



# COPEMAP

COastal Protection and  
rEsilience MApping  
in Protected areas



Torre del Cerrano Area Marina Protetta

Convegno  
**Il capitale naturale**  
SILVI E PINETO, 12 OTTOBRE 2018  
*"I servizi ecosistemici che le Aree Protette offrono alla collettività"*

Venerdì 12 ottobre 2018 (Silvi - Pineto)

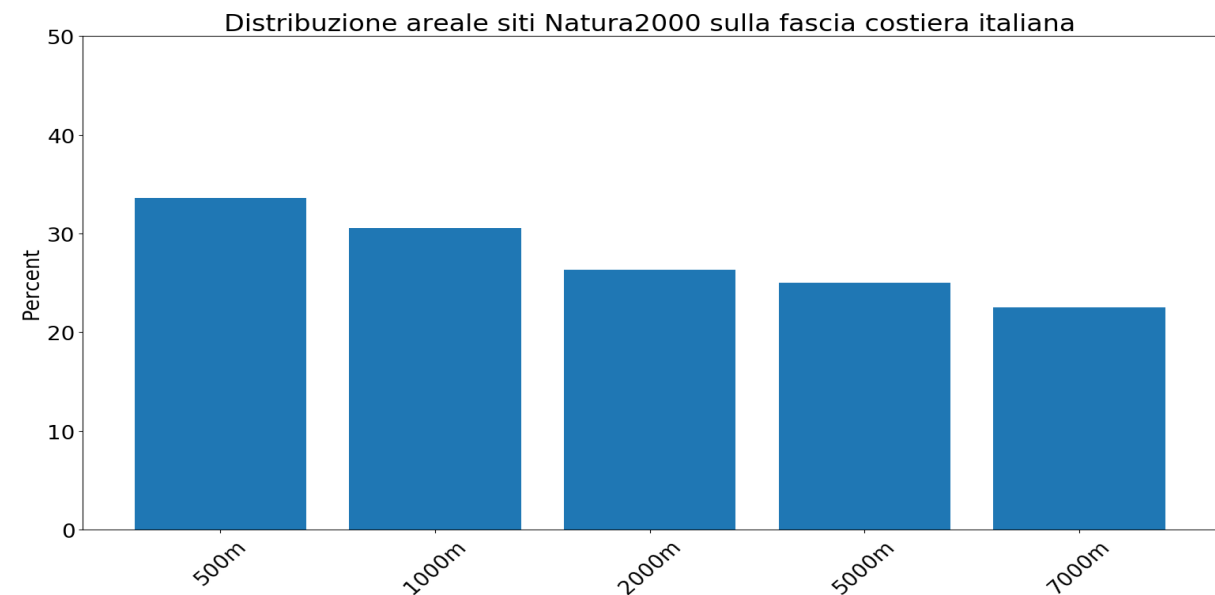
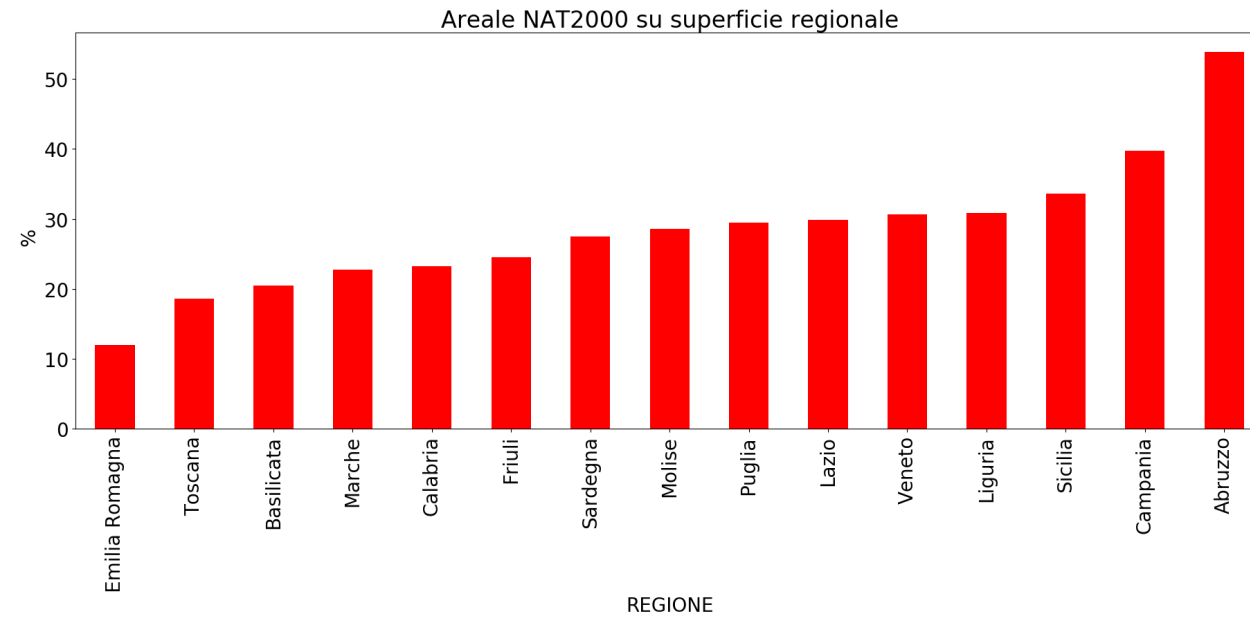
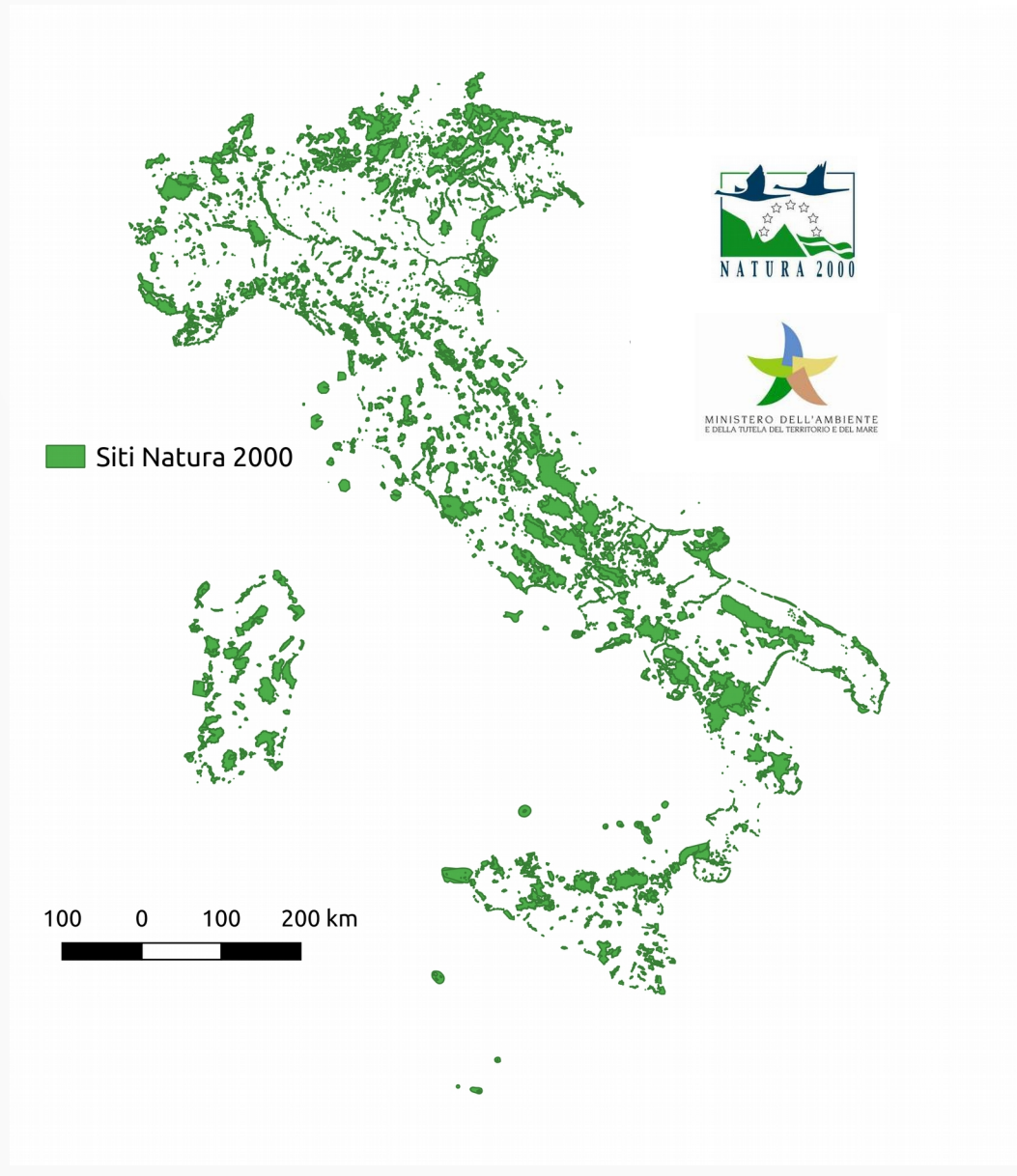
Luca Parlagreco\*  
Saverio Devoti

*Area per il monitoraggio degli ecosistemi e acque marine*

**ISPRA**  
Istituto Superiore per la Protezione e la Ricerca Ambientale

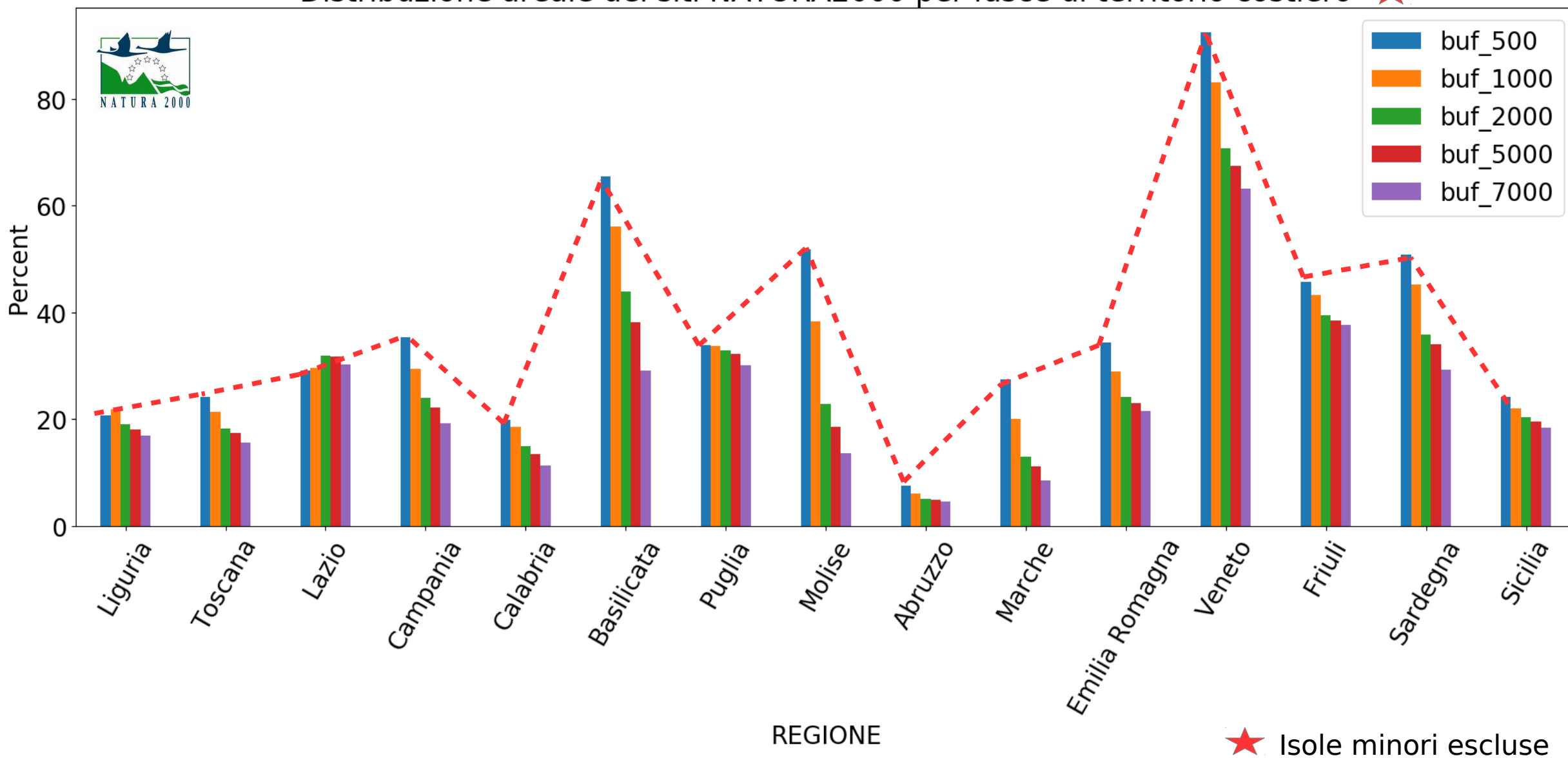
Sistema Nazionale per la Protezione dell'Ambiente

# La rete Natura2000



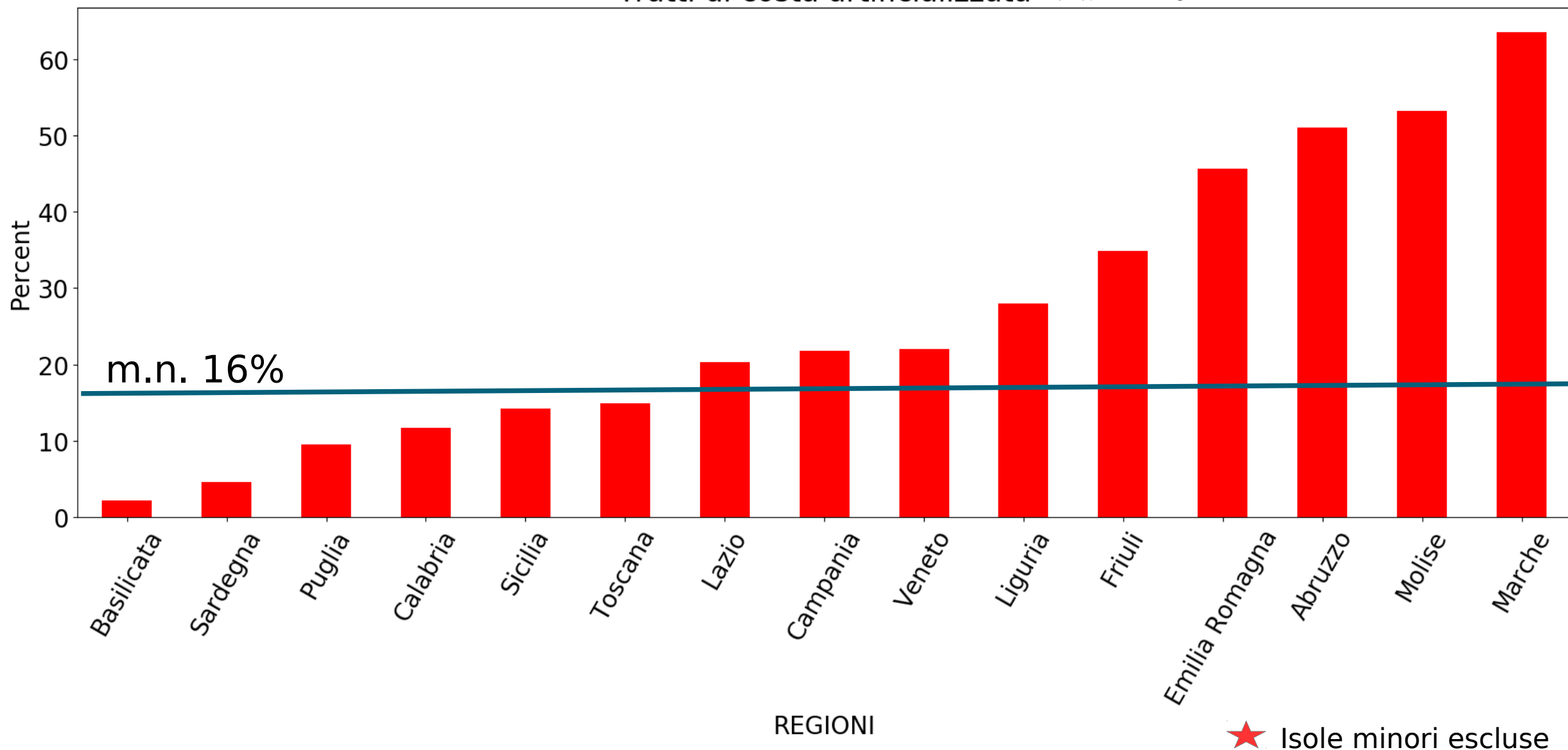
# Fascia costiera: Natura2000

Distribuzione areale dei siti NATURA2000 per fasce di territorio costiero ★



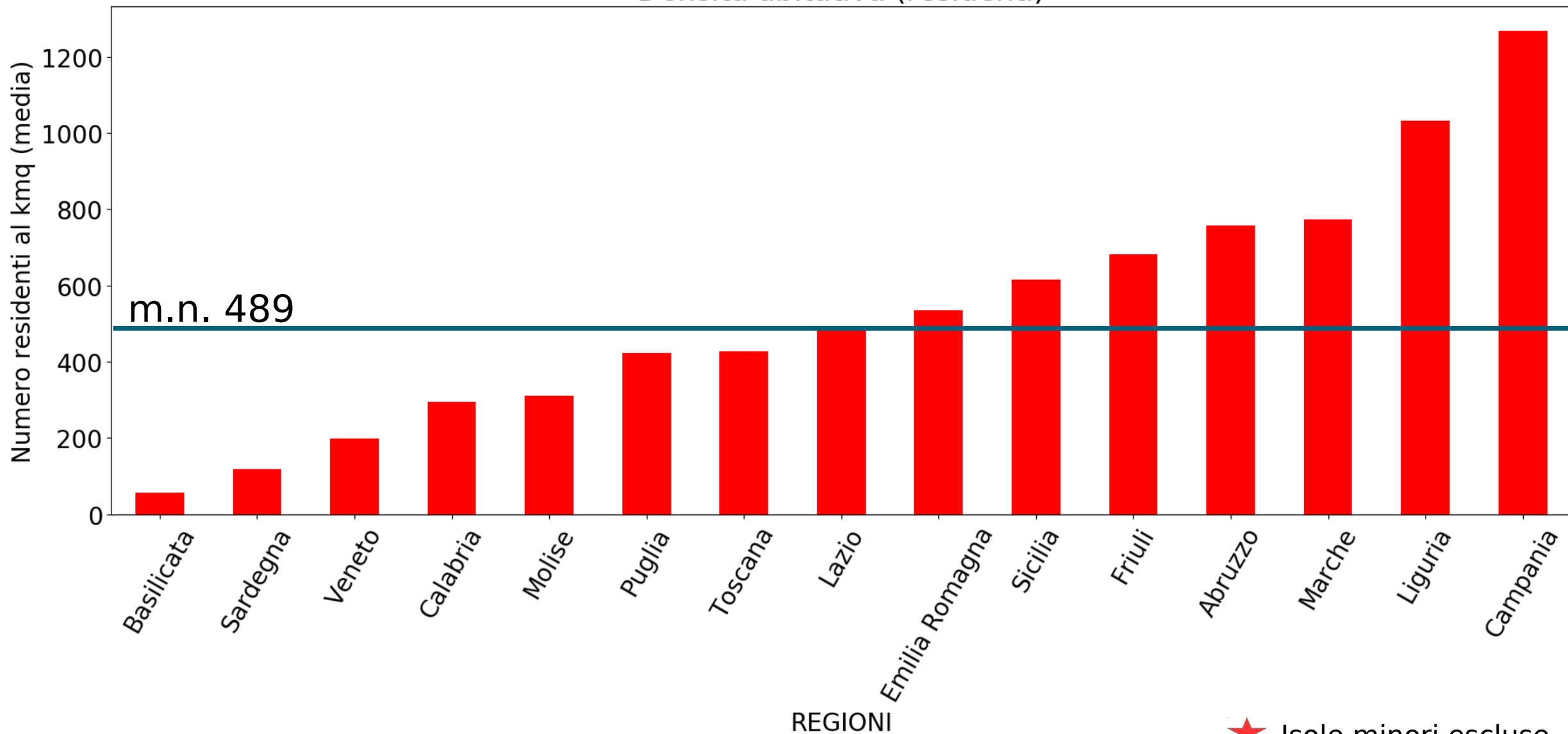
# Fascia costiera: difese

Tratti di costa artificializzata  2012



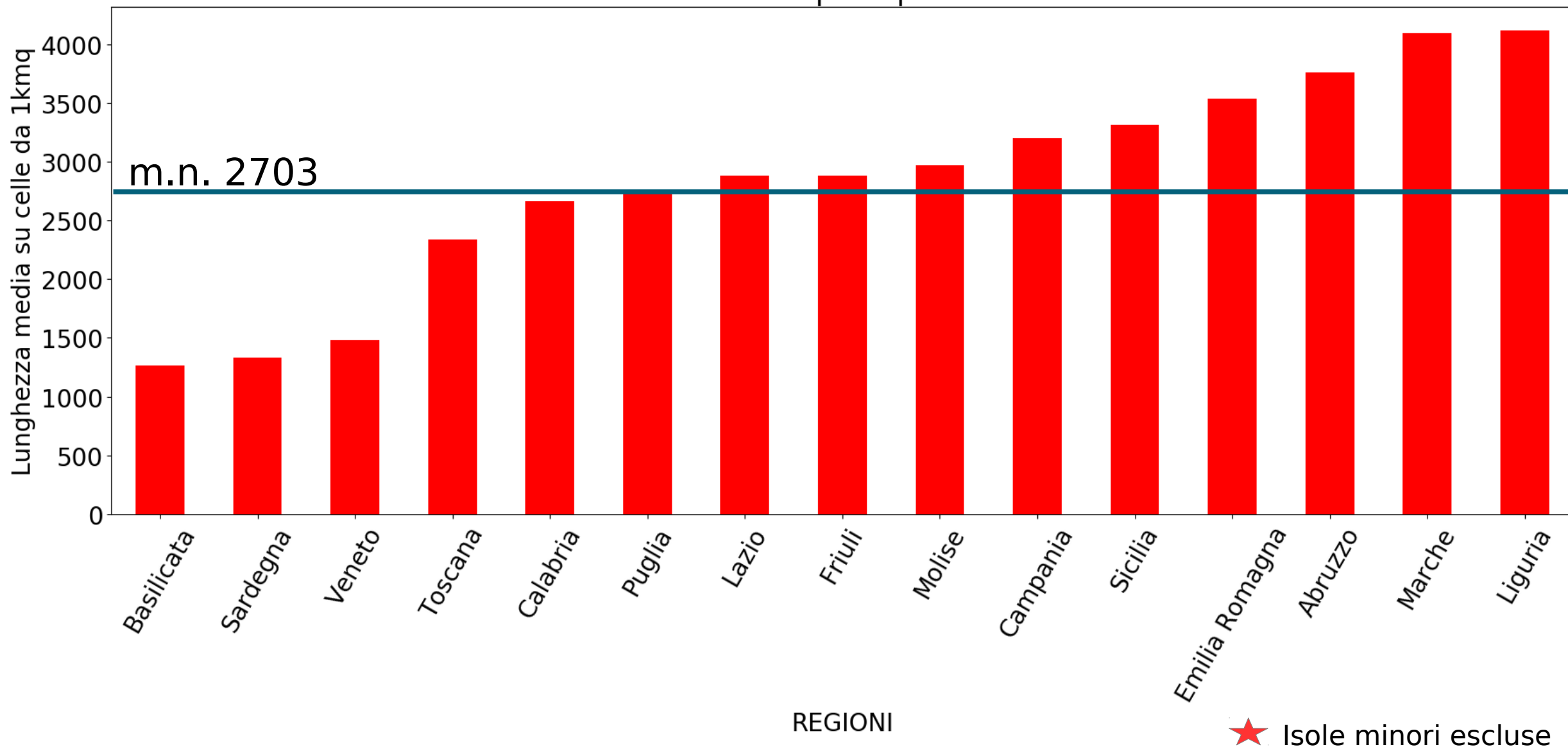
# Fascia costiera: abitanti

Densità abitativa (residenti) ★ Fonte ISTAT Censimento 2011



# Fascia costiera: rete viaria

Densità della rete stradale principale sulla fascia costiera ★



# NECESSITA'

Millennium Ecosystem Assessment 2005 –  
compromissione degli ecosistemi

**Rafforzare l'integrazione  
della gestione del  
Capitale Naturale  
nella pianificazione  
di area vasta**



# La proposta COPEMAP

*Comprensione, adattamento  
e gestione*



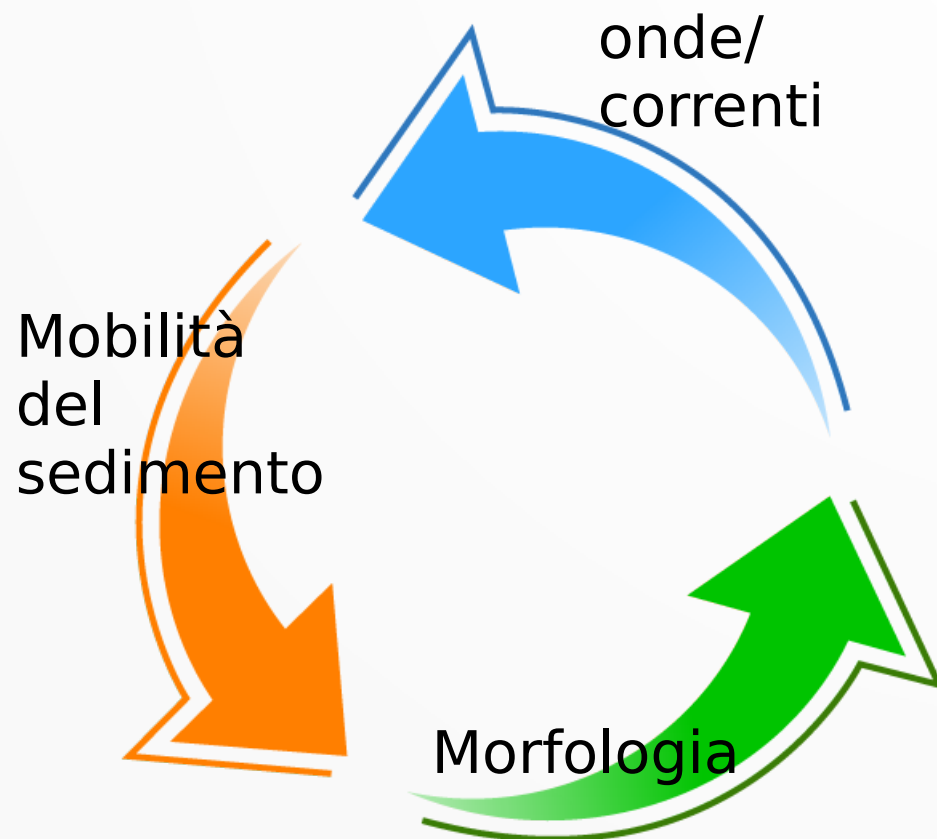
Misura della funzionalità primaria  
dei fondali sabbiosi  
**(protezione costiera)**  
e della sua variabilità nel tempo  
**(resilienza)**

Rende disponibili  
informazioni scientifiche utili  
alla **pianificazione costiera**  
di area vasta

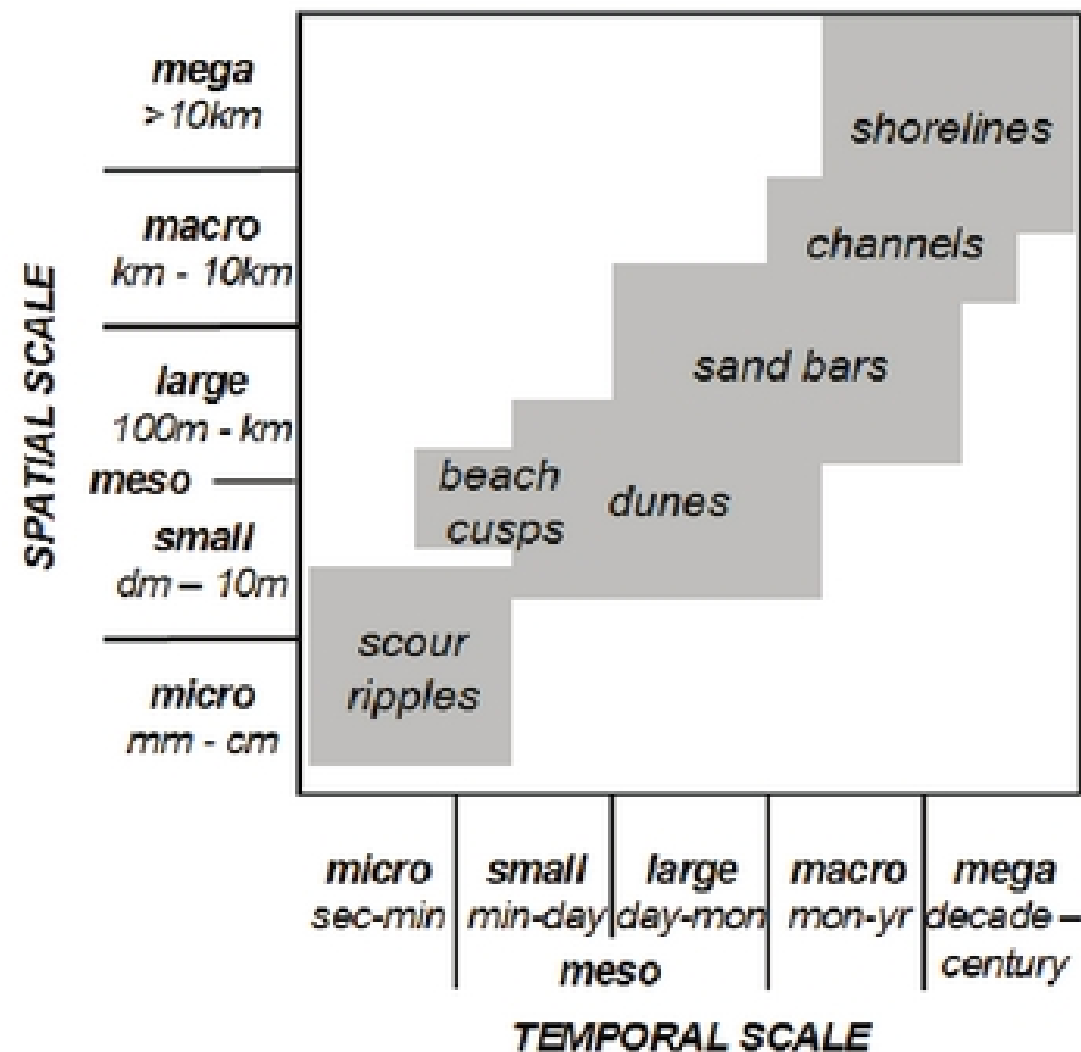
Rende disponibili informazioni  
scientifiche necessarie  
al recepimento  
di **buone pratiche** gestionali

# La forma di una spiaggia

## La spiaggia come sistema morfo-dinamico

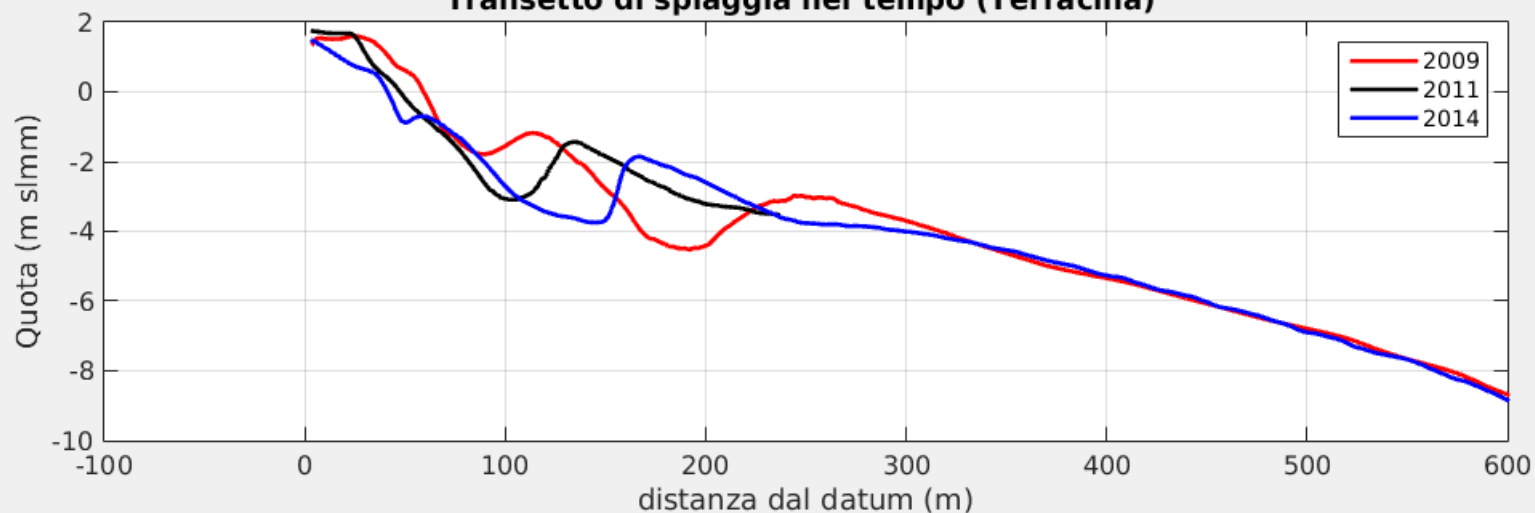


## Variabilità del sistema morfo-dinamico



# La forma di una spiaggia

Transetto di spiaggia nel tempo (Terracina)

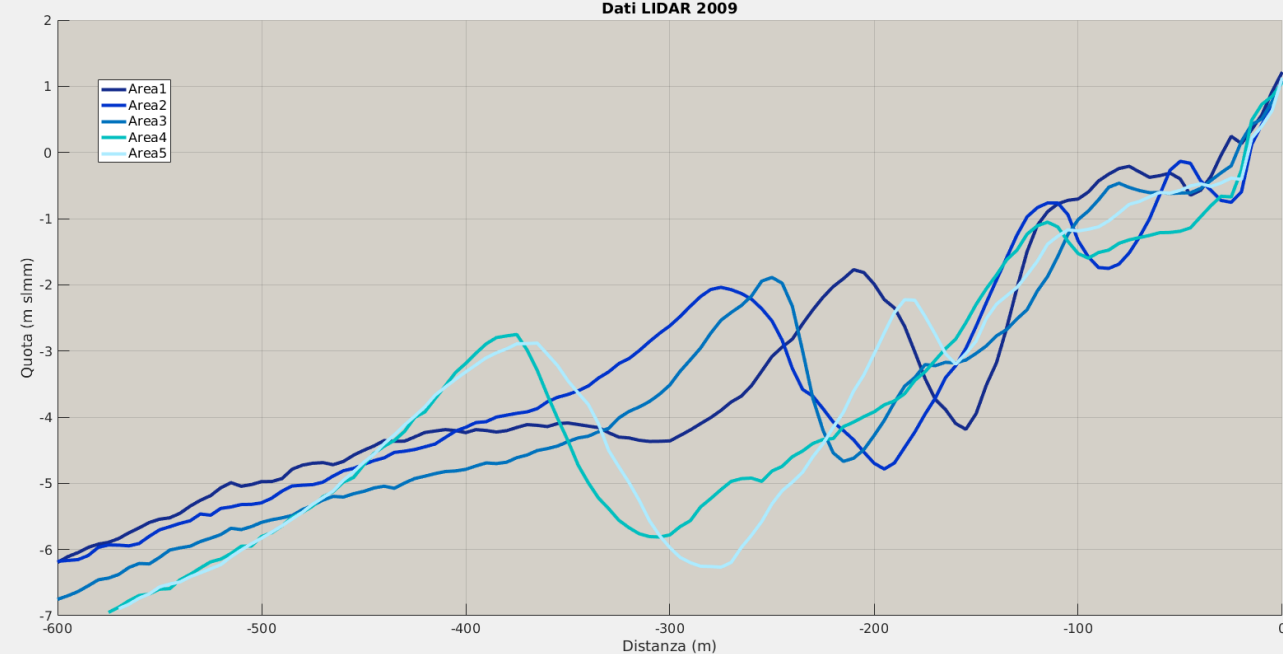


nel tempo

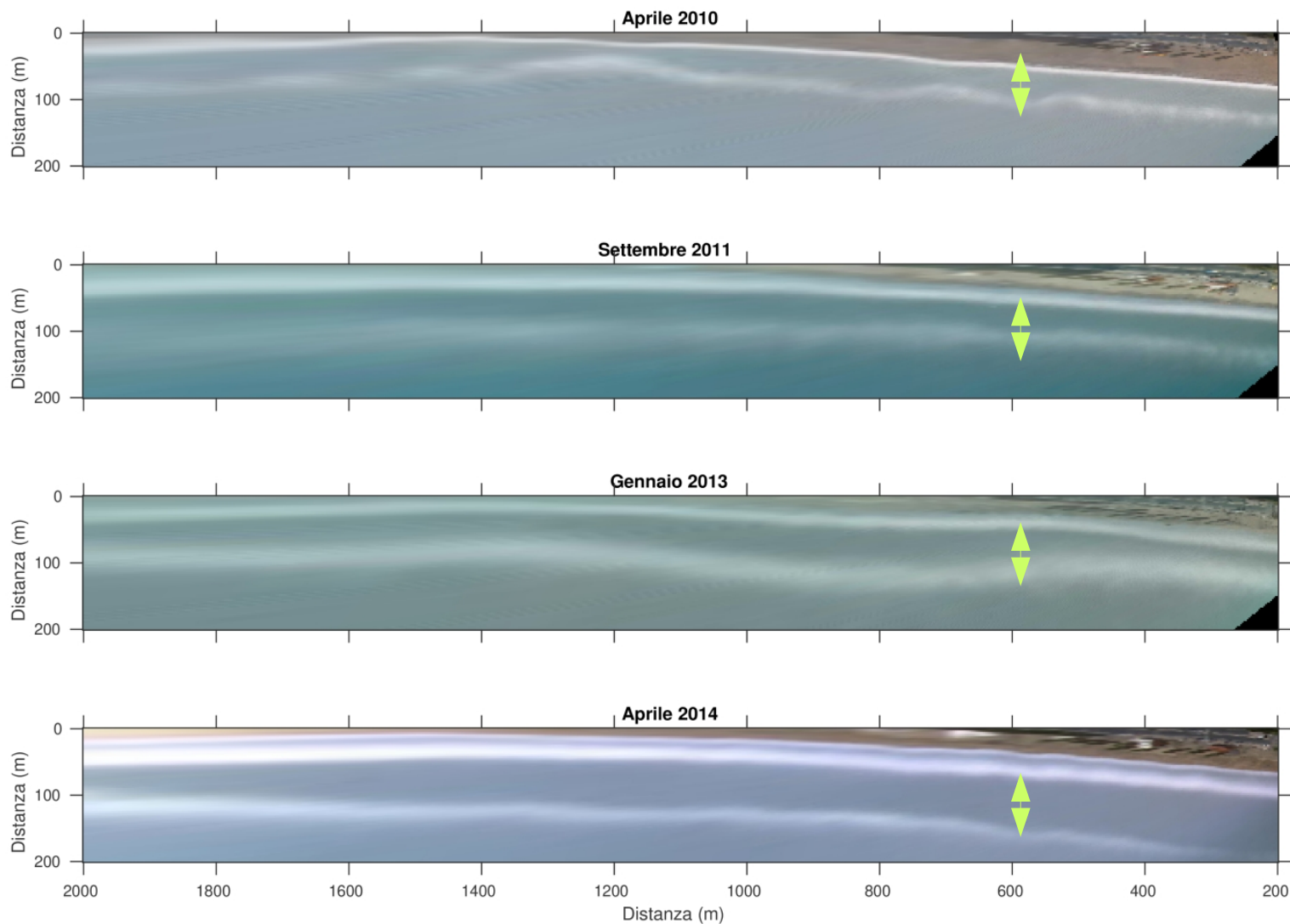
nello spazio



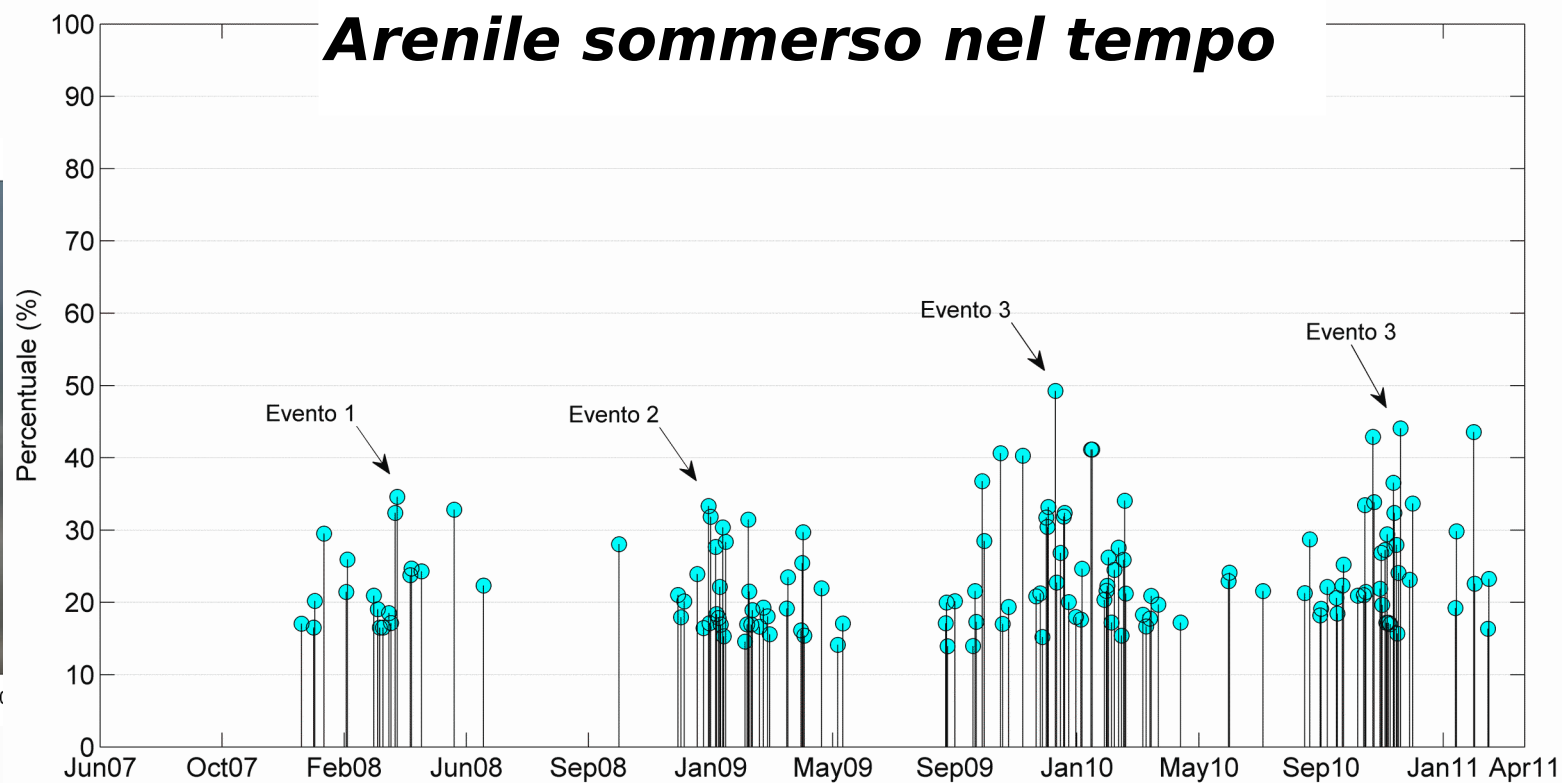
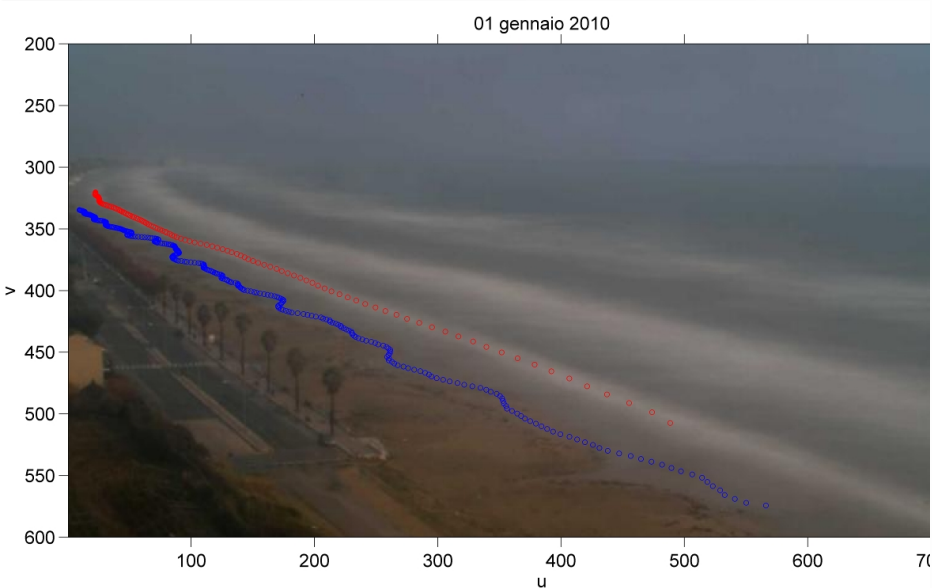
Dati LIDAR 2009



# La spiaggia nel tempo



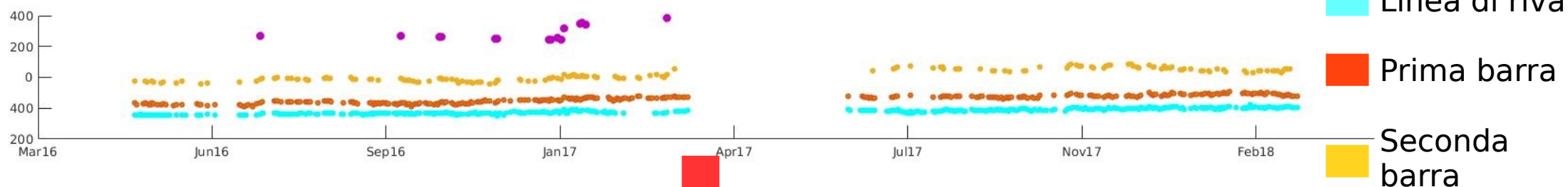
# La protezione nel tempo



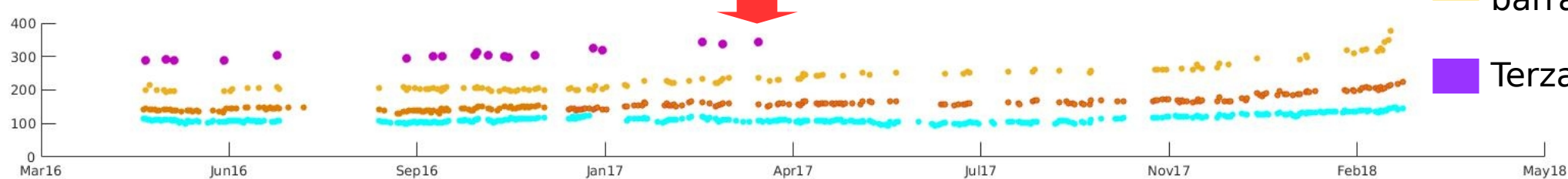
	Data	Hmax (m)	Dir (°N)	Tp (sec)	Marea (m slm)	Arenile sommerso
Evento1	03/2008	2.1	167	8.2	-0.09	~ 35%
Evento2	01/2009	2	207	10	-0.08	~ 35%
Evento3	01/2010	2.7	208	10	0.2	~ 50%
Evento4	12/2010	1.2	183	6.3	0.08	~ 45%

# Resilienza

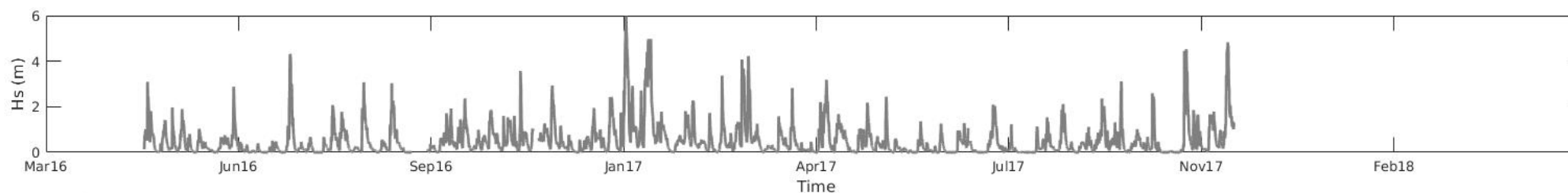
Forma  
spiaggia  
T. Cerrano



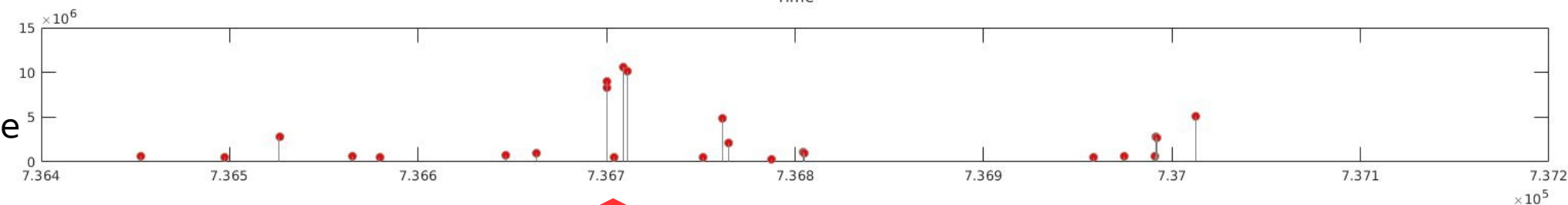
Forma  
spiaggia  
Senigallia



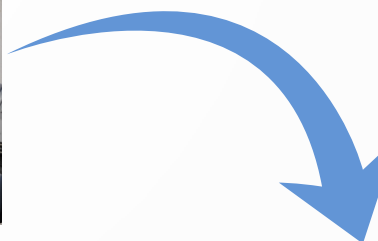
Altezza  
d'onda



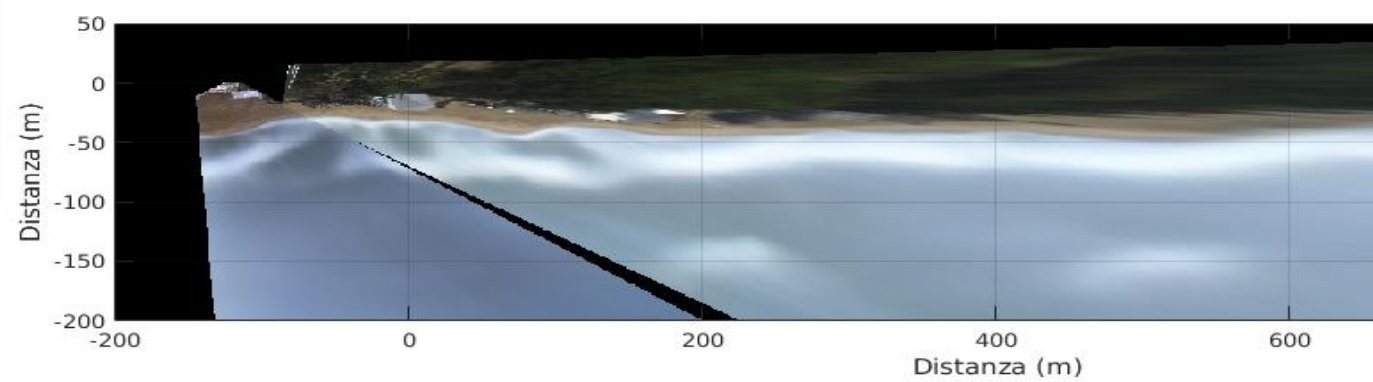
Energia  
mareggiate



# COPEMAP – la rete



# COPEMAP – siti

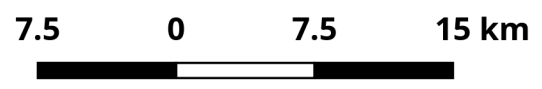
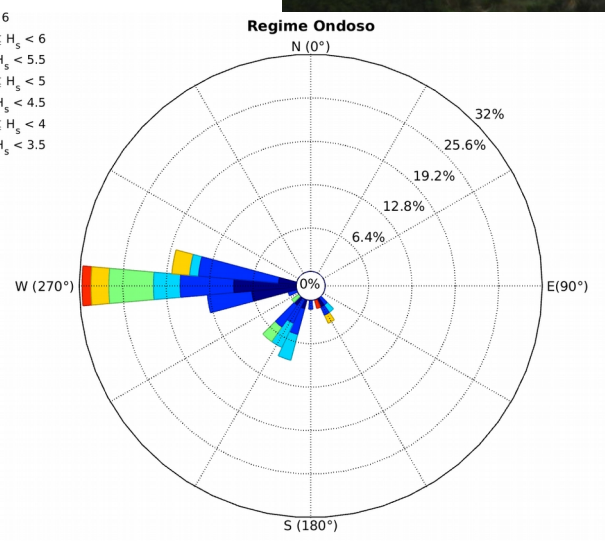


## legenda

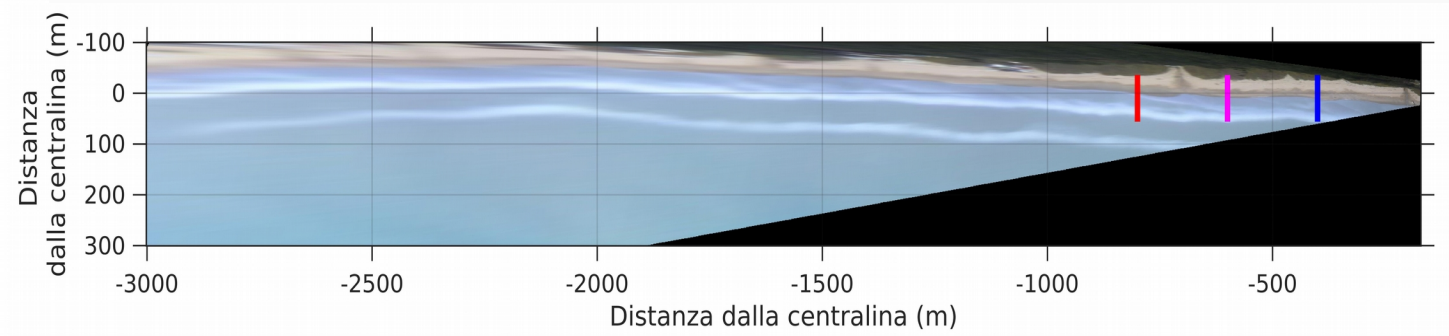
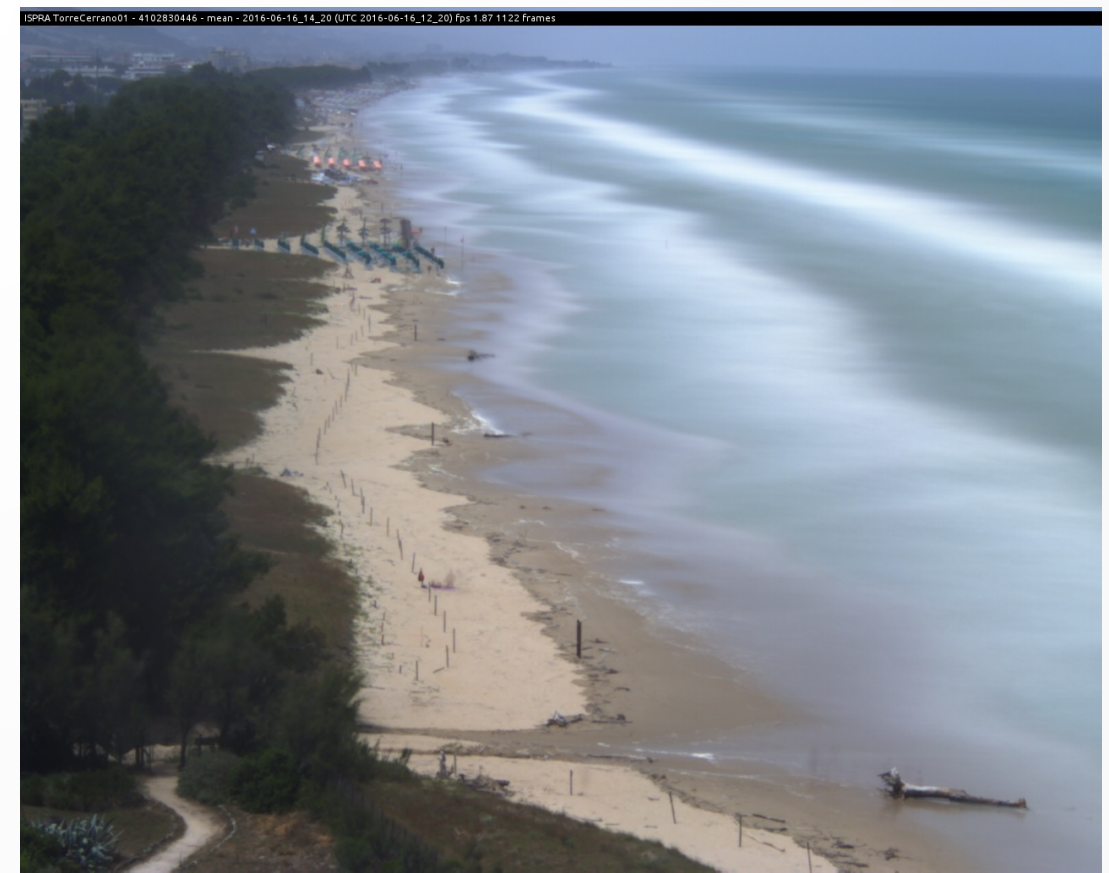
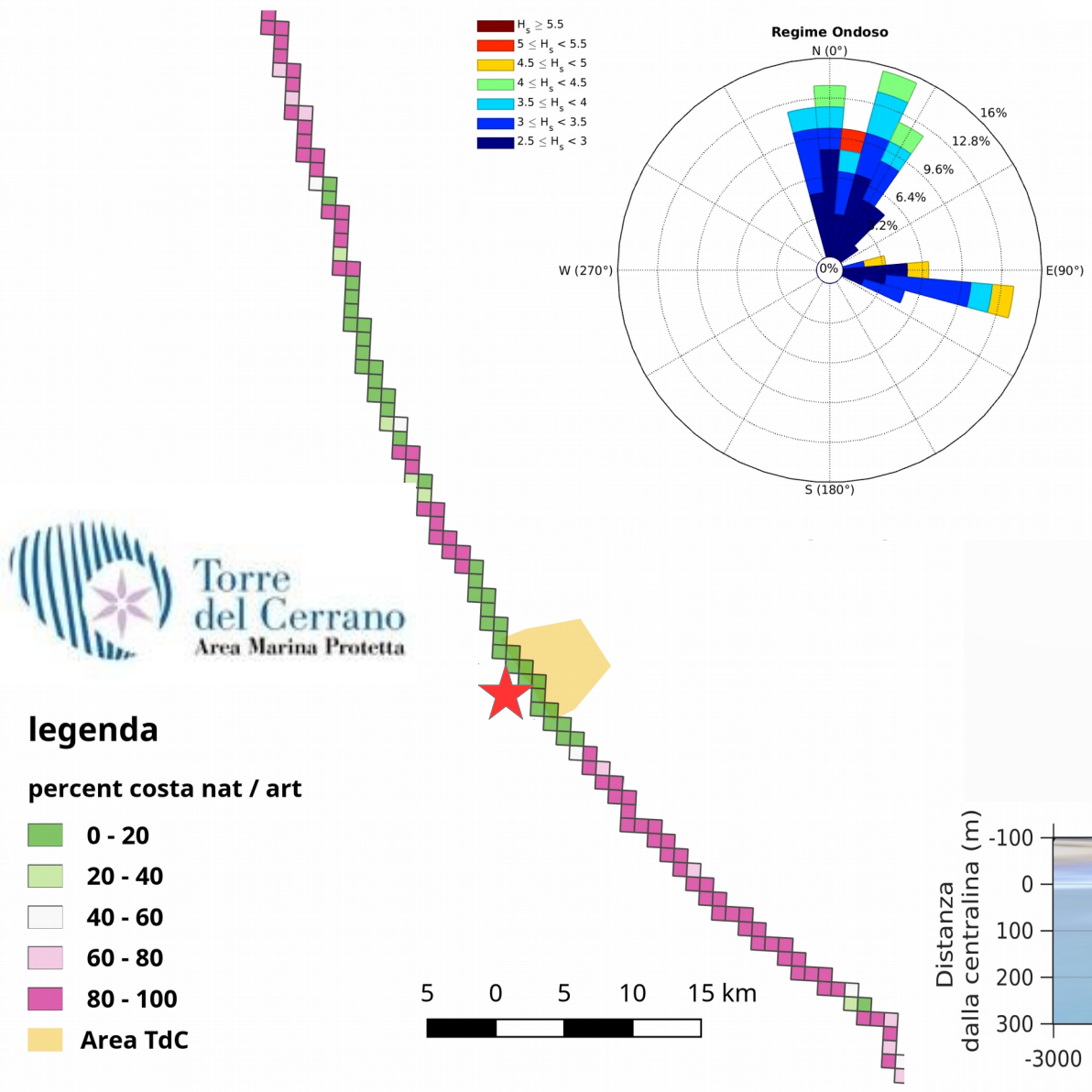
percent costa nat / art

- 0 - 20
- 20 - 40
- 40 - 60
- 60 - 80
- 80 - 100
- unità fisiografiche
- Area PNC

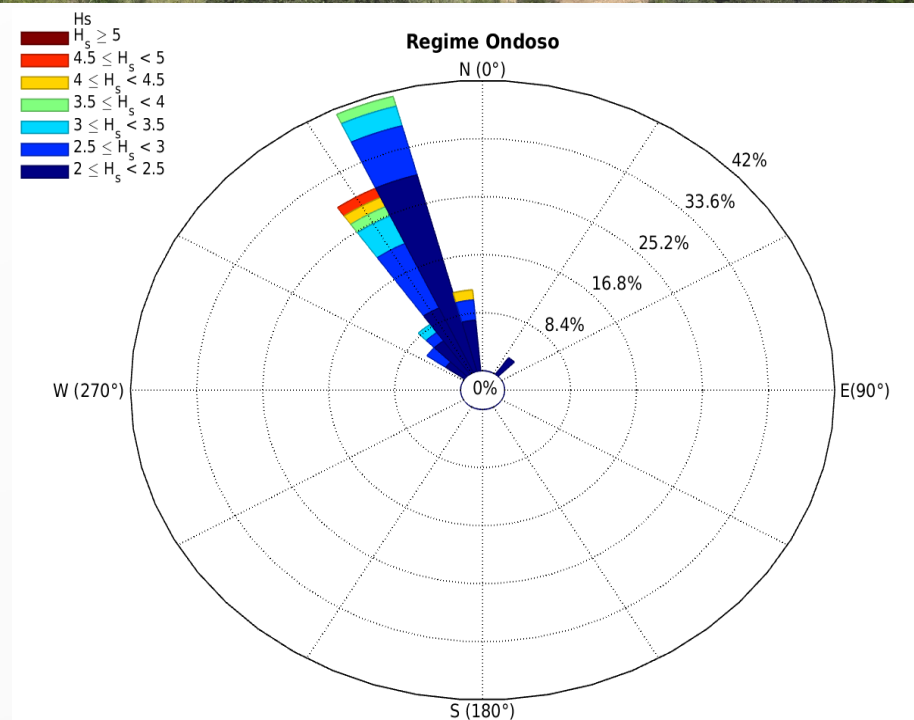
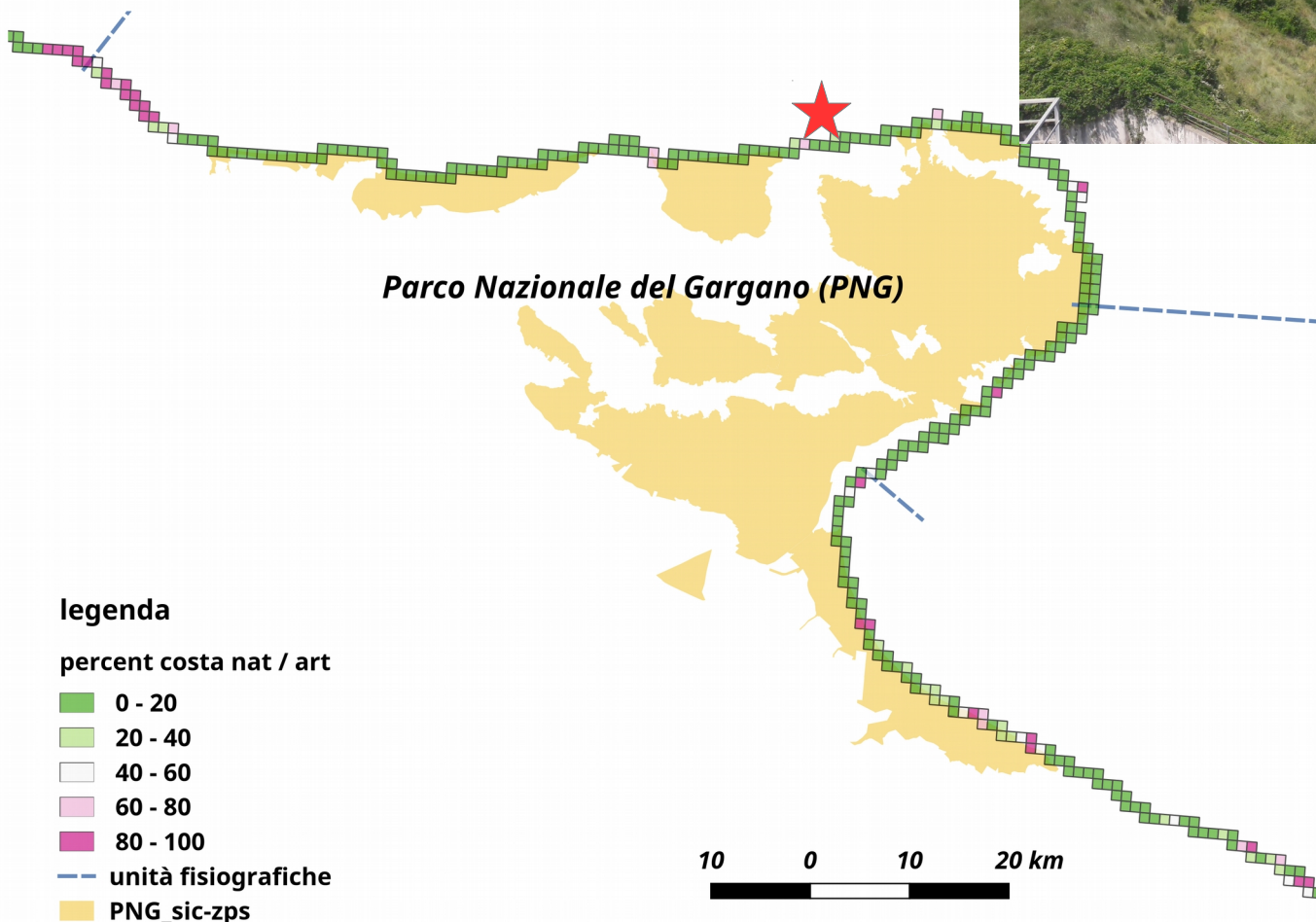
- $H_s \geq 6$
- $5.5 \leq H_s < 6$
- $5 \leq H_s < 5.5$
- $4.5 \leq H_s < 5$
- $4 \leq H_s < 4.5$
- $3.5 \leq H_s < 4$
- $3 \leq H_s < 3.5$



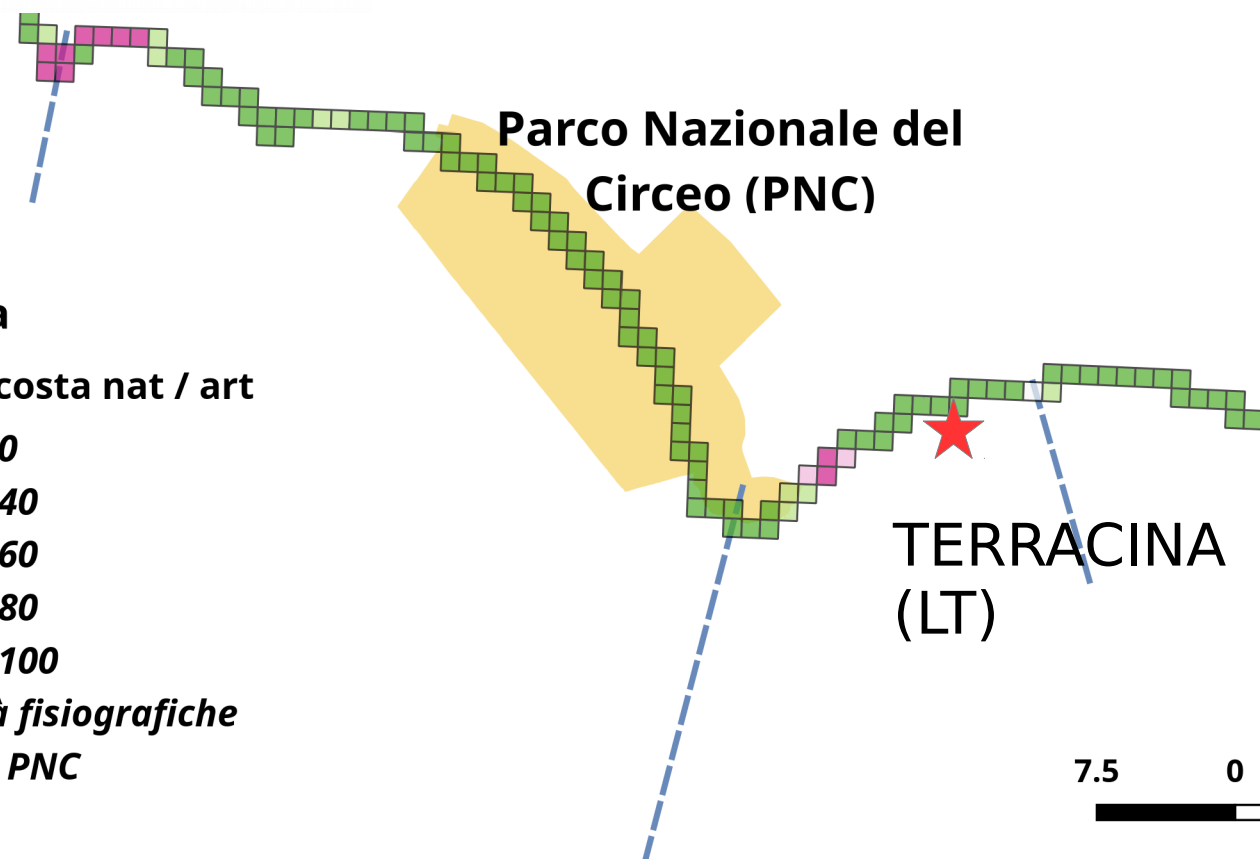
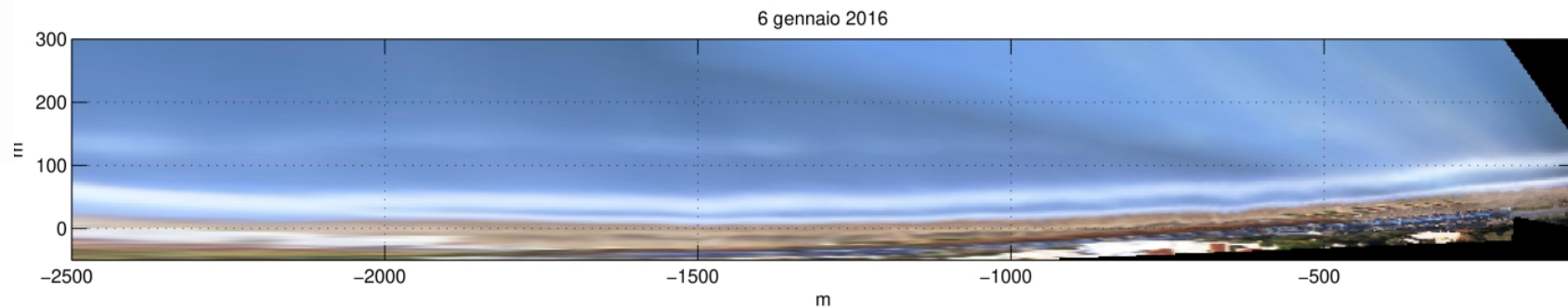
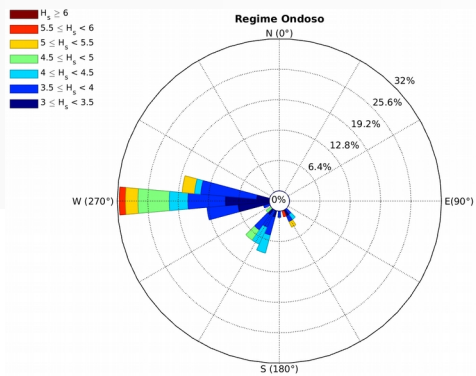
# COPEMAP – siti



# COPEMAP – siti



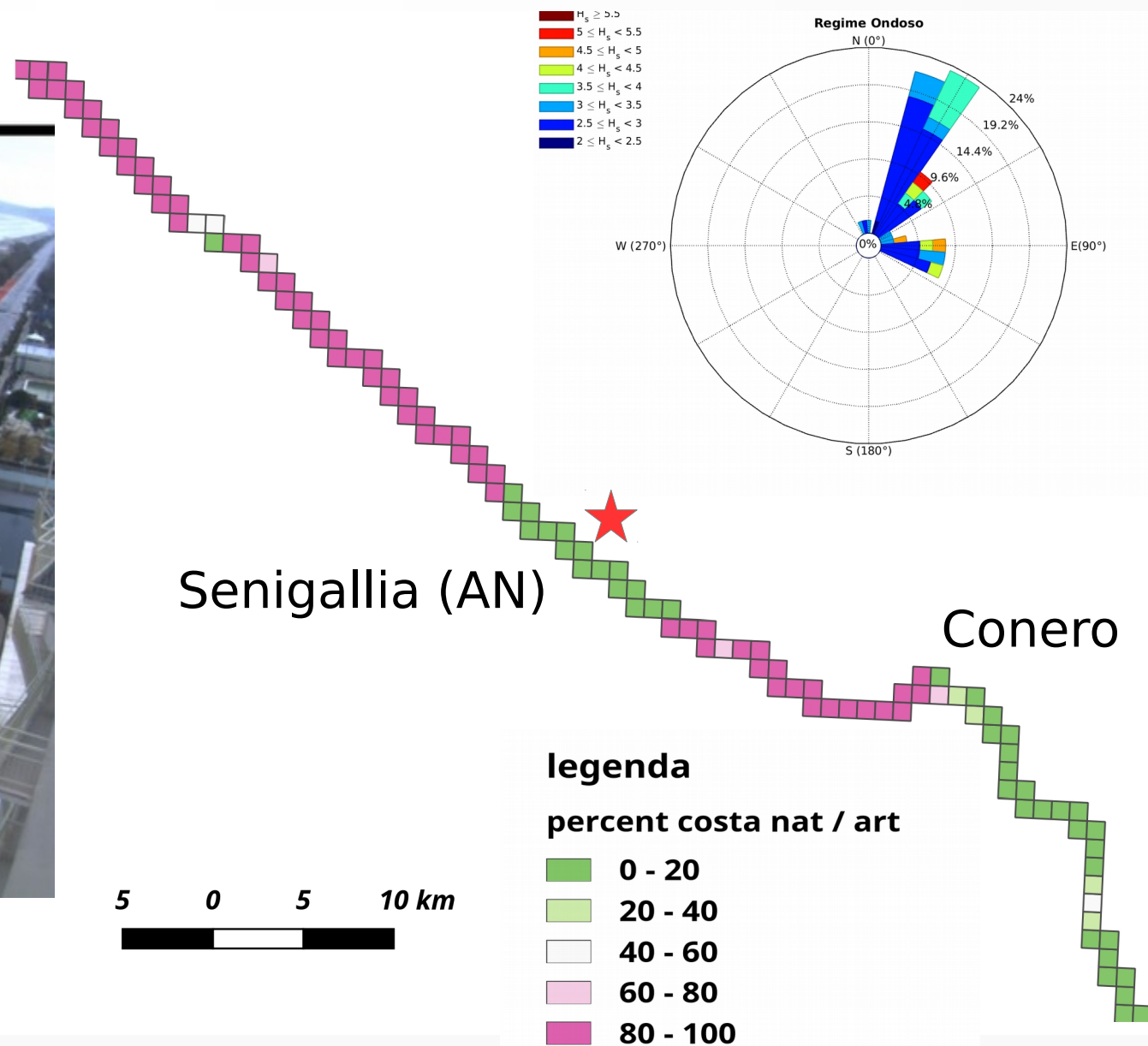
# COPEMAP – siti



- legenda**
- percent costa nat / art
- 0 - 20
  - 20 - 40
  - 40 - 60
  - 60 - 80
  - 80 - 100
  - unità fisiografiche
  - Area PNC

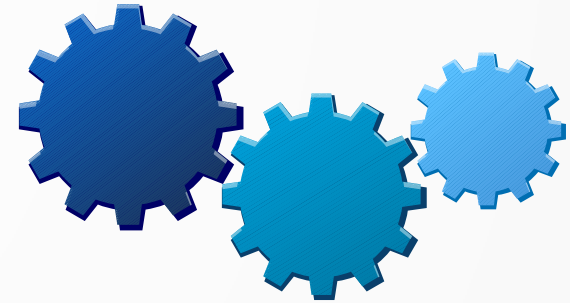


# COPEMAP – siti

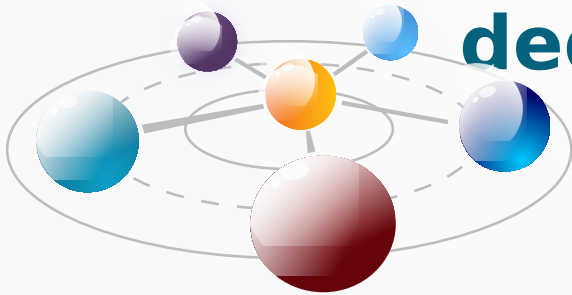


# COPEMAP – fasi

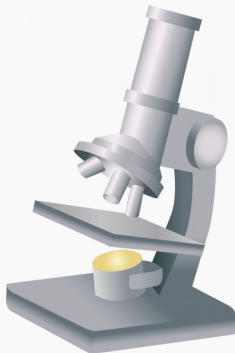
- **Messa in opera della procedura osservativa e di elaborazione**



- **Promozione e disseminazione di un portale web dedicato tra i portatori di interesse**



- **Utilizzo dei dati prodotti in programmi di sensibilizzazione ed educazione ambientale**



# OPPORTUNITA'

*Comprensione, adattamento  
e gestione*



**Una gestione “adattativa”  
come unico strumento  
per fruire delle funzionalità  
dei sistemi naturali  
nel lungo termine**



INNOVATIONS

[luca.parlagreco@isprambiente.it](mailto:luca.parlagreco@isprambiente.it)  
[saverio.devoti@isprambiente.it](mailto:saverio.devoti@isprambiente.it)  
[luca.liberti@isprambiente.it](mailto:luca.liberti@isprambiente.it)