

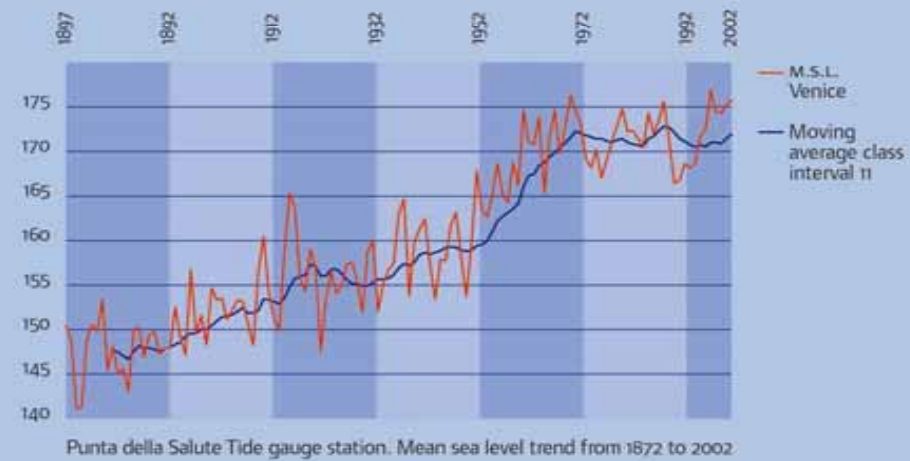
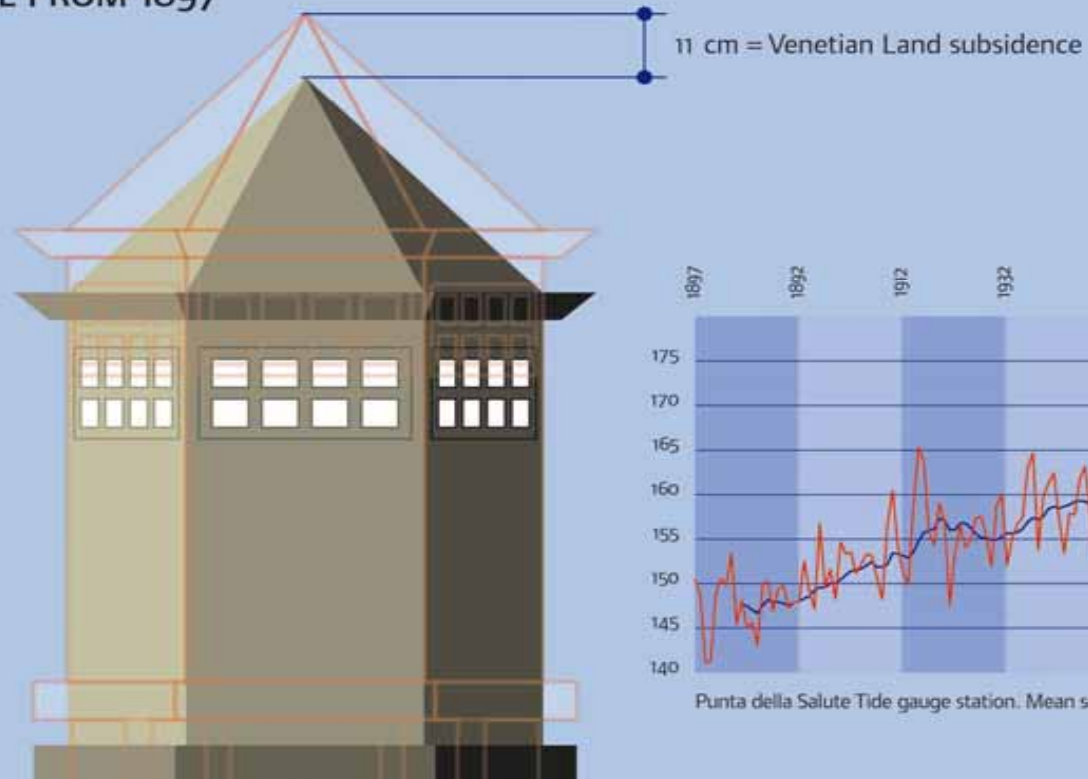
The Northern Adriatic Sea monitoring system performed by ISPRA

**Marco Cordella
ISPRA– Venice Lagoon Office
www.ispravenezia.it**

Venice, 13th September 2010

Long term risks: Eustasy and subsidence

PUNTA DELLA SALUTE
ZERO TIDAL LEVEL (Z.M.P.S.)
VARIATIONS OF ALTIMETRIC
REFERENCE LEVEL FROM 1897



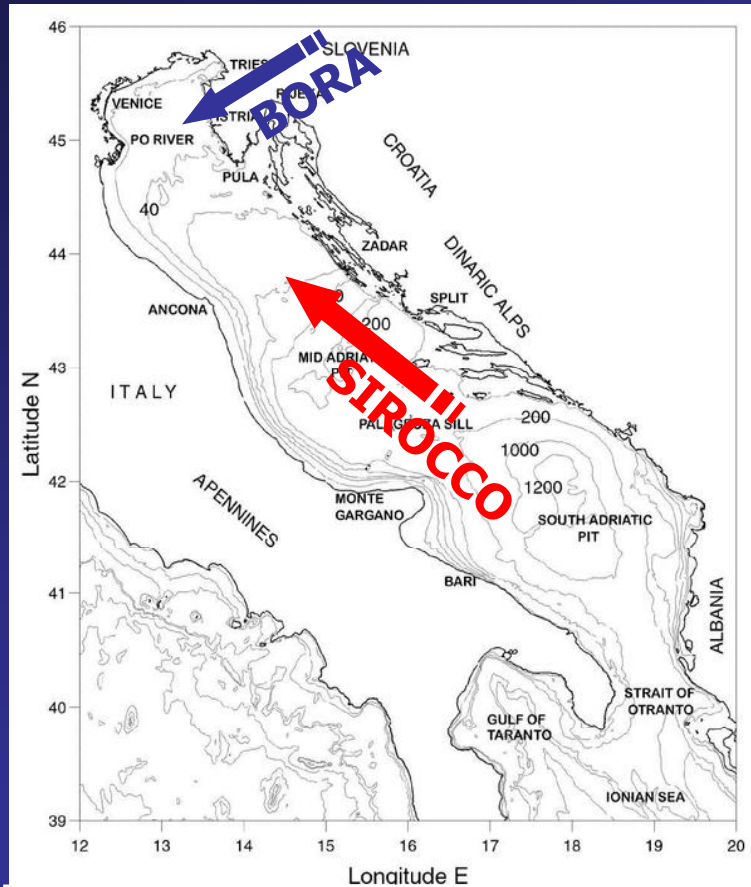
M.S.L. 2003

M.S.L. and Z.M.P.S. in 1897

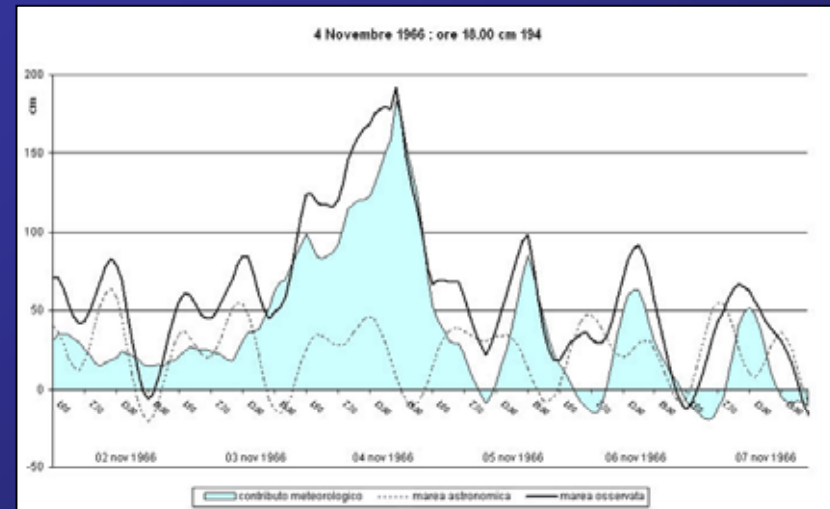
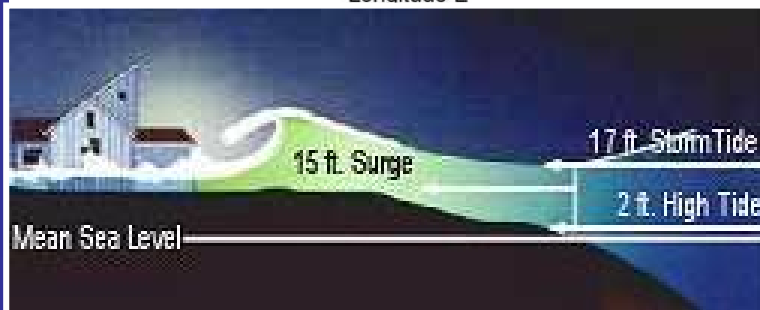
Z.M.P.S. in 2003



