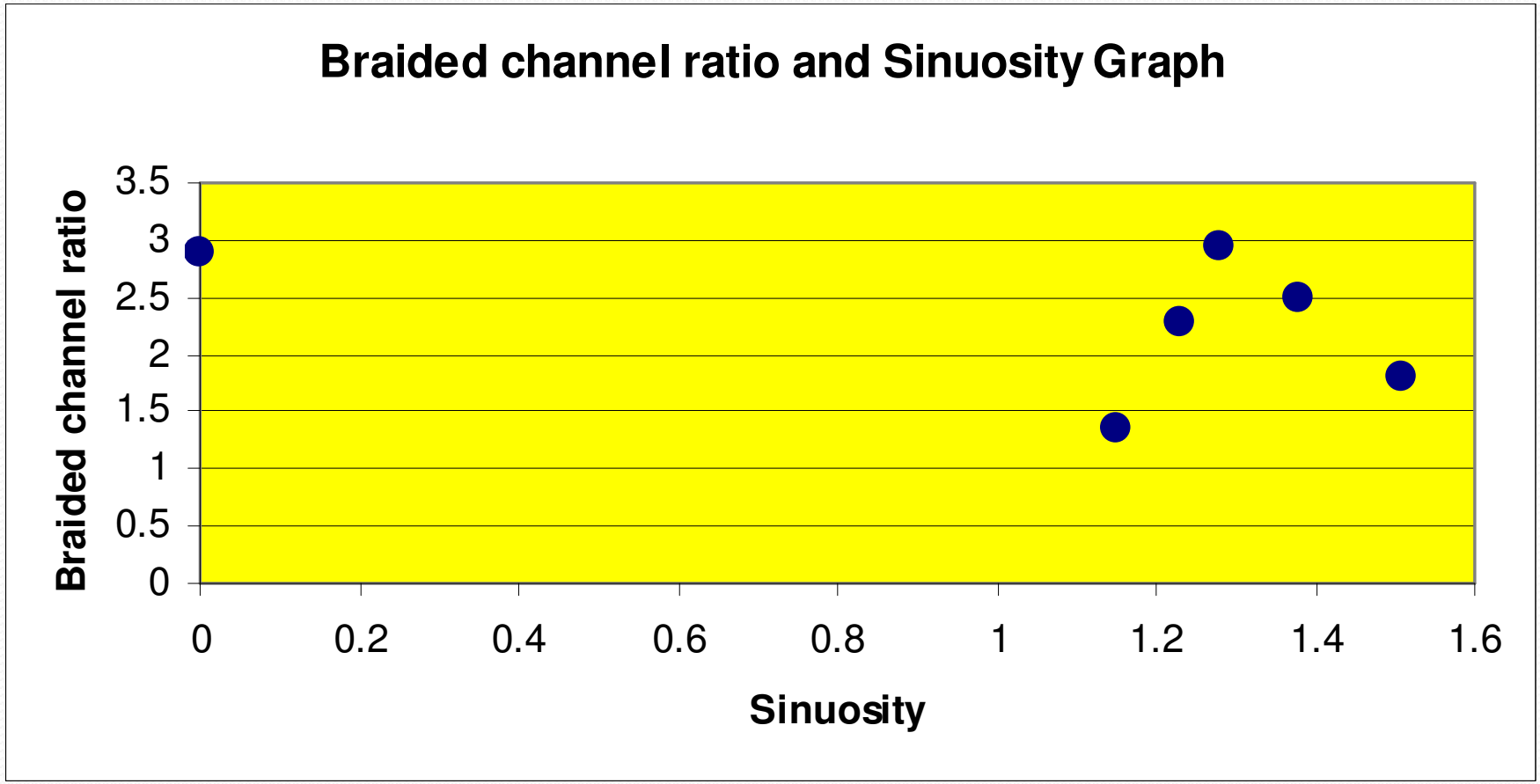


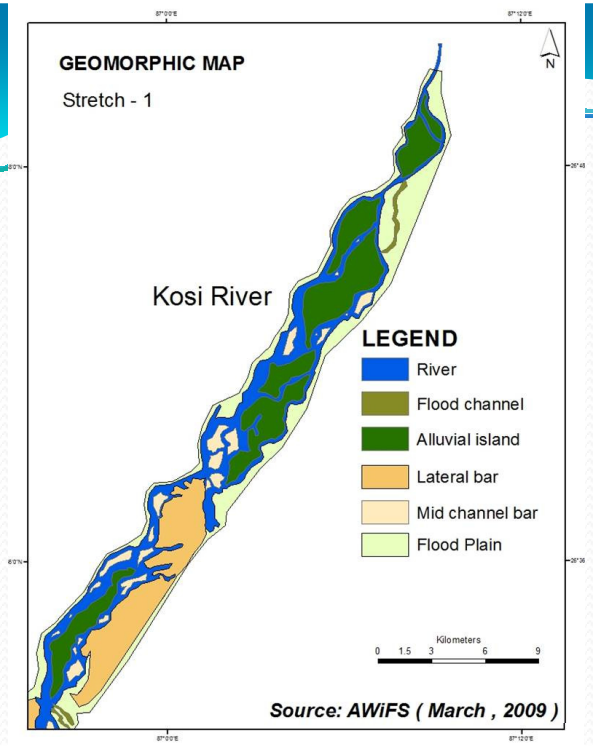


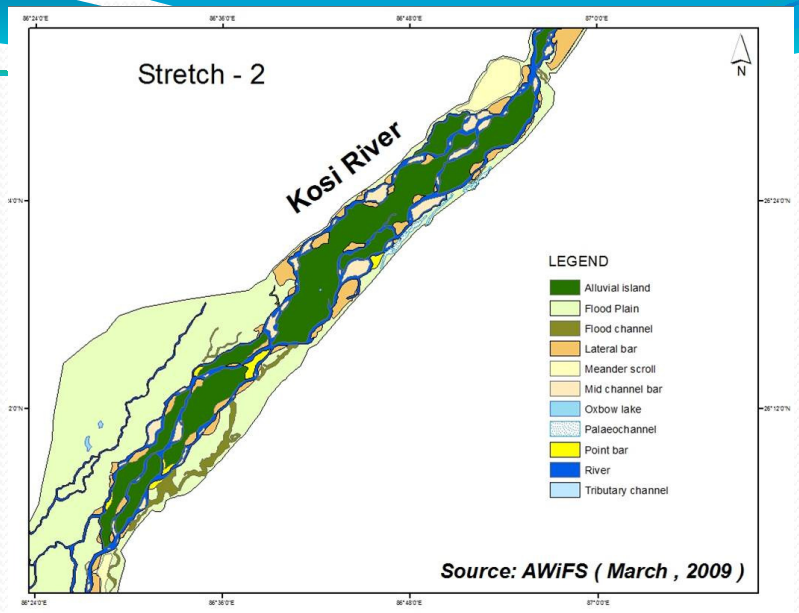


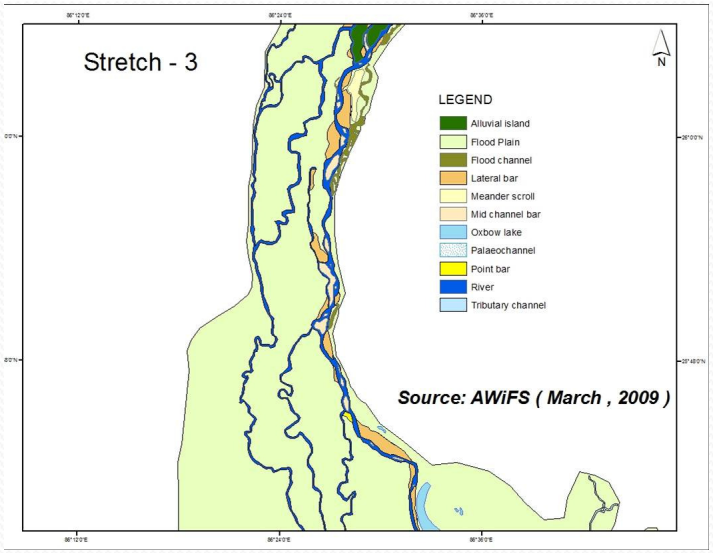
River Length: 272.27 km
Braided stretch: 111.10 km
Straight Stetch: 43.68 km
Meandering Stretch: 112.39 km

Channel Character:




GEOMORPHIC MAP
Stretch - 1
N
Kosi River
LEGEND
River
Flood channel
Alluvial island
Lateral bar
Mid channel bar
Flood Plain
Kilometers
0 1.5 3 6 9
Source: AWiFS (March , 2009)


Stretch - 2
N
Kosi River
LEGEND
Alluvial island
Flood Plain
Flood channel
Lateral bar
Meander scroll
Mid channel bar
Oxbow lake
Palaeochannel
Point bar
River
Tributary channel
Source: AWiFS (March , 2009)


Stretch - 3
N
LEGEND
Alluvial island
Flood Plain
Flood channel
Lateral bar
Meander scroll
Mid channel bar
Oxbow lake
Palaeochannel
Point bar
River
Tributary channel
Source: AWiFS (March , 2009)

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STACK: