

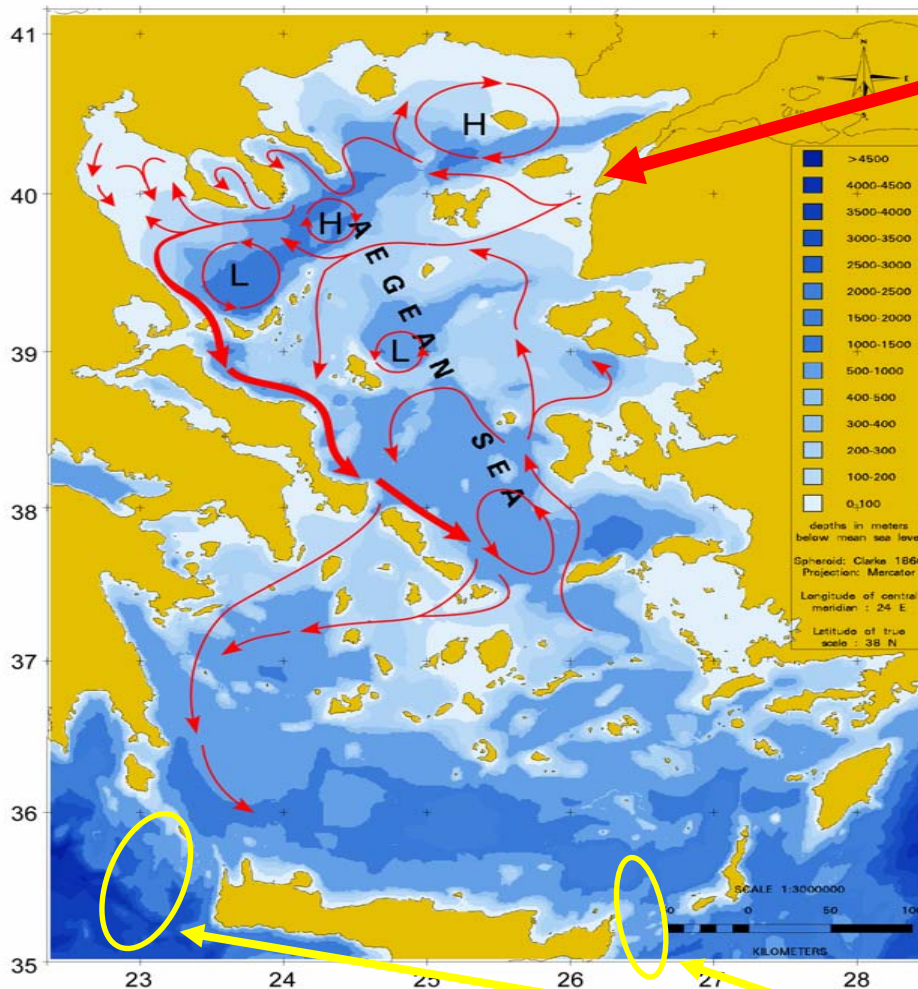


## **TEI's in the Aegean Sea: Baseline Information**

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# Hydrodynamic regime



$\sim 900 \cdot 10^9 \text{ m}^3 \text{ y}^{-1}$  BSW  
 $S = \sim 29$

- **North Aegean:**  
dense water formation area

**2 major events in 1987 and 1993**

- **South Aegean (Cretan Sea):**  
Also a dense water formation area  
with variable characteristics.