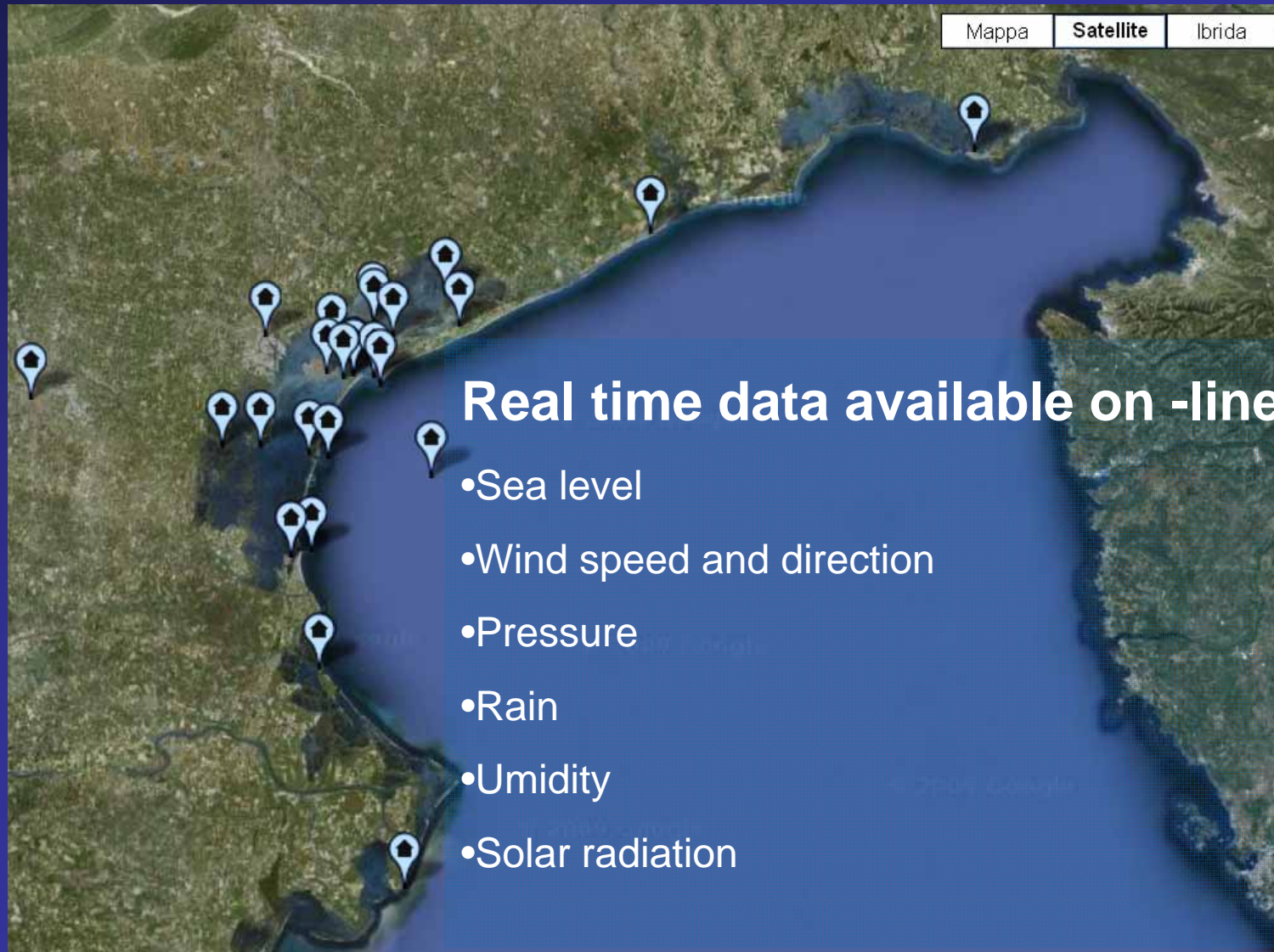
Short term risk: Storm Surge



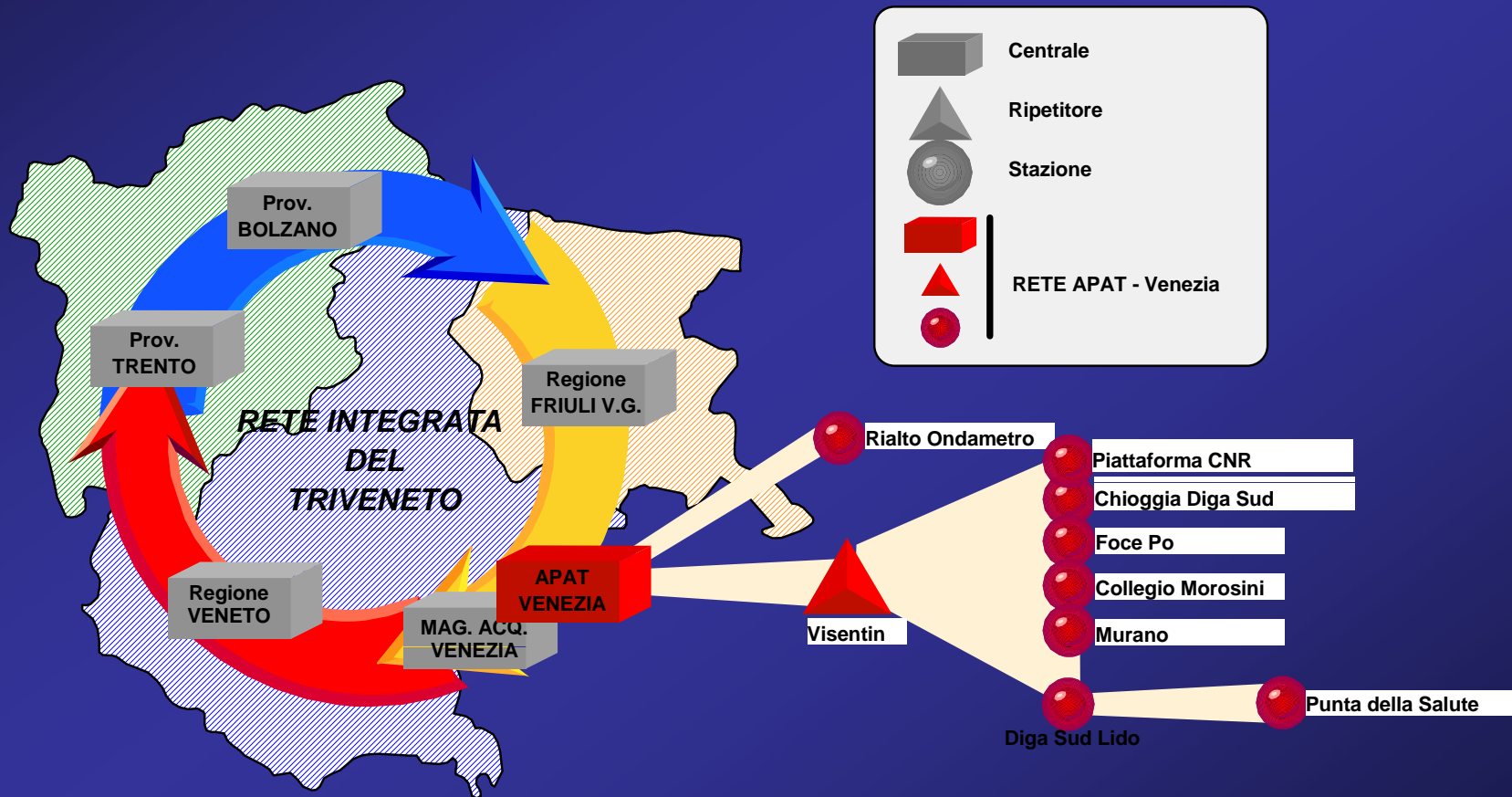
4th November 1966



The ISPRA tide gauge network - 1



CIVIL PROTECTION SYSTEM: THE REAL TIME DATA SHARING



The ISPRA tide gauge network - 2

- Internet site:
www.mareografico.it
- Real time data:
 - sea level
 - air temperature
 - water temperature
 - atmospheric pressure
 - wind speed and direction





ISPRA

Istituto Superiore per la Protezione
e la Ricerca Ambientale

R.O.N.

