

**INTERNATIONAL SCIENTIFIC CONFERENCE
INTEGRATED COASTAL ZONE MANAGEMENT IN THE
ADRIATIC SEA**

Institute of Marine Biology, Kotor, Montenegro
29 September – 1 October 2014

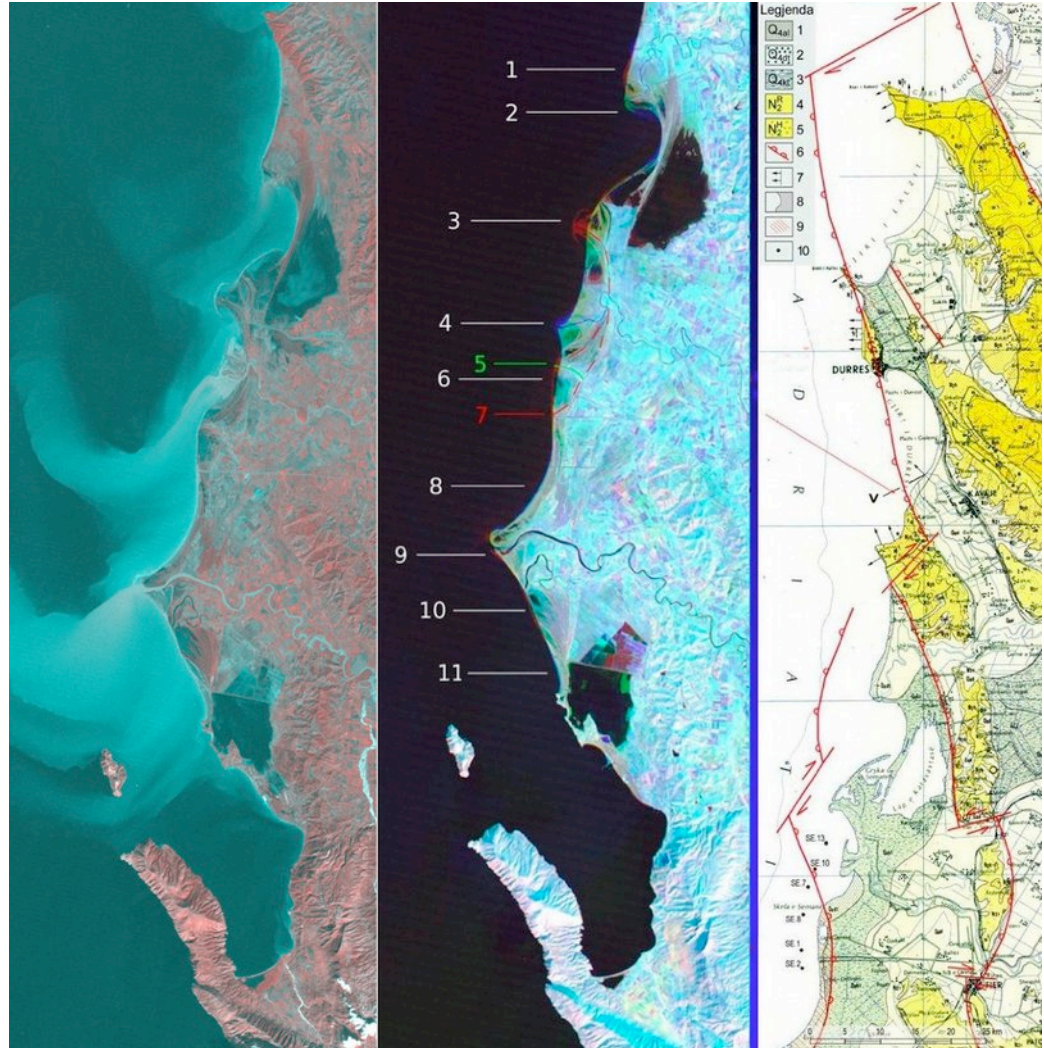
**REMOTE SENSING ANALYSIS OF
THE ADRIATIC SHORELINE
MOVEMENTS**

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Introduction

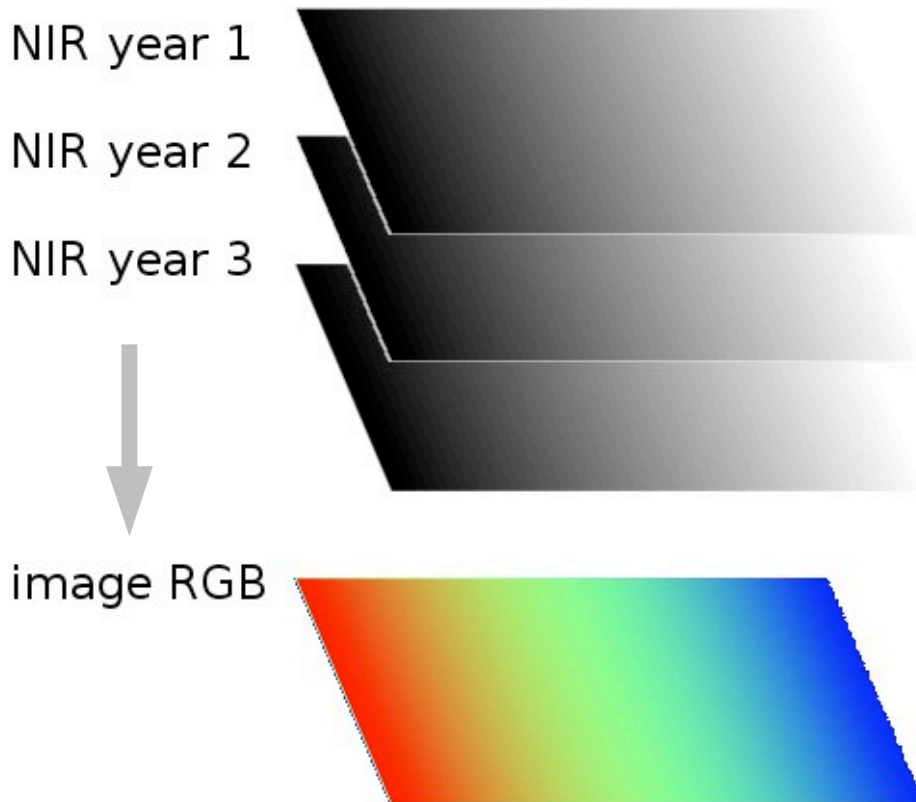
Albanian Adriatic Sea shore is subject to dynamic geomorphologic changes, including accumulation, erosion, and submersion in different segments.

These geo-morphological littoral changes have impacted the landscapes and economic activities

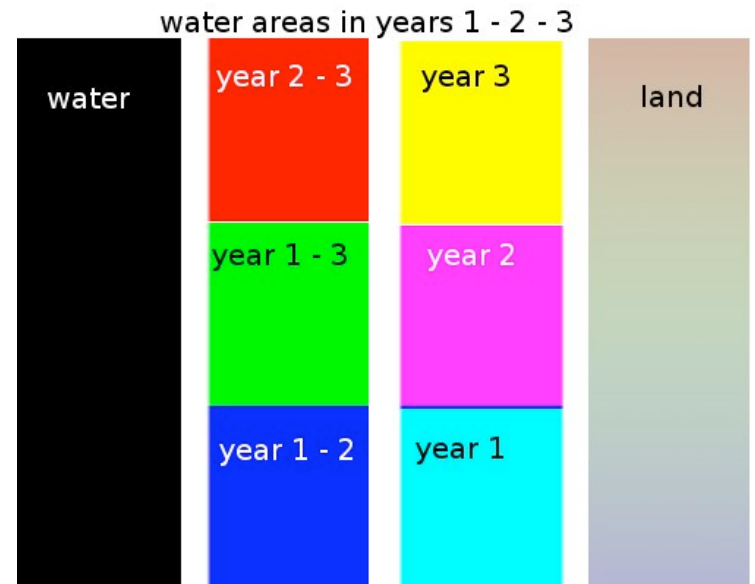


The Methodology

- Landsat NIR bands from different years (1973 – 89 – 92 – 2002) combined in single false color RGB image



- Water areas remain black
- Land areas remain 3-colors
- Changed areas appear 1-color or 2-colors

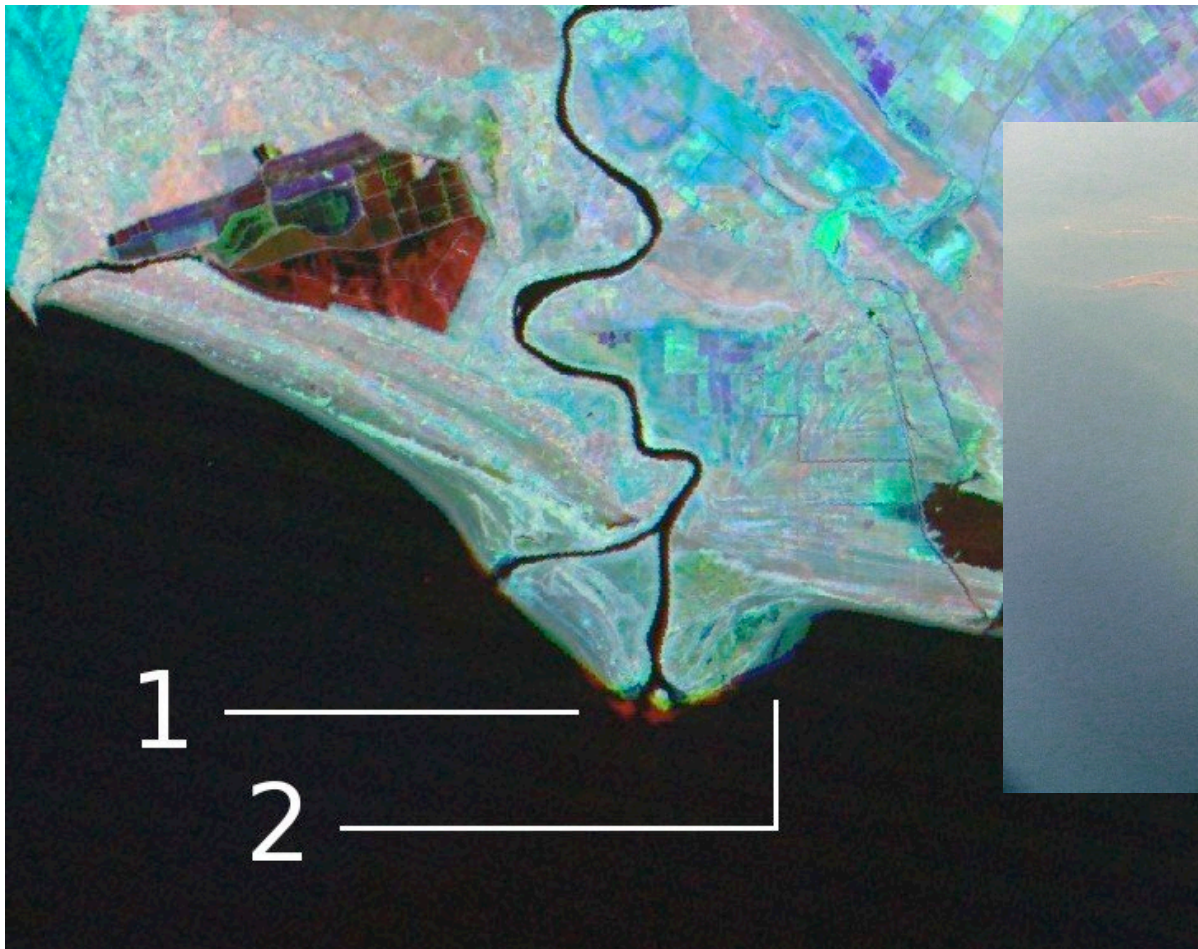


Adriatic shoreline North to South

- Buna River Delta
- Velipoja beach
- Shengjini / Drini Bay
- Mati River Delta
- Lalzi Bay
- Durresi Bay
- Shkumbin River Delta
- Semani River Delta
- Karavasta Lagoon
- Vjosa River Delta
- Narta Lagoon
- Vlora Bay