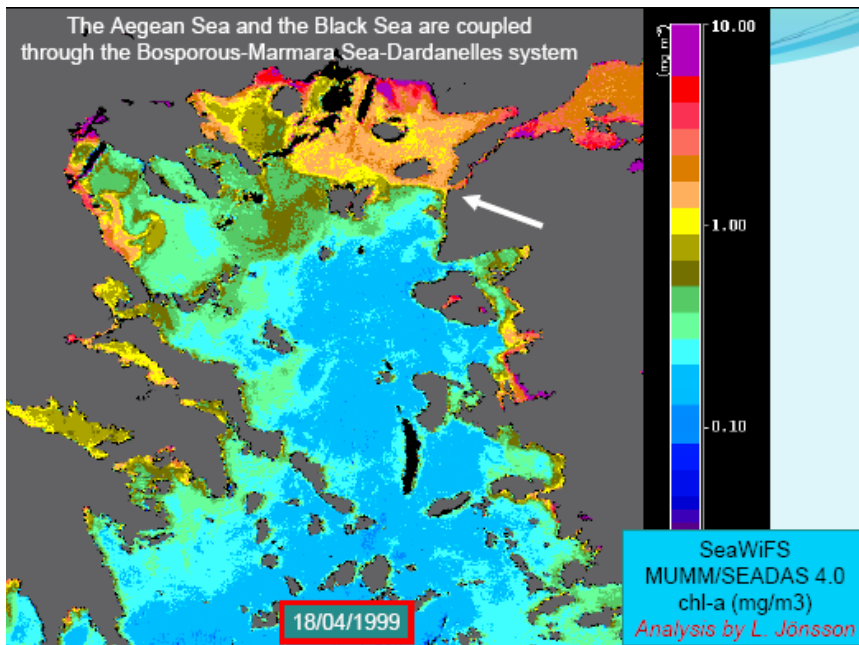
**EMT evolution in early 90's**

*Extracted from drifter campaigns (2002-2003),*

*Olson et al., 2007*

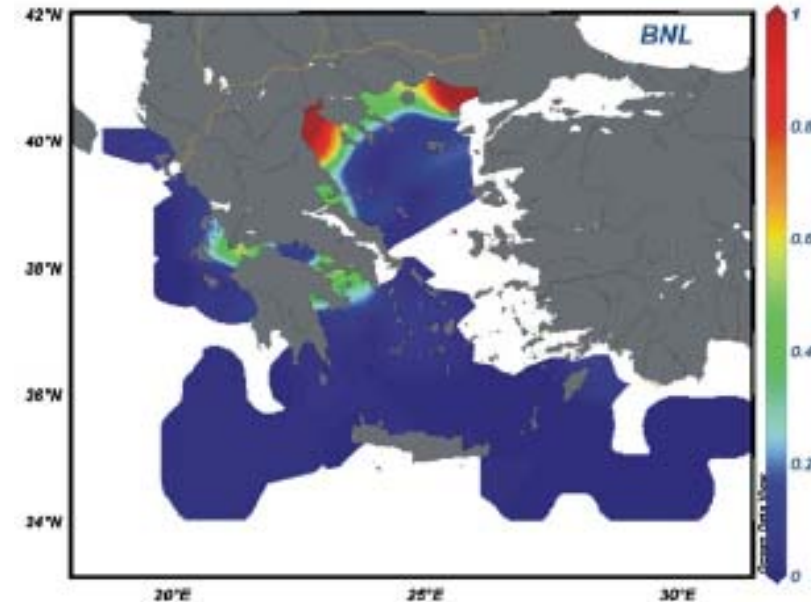
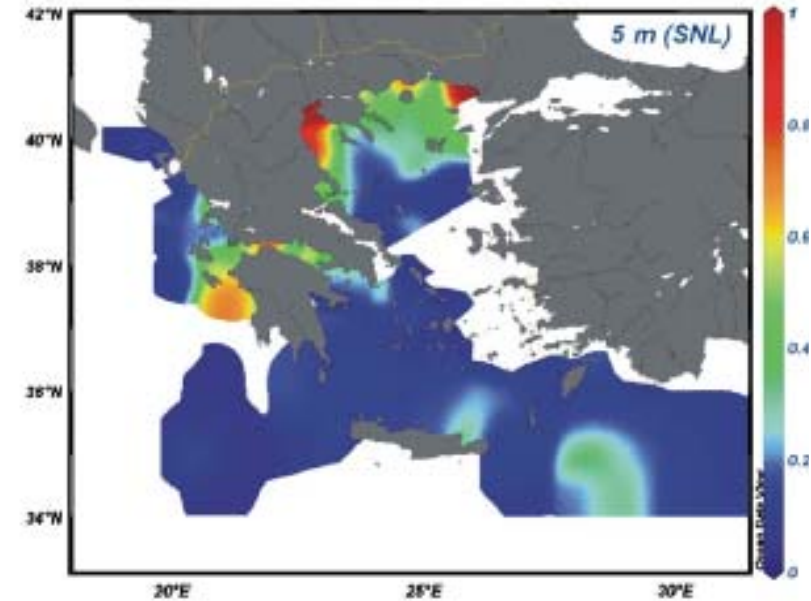
**Water cascades**