Wave buoys



*Data available
online:*

www.idromare.it

DATA REGISTERED

- Significant wave
- Time period
- Wave direction
- Water temperature



ISPRA – Venice Lagoon main activities

HIGH TIDE MONITORING SYSTEM

- 1) Alerting system on short term basis
- 2) Analysis of long term processes and dissemination of information



ISPRA - Istituto Superiore per la Protezione e la Ricerca Ambientale
Dipartimento Tutela delle Acque Interne e Marine - Servizio Laguna di Venezia
Dirigente: Dr. Ing. Maurizio Fella

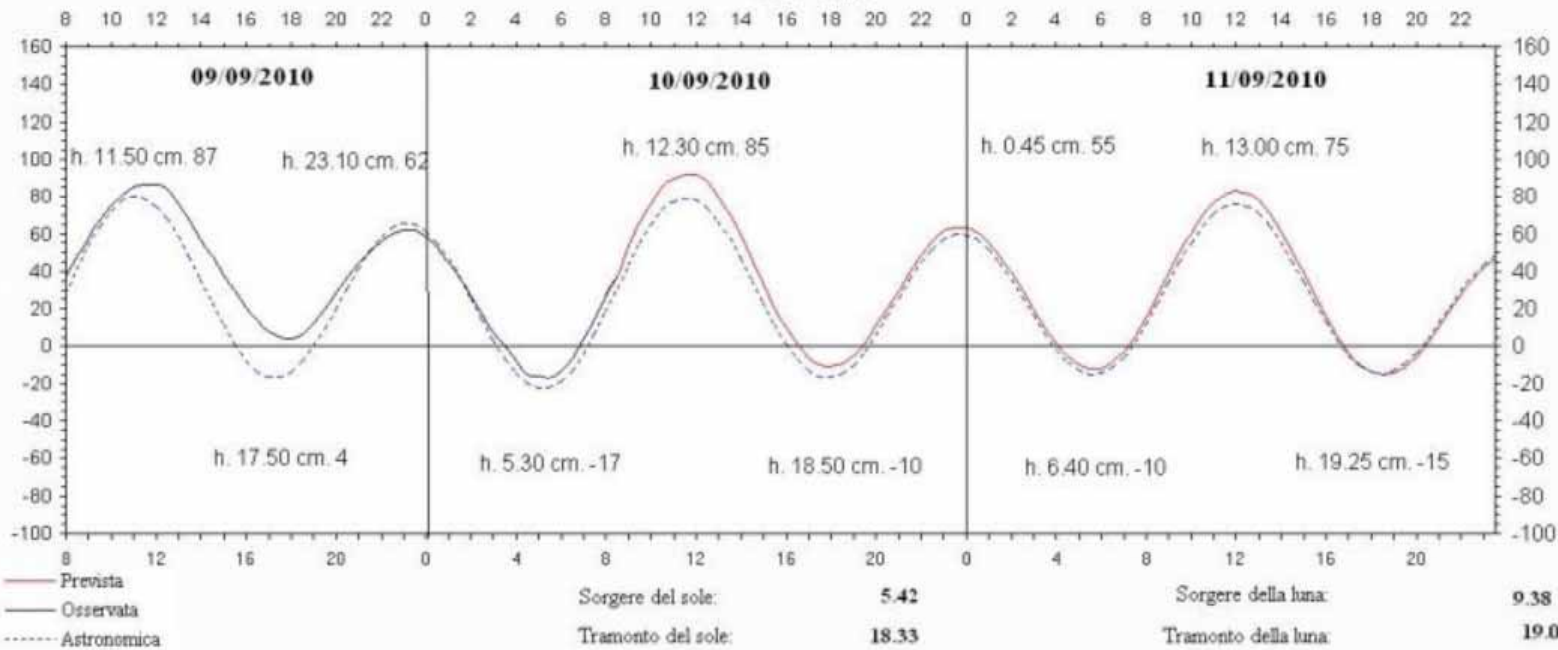
CURVA DI MAREA PREVISTA PER PUNTA DELLA SALUTE

REFERITA ALLO ZERO MAREOGRAFICO DI PUNTA DELLA SALUTE

BOLLETTINO N. 253

10/09/2010

ORA Solare



— Previsita
- - - Osservata
... Astronomica

Sorgere del sole: 5.42
Tramonto del sole: 18.33

Sorgere della luna: 9.38
Tramonto della luna: 19.06

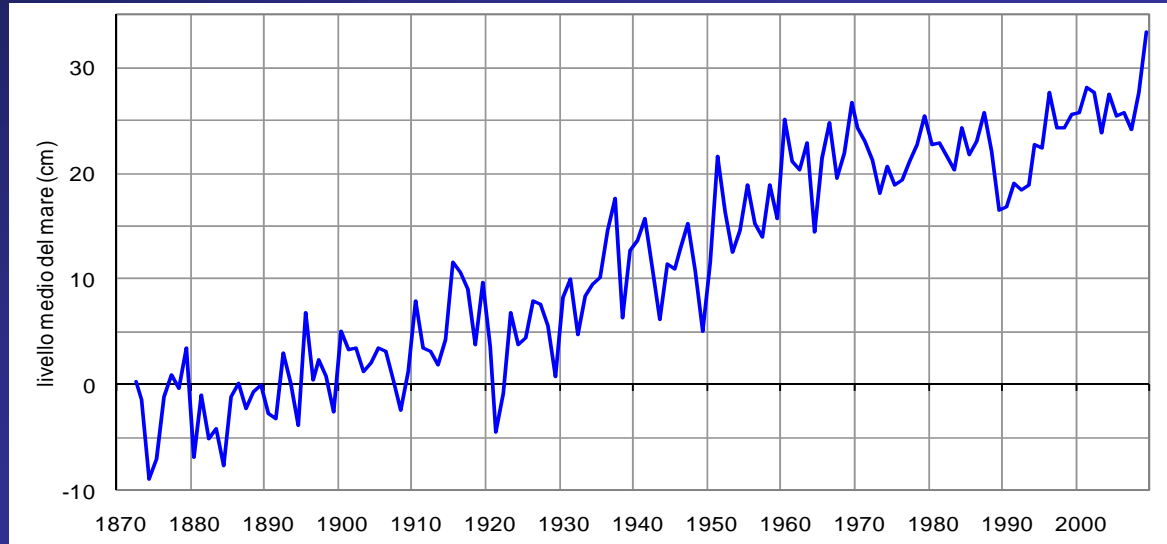
CH 57

superiore a 110cm (Millesimata nazionale di circa 25 cm)

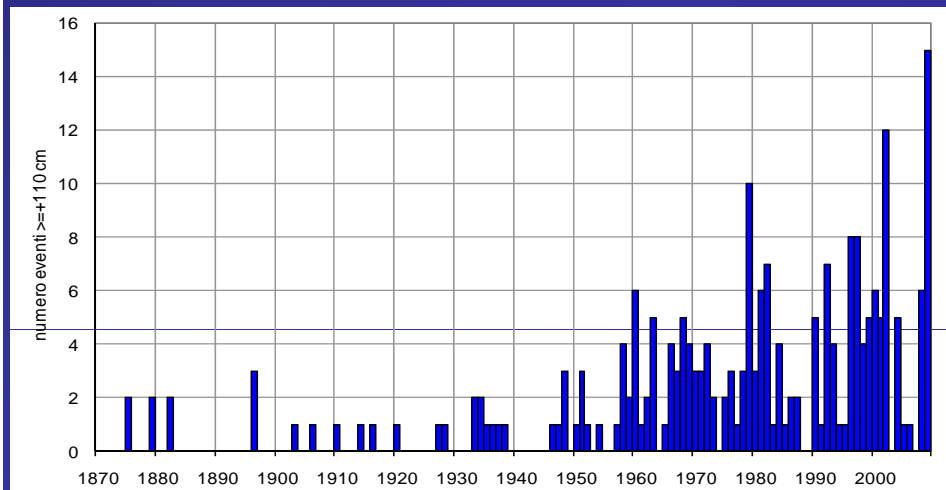
10 km

Mean sea level variability and flooding frequency

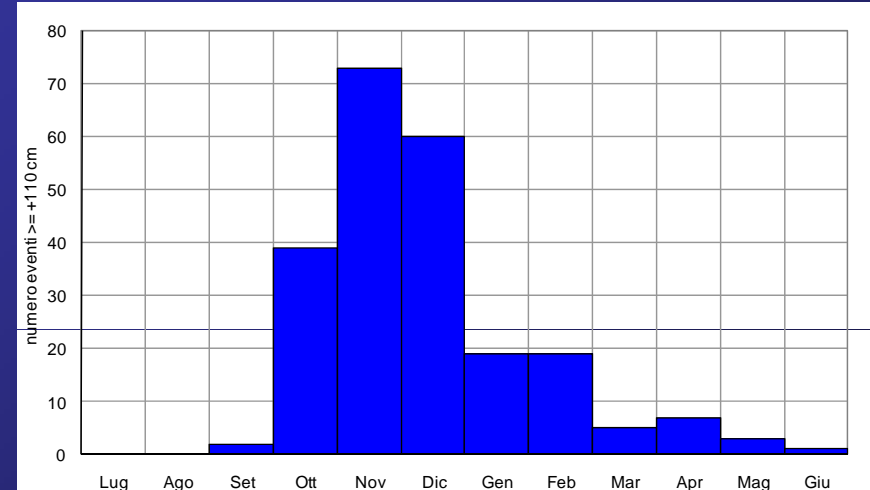
VENICE MEAN SEA LEVEL SINCE 1872



FREQUENCY



SEASONALITY

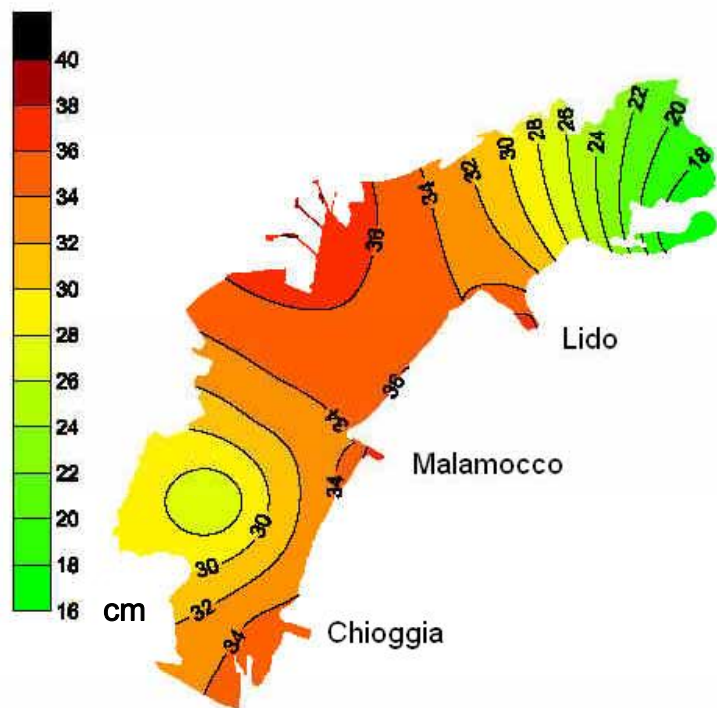


Astronomical tide amplitudes

Beginning XX century

Tide gauges: 12

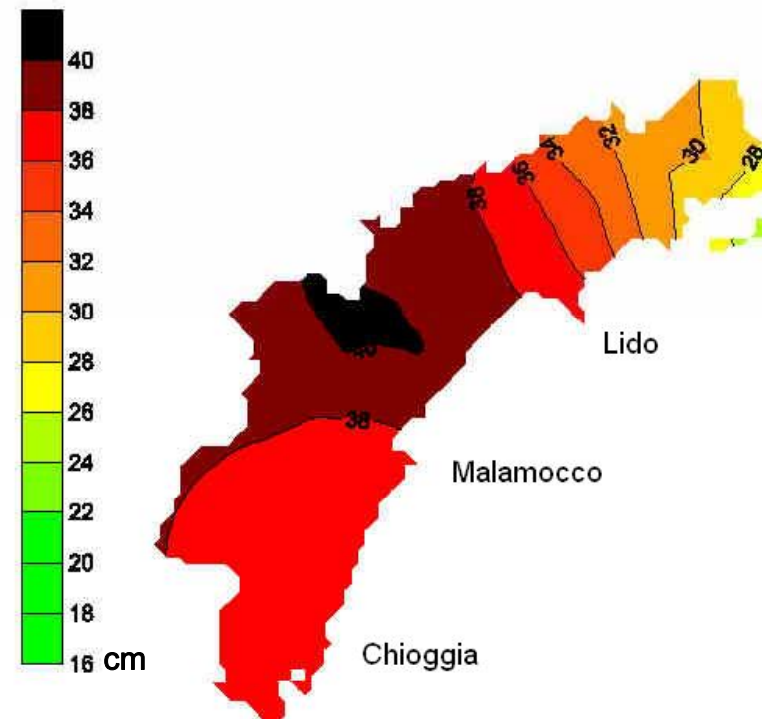
Available data : 3/6 months



Beginning XXI century