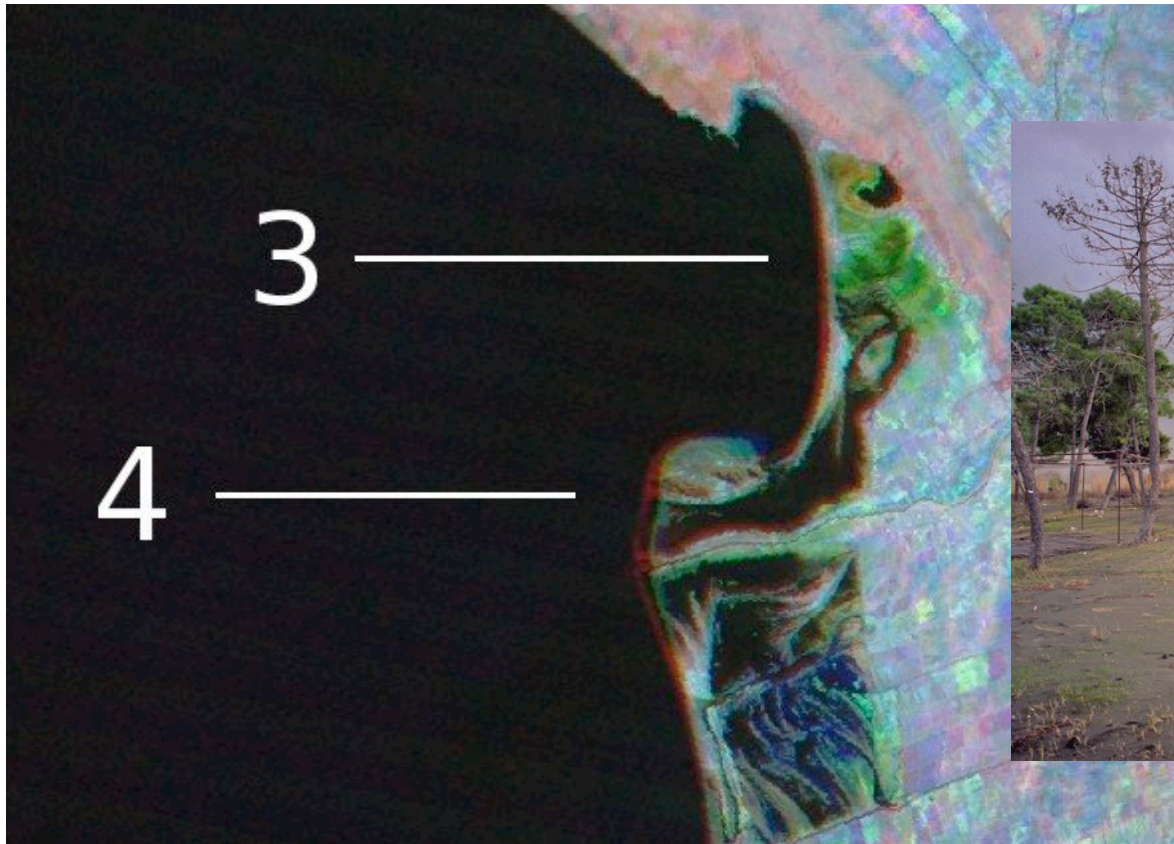
Buna River Delta & Velipoja

- Shift of sand from Delta east to Velipoja



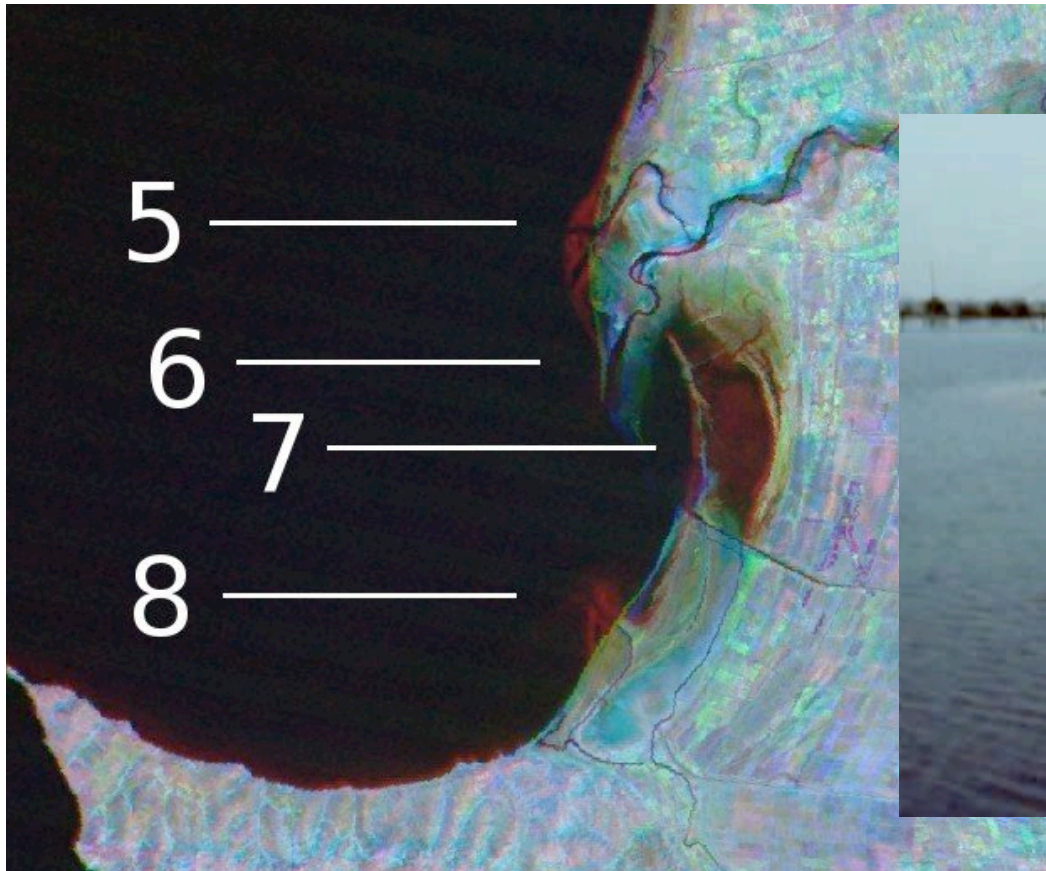
Drini Bay & Shengjini

- Shift of dunes towards east
- Shore eroded / submersed