# Trophic and Particle regime



A productivity gradient between the North and South Aegean.  
(*Siokou-Frangou et al, 2002*)

An extensive BNL in the North Aegean.  
(*Karageorgis et al, 2008*)



# What have we learned from TEI's distribution

Conservative behaviour of most TEI's during mixing of BSW and LIW

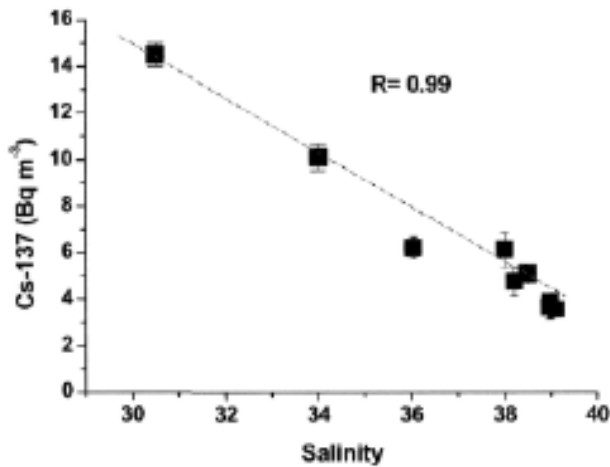


FIG. 3. <sup>137</sup>Cs concentrations vs. Salinity ‰ in surface water of the Aegean Sea.