Tide gauges: 35

Available data: 12 months

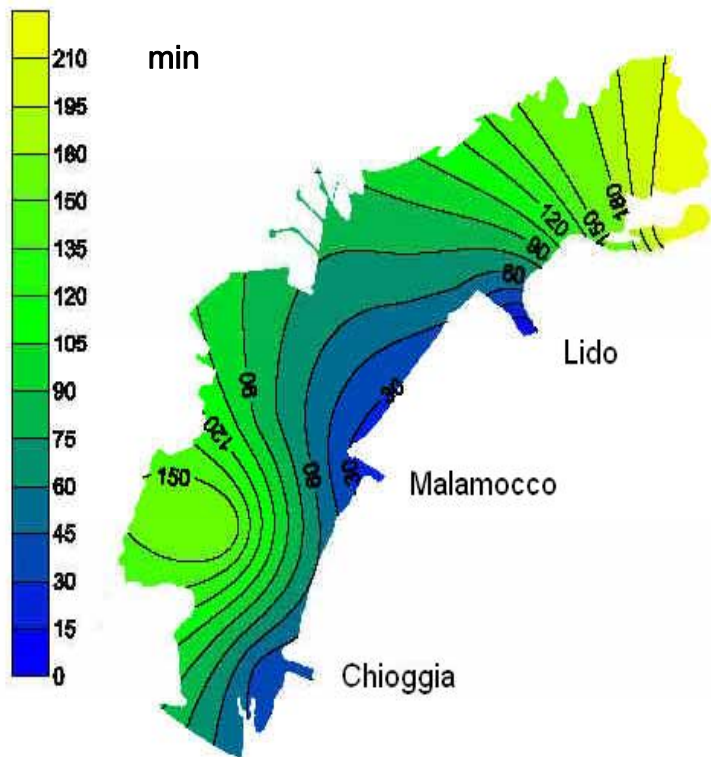


Tide propagation delays

Beginning XX century

Tide gauges: 12

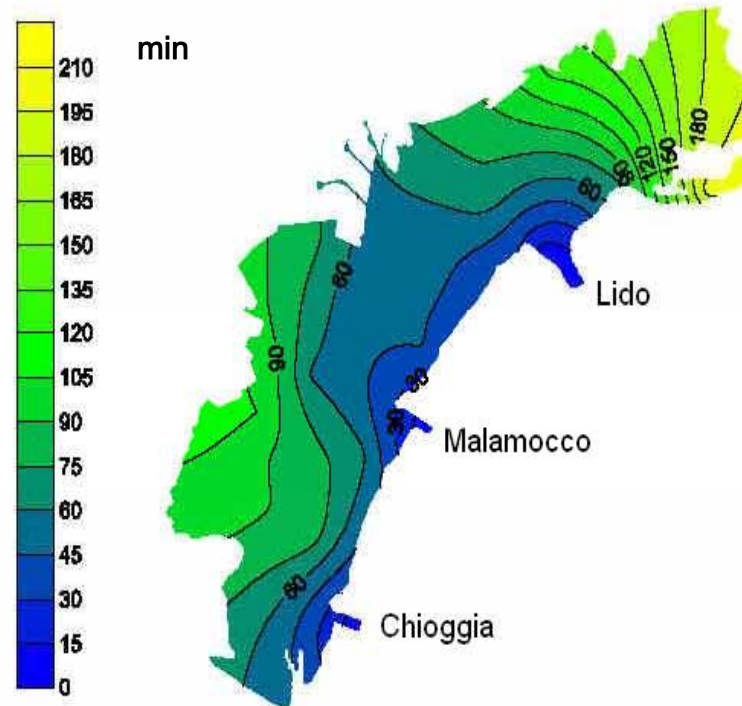
Available data: 3/6 months



Beginning XXI century

Tide gauges: 35

Available data: 12 months



**The Northern Adriatic Sea monitoring system
performed by ISPRA**

THANK YOU!

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