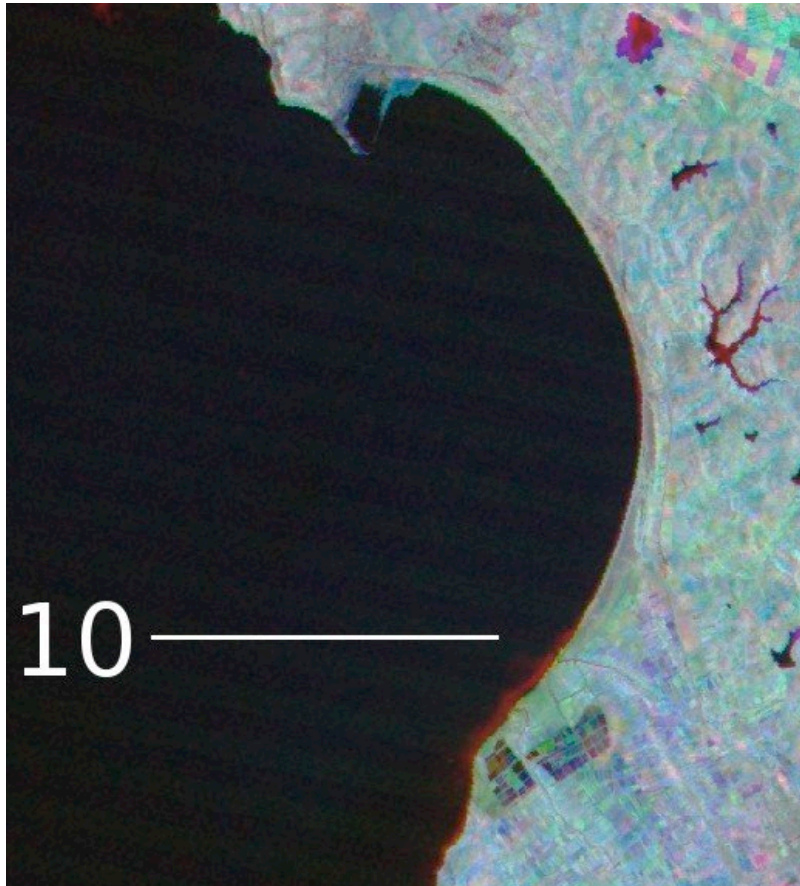
Disaster in Patoku

- Old beach and buildings destroyed
- **Deltas shifted ! Land submersed ?**



Durresi Bay

- Heavy human impact ...
- Duality erosion ~ accumulation (Qerreti)