*Delfanti et al (2005)*

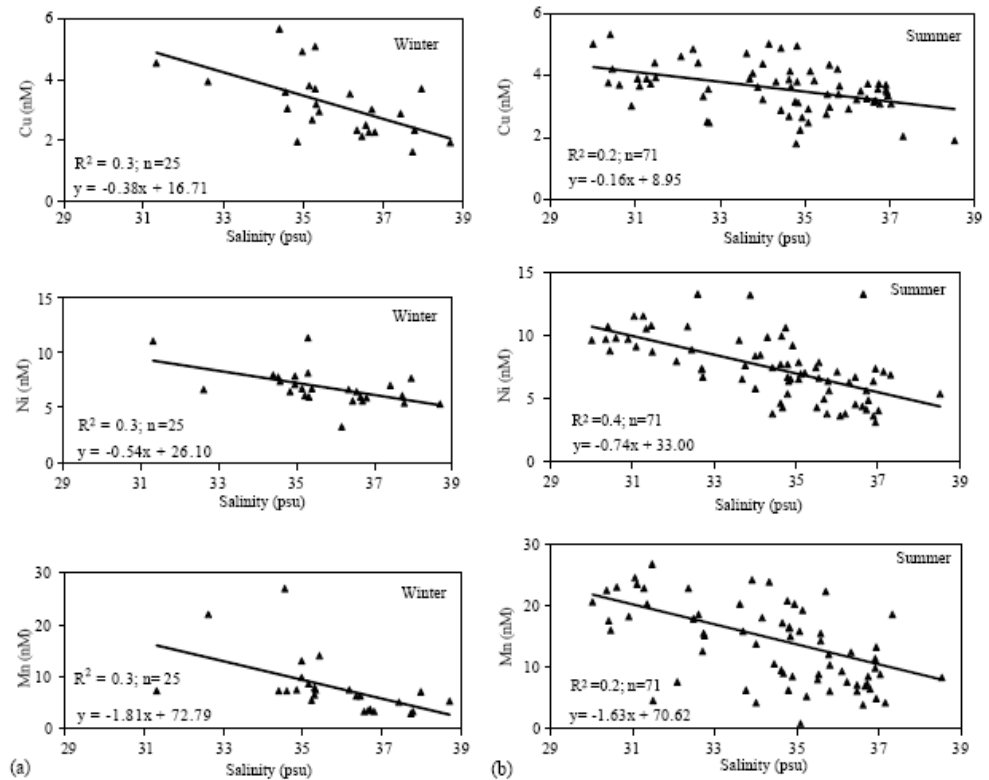


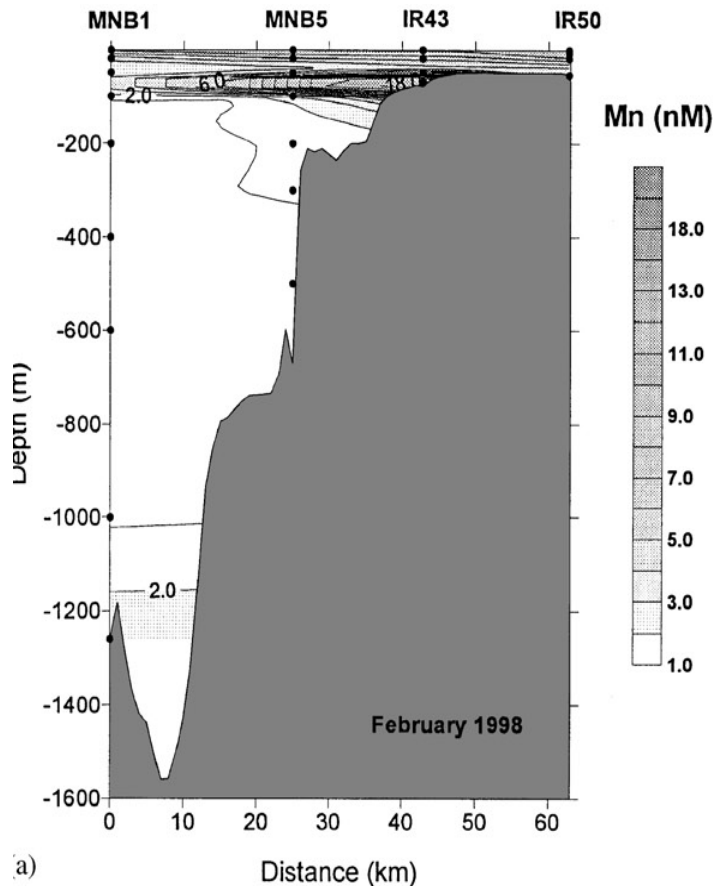
Fig. 4. Correlation of trace metals with respect to salinity in the upper ( $\sigma < 28.0$ ) mixed layer, during winter (a) and summer (b) ( $p > 0.05$ ).

*Zeri and Voutsinou-Taliadouri (2003)*



# What have we learned from TEI's distribution

Deep basin enrichments in the N. Aegean



a)

Zeri and Voutsinou-Taliadouri (2003)

Deep Cs<sup>137</sup> enrichments after 1984 in N. and S. Aegean and also in surface waters of South Aegean Sea.

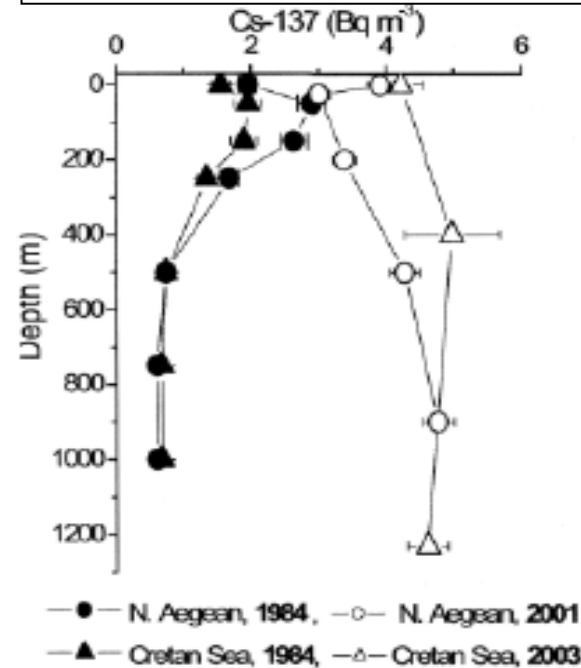


FIG. 2. Vertical profiles of <sup>137</sup>Cs in the water column of the North and South Aegean Sea. The original 1984 data are reported in [5] and have been decay corrected to 2001 (N. Aegean) and to 2003 (Cretan Sea) for comparison with recent profiles.

Delfanti et al (2005)

## Questions raised

- How are the enrichments in TEI's observed in the North Aegean balanced?
- What is the role of particles in the North Aegean Sea in uptake and regeneration of TE's ?
- To what extent deep water formation, taking place in the North Aegean, influences the distribution of TE's in the Cretan Sea and subsequently the Levantine?

# Proposed strategy under GEOTRACES

Two transects at the Cretan Straits

Two process sites: MNB1 in the North  
E1M3A in the South

