



SSH variability in the northern Japan/East Sea from altimetry data



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Contents

- Data Description
- Methods of data processing and analysis
- Assessing East/Japan Sea SSH variability for the entire basin as well as Northern part of sea (from 40°N)
- SSH anomaly propagation analysis
- Conclusions

Used Data

- AVISO altimetry: <ftp://ftp.cls.fr/pub/oceano/AVISO/> (1992/10/14-2006/07/07)
- Missed data is absent
- Grid bin 0.33°
- Time scale: 7 days

Used Methods

- Decomposition on Complex Empirical Orthogonal Functions (CEOF) of regional SST-field $z(x,y,t)$ in following form:

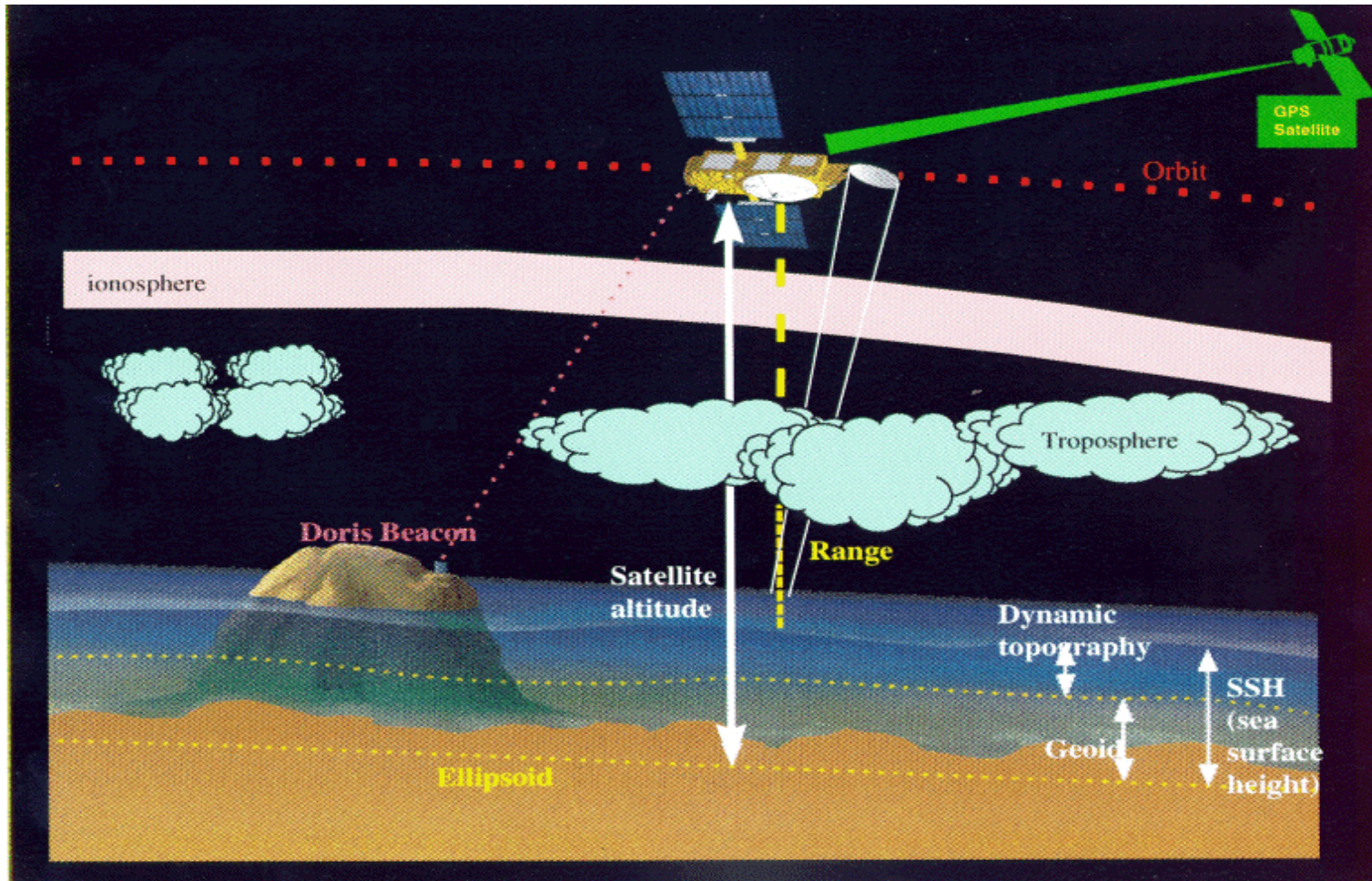
$$\hat{z}(x, y, t) = z(x, y, t) + iz_t(x, y, t), i \equiv \sqrt{-1} \quad (1)$$

$$\hat{z}(x, y, t) = \sum_n PC_n(t) S_n^*(x, y) \quad (2)$$

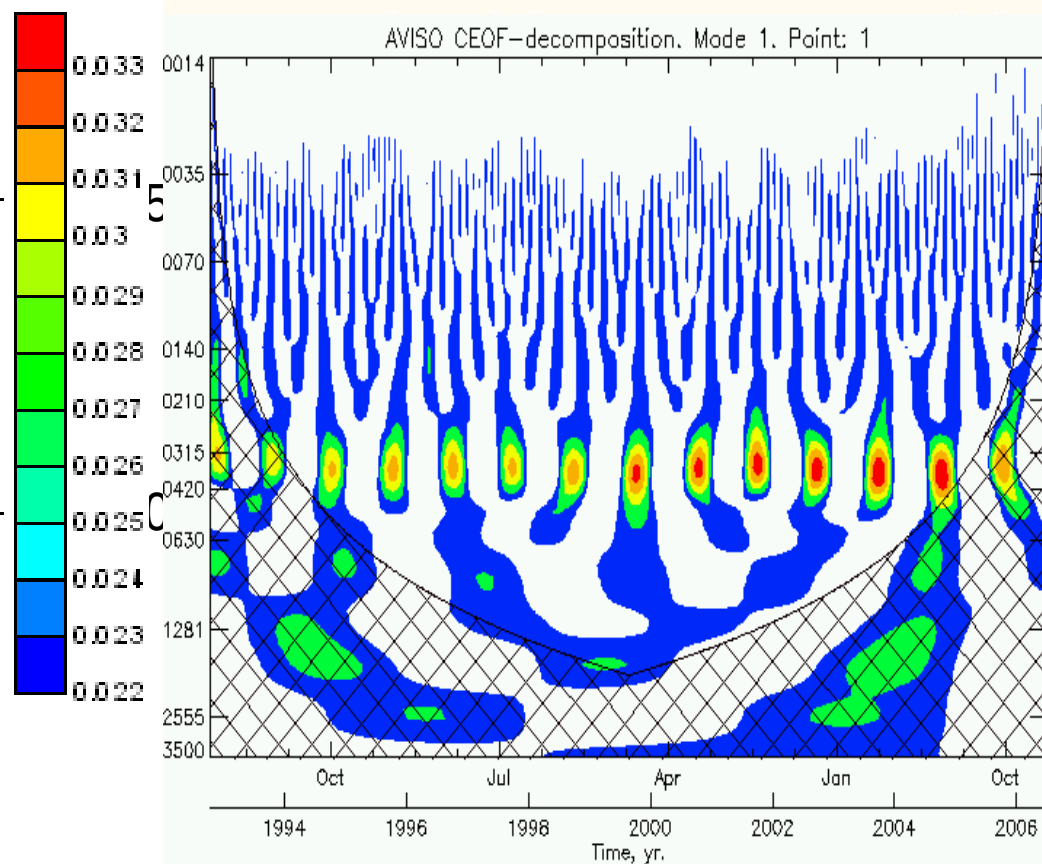
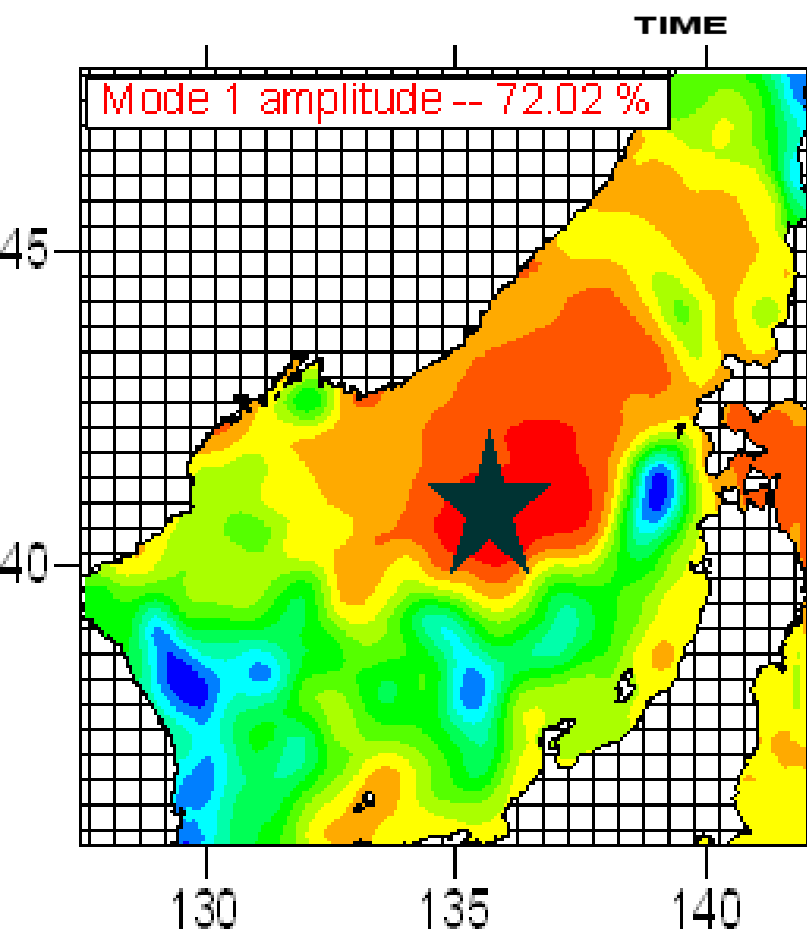
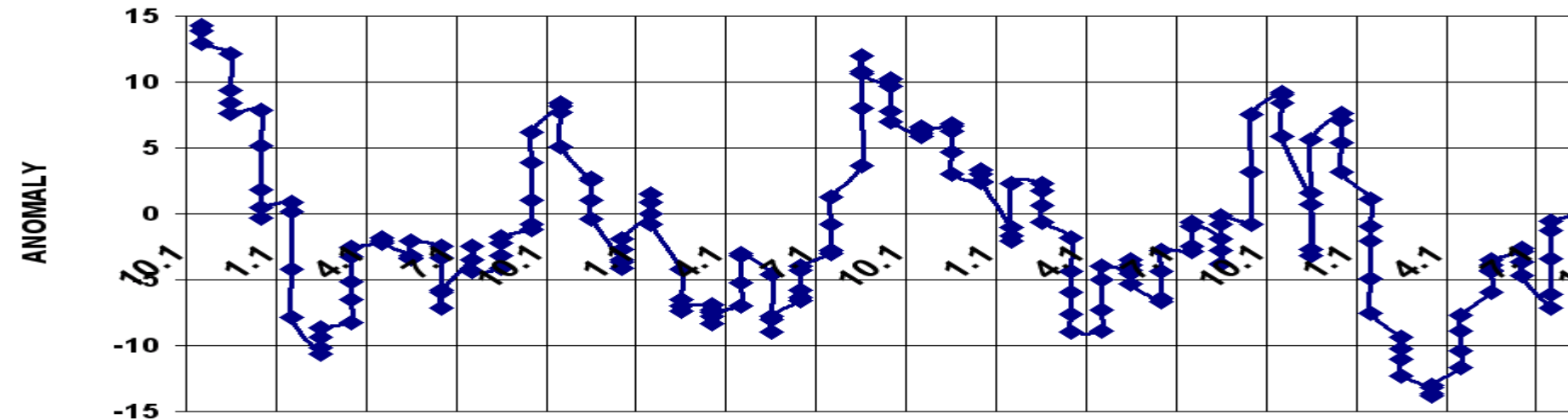
PC_n and $S_n(x,y)$ are time and spatial components of initial field

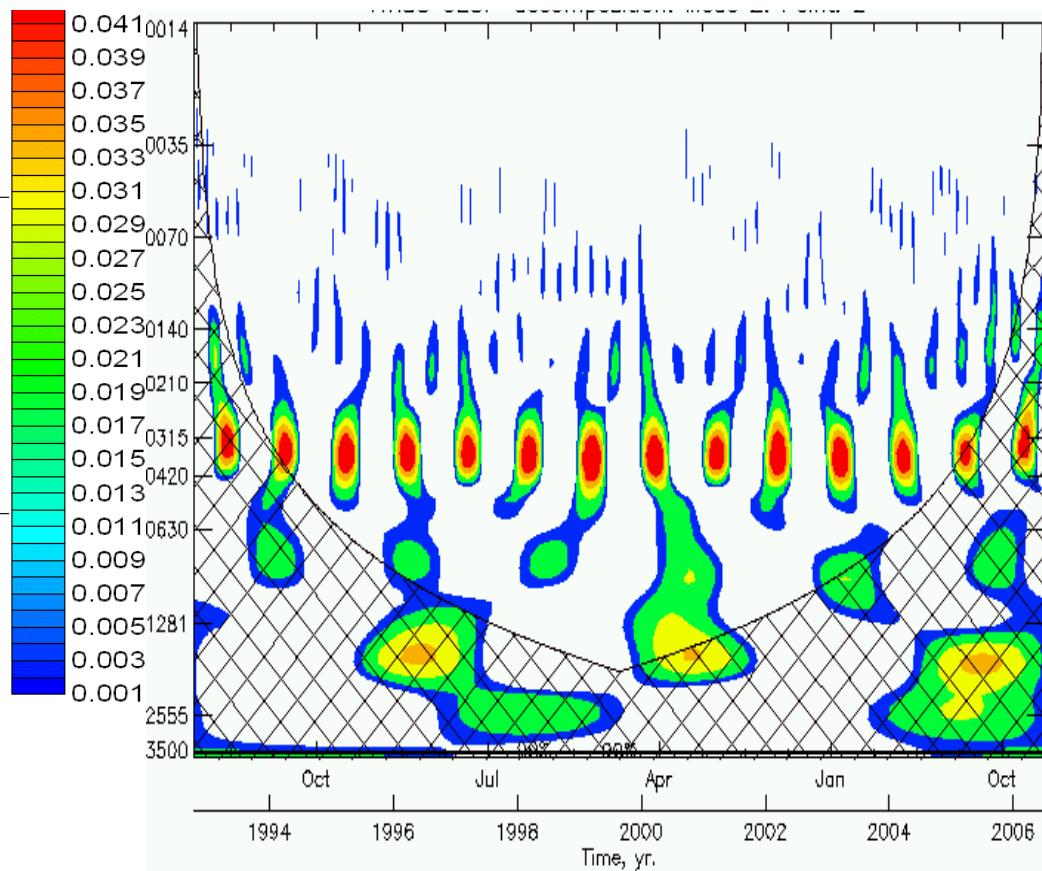
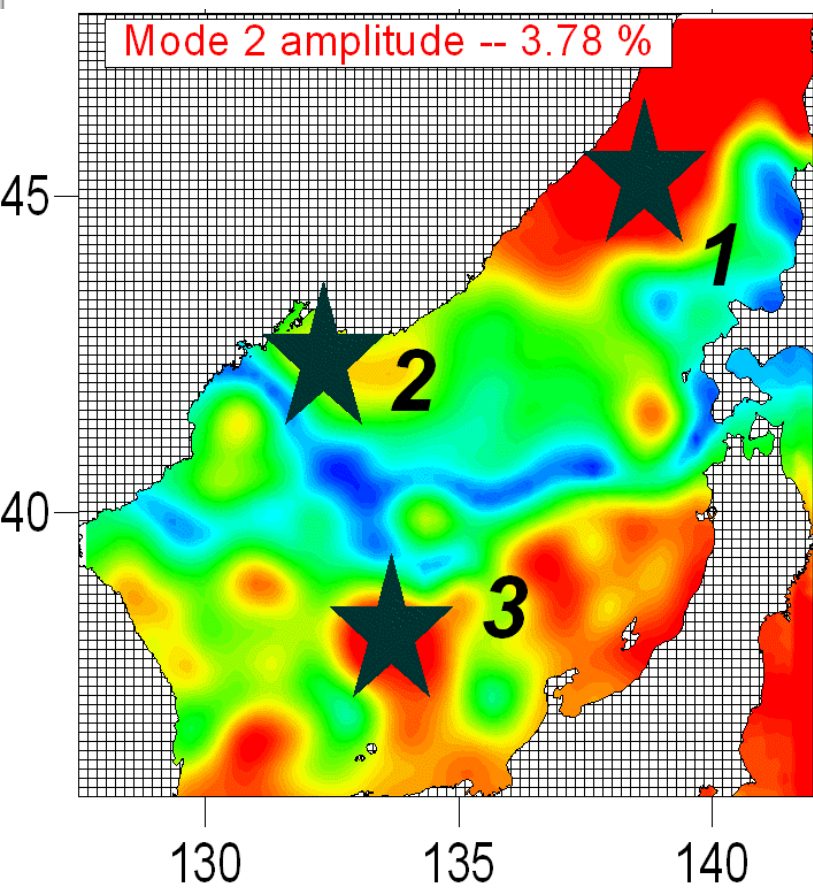
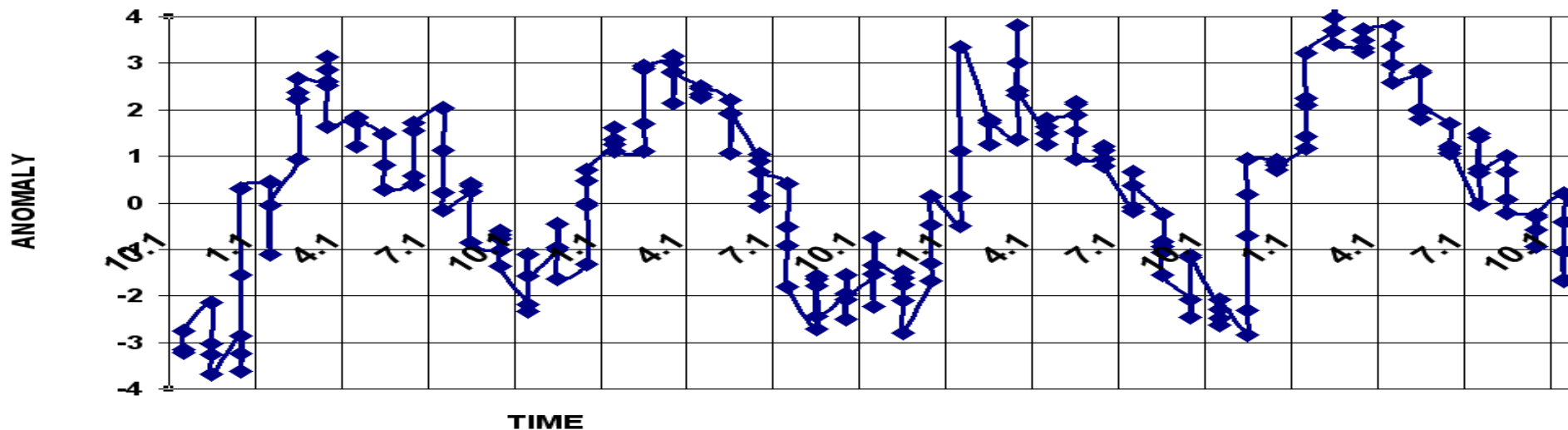
- Wavelet analysis of temporal variability for principal components

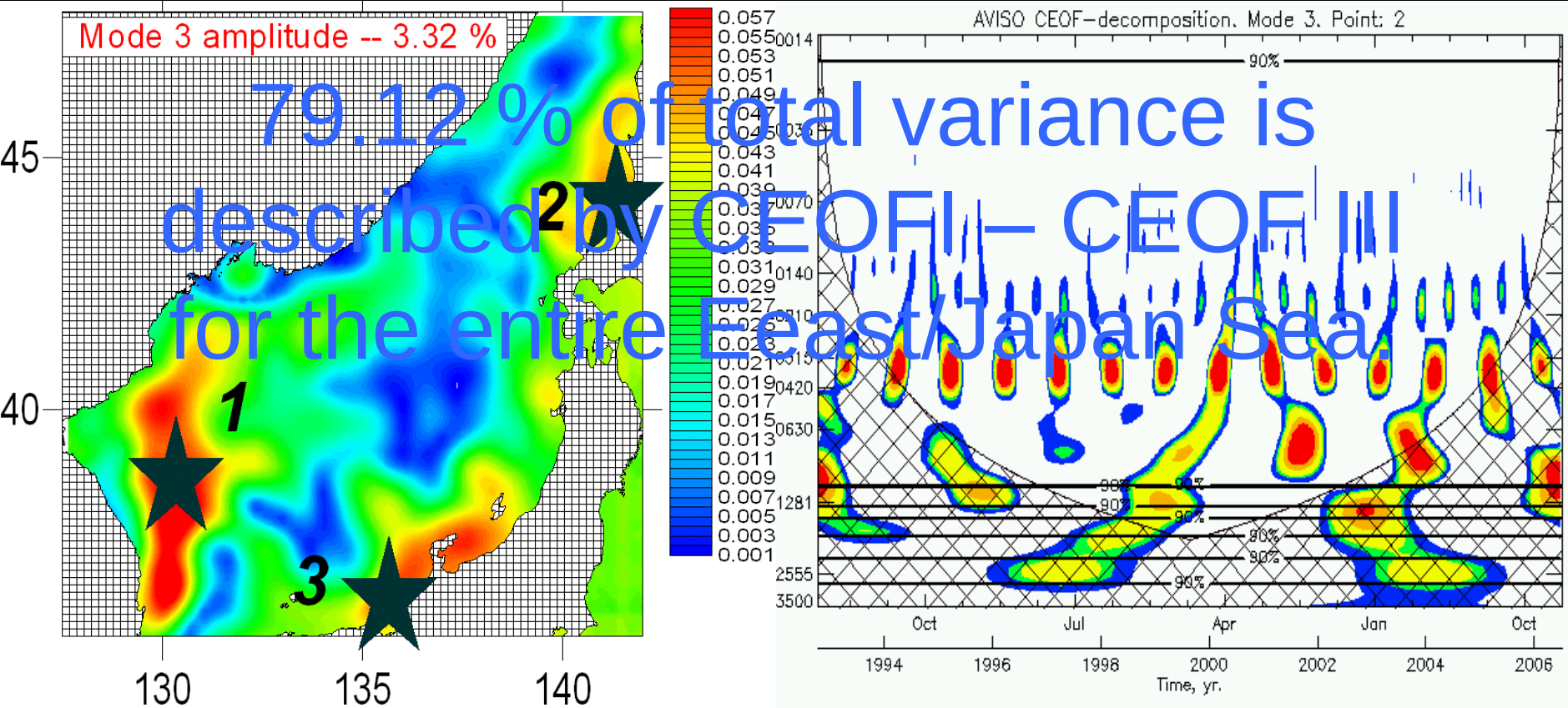
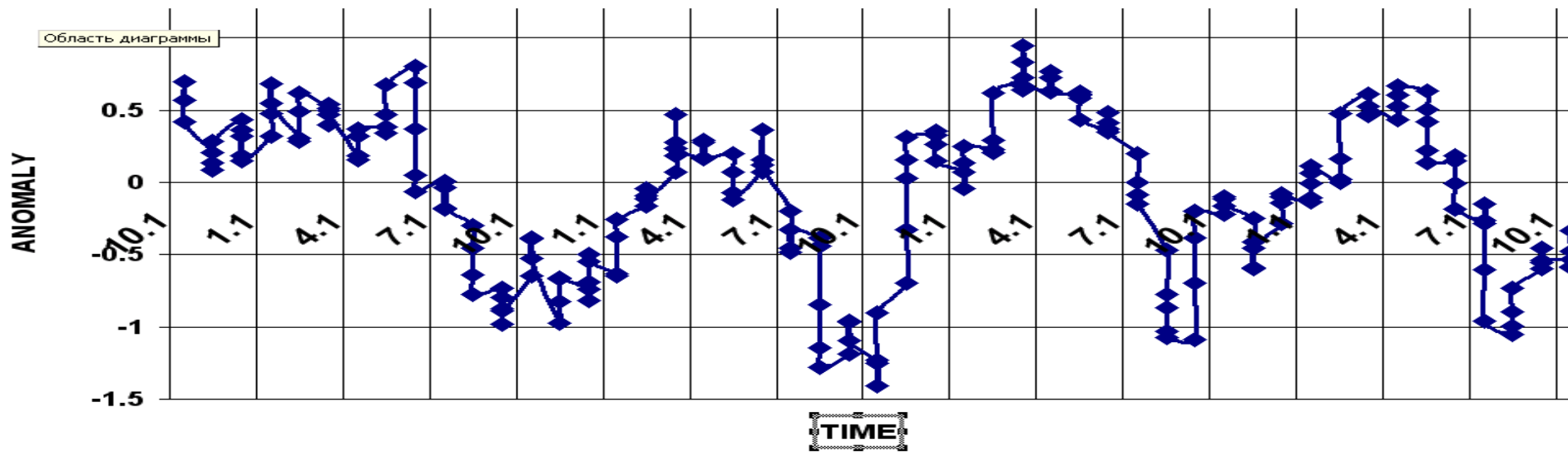
AVISO-altimetry

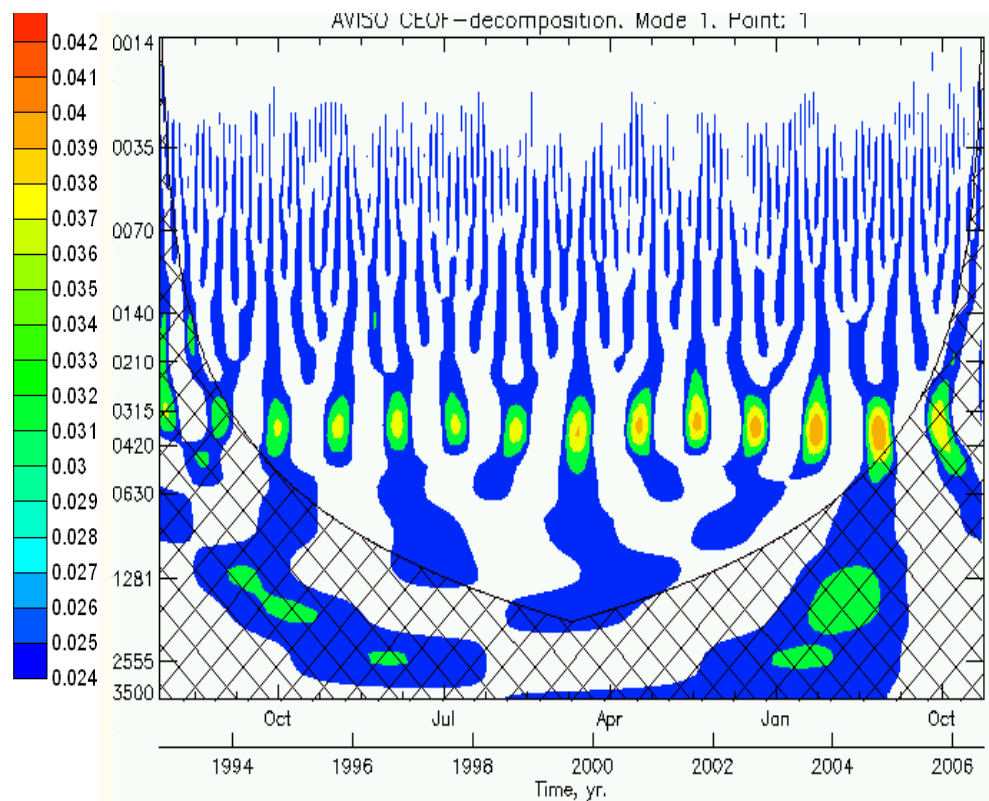
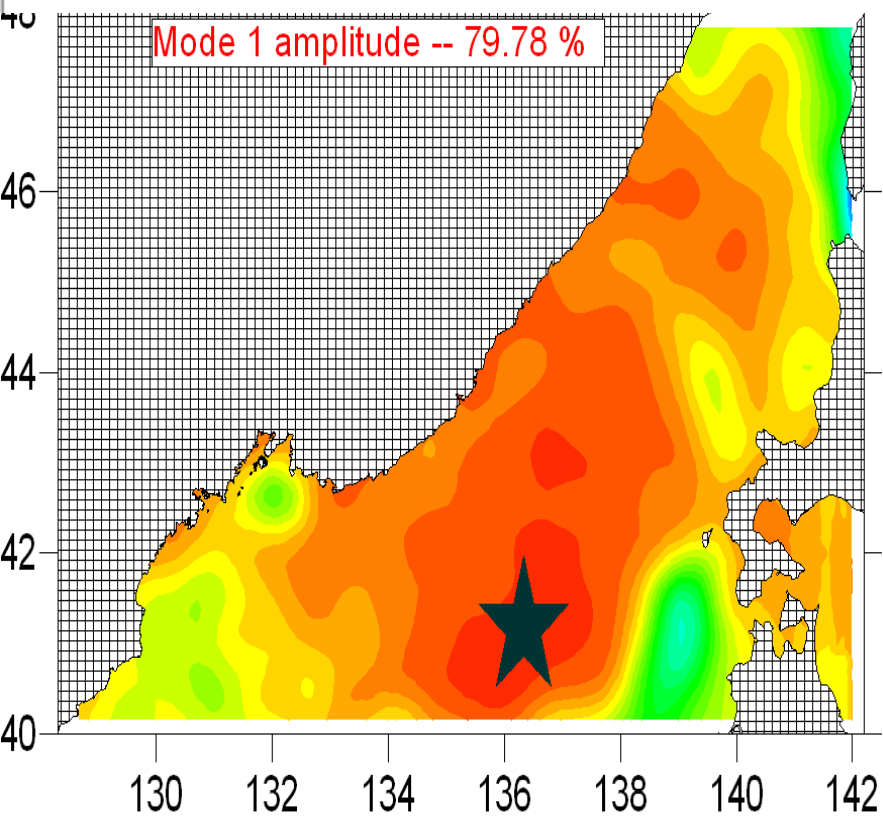
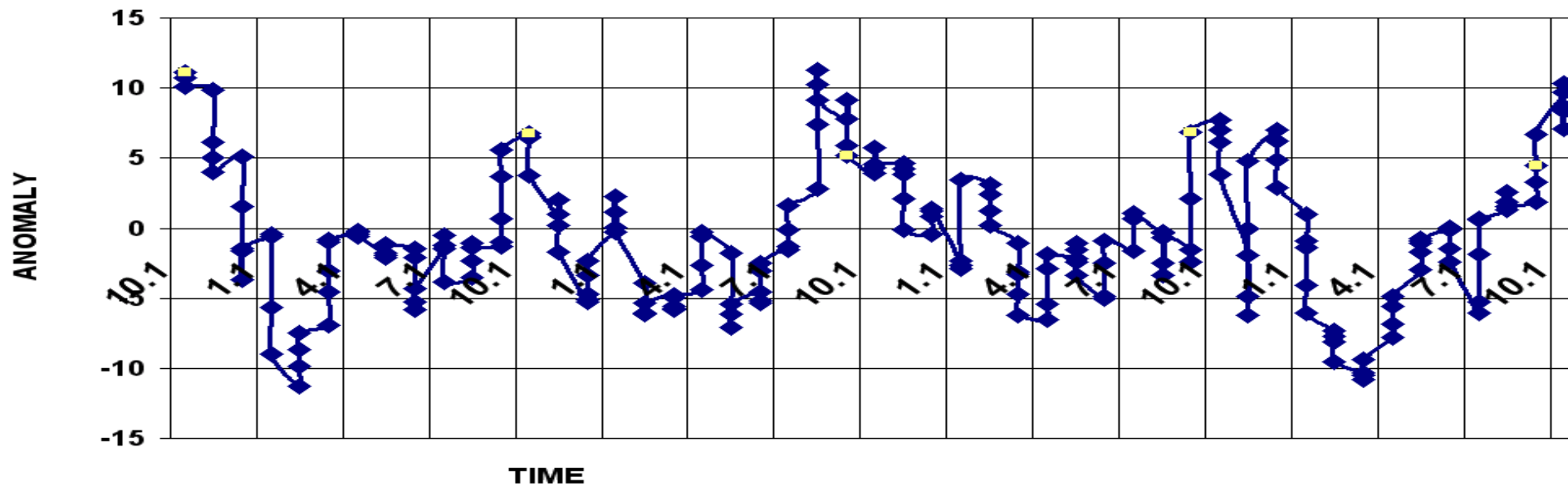


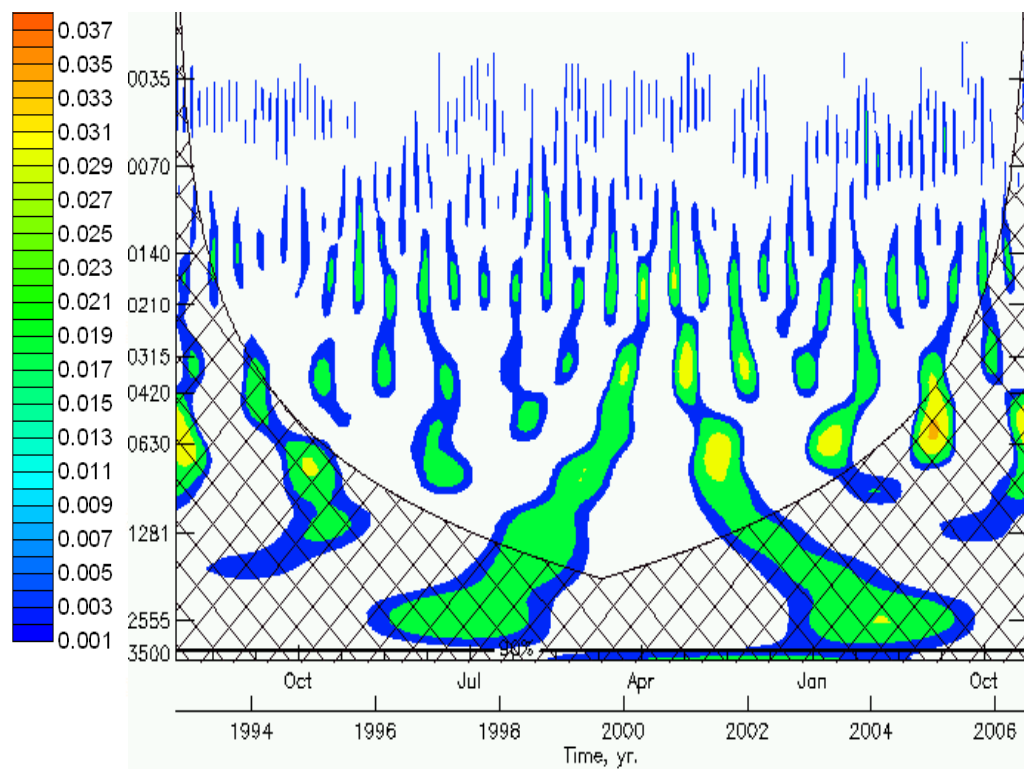