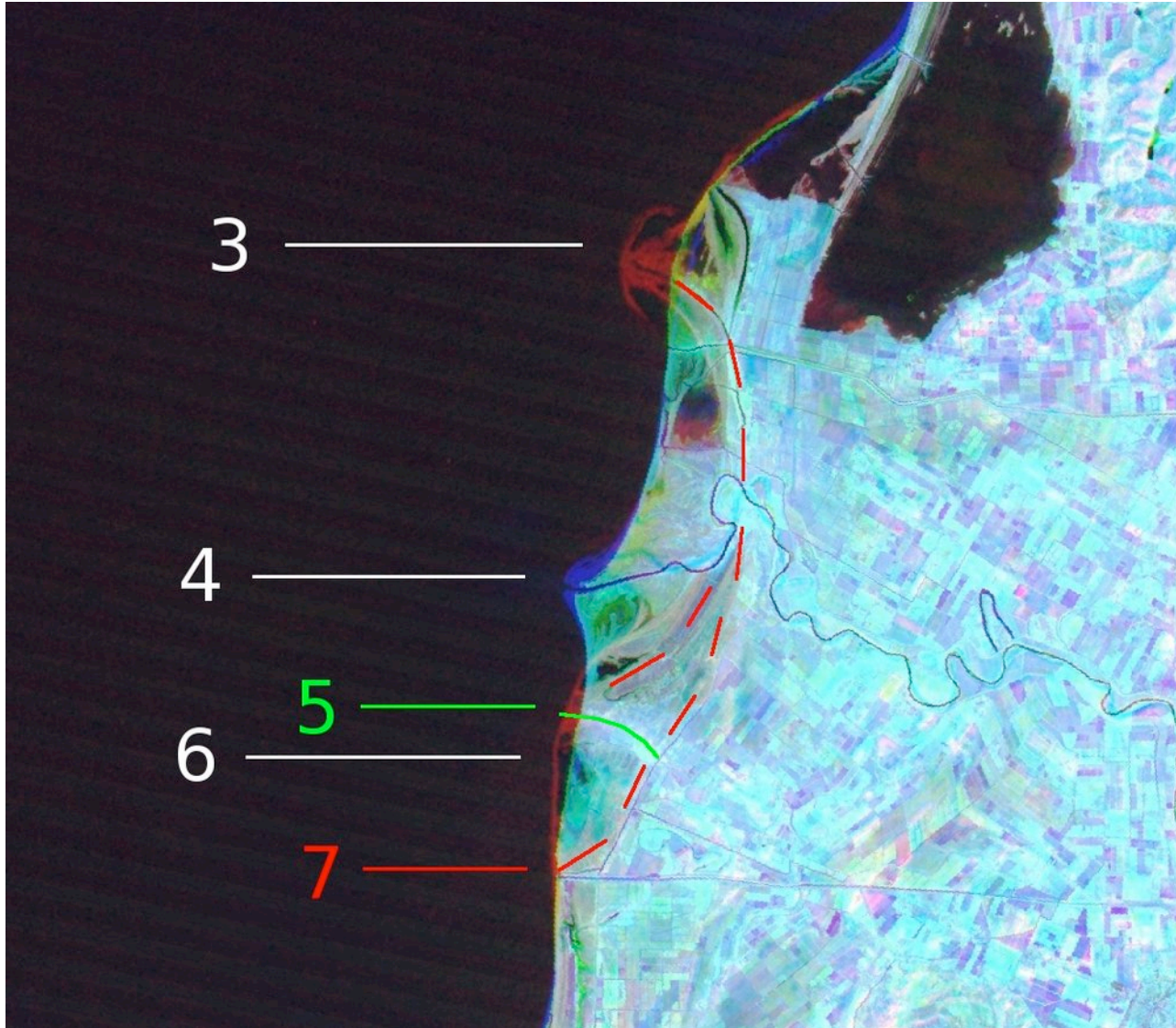


Disaster in Semani

- Considerable loss of land
- Constructions covered by the sea
- Significant shift of rivers deltas
- Traces of old shorelines
- Two typical objects
 - Borehole basement
 - Water tower
- Land submersion / erosion / both ???

Semani shore from Landsat

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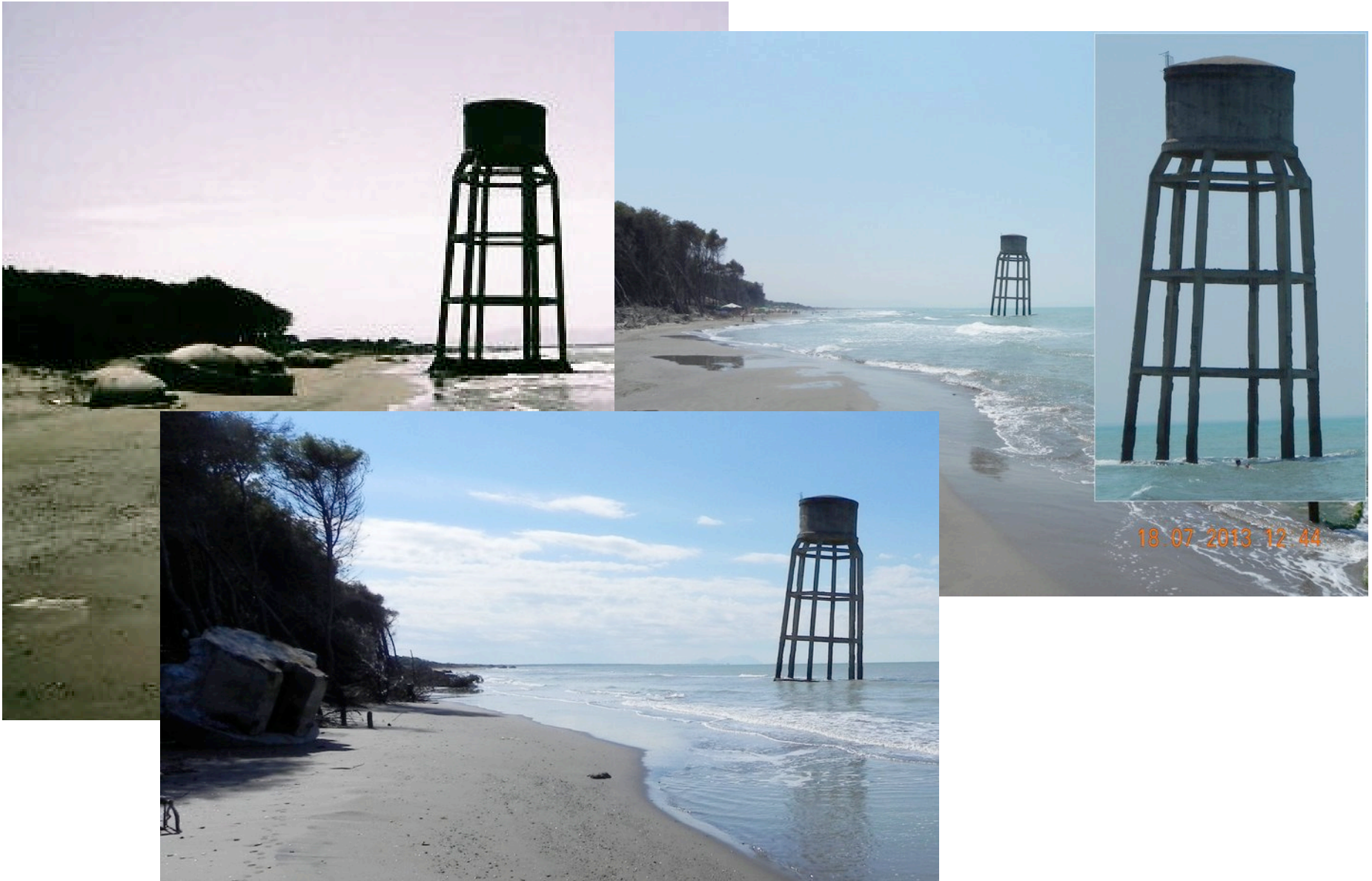
Borehole basement 2003 – 2013

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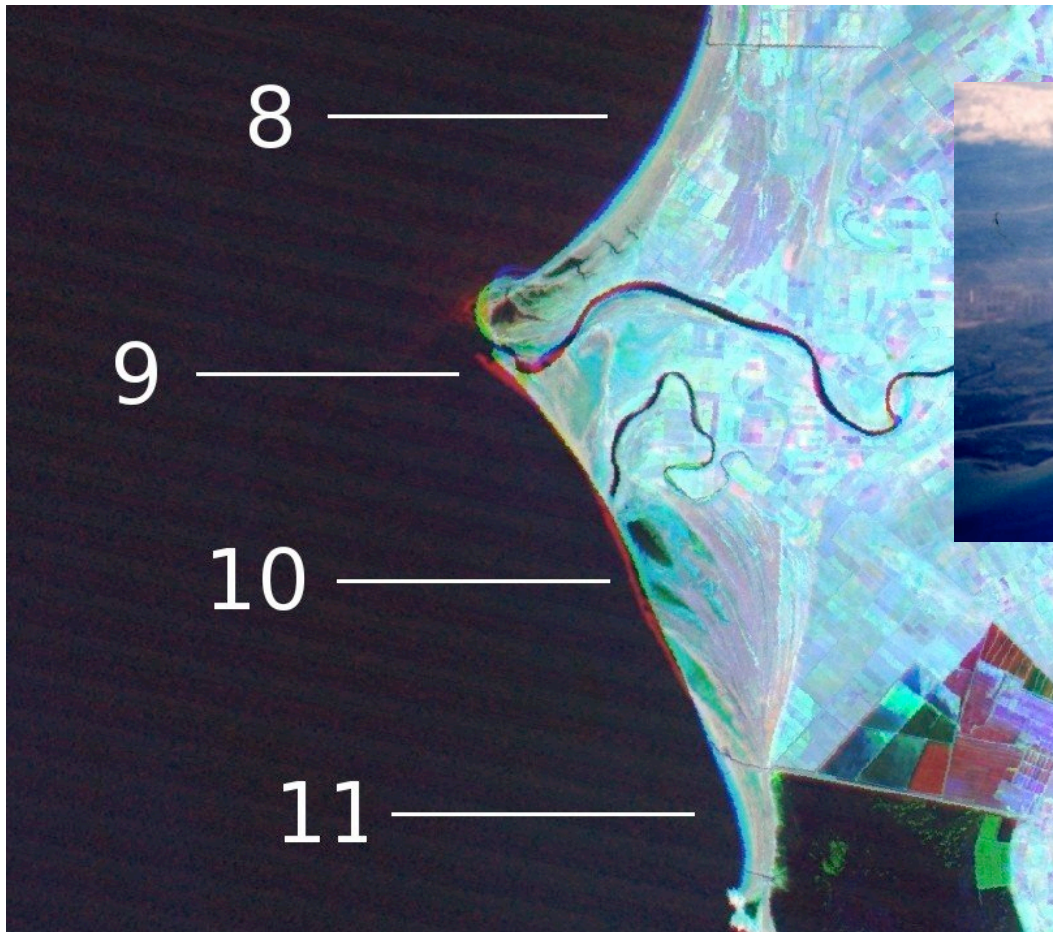
Erosion
or
Submersion
???

Water tower 2007 - 2013



Vjosa River Delta

- There are some changes ...



Actual Vjosa delta is eroded similar with Buna delta

Conclusions

- Landsat archive helped to investigate the whole length of Albanian Adriatic shoreline
- Very dynamic shoreline that interacts with human activities with serious impact
- Need for continuous monitoring and careful planning for human activities in shore areas
- Signs of land submersion
 - Need for future research and monitoring
 - Trying to use SAR interferometry ...

THANK YOU !

- Time for questions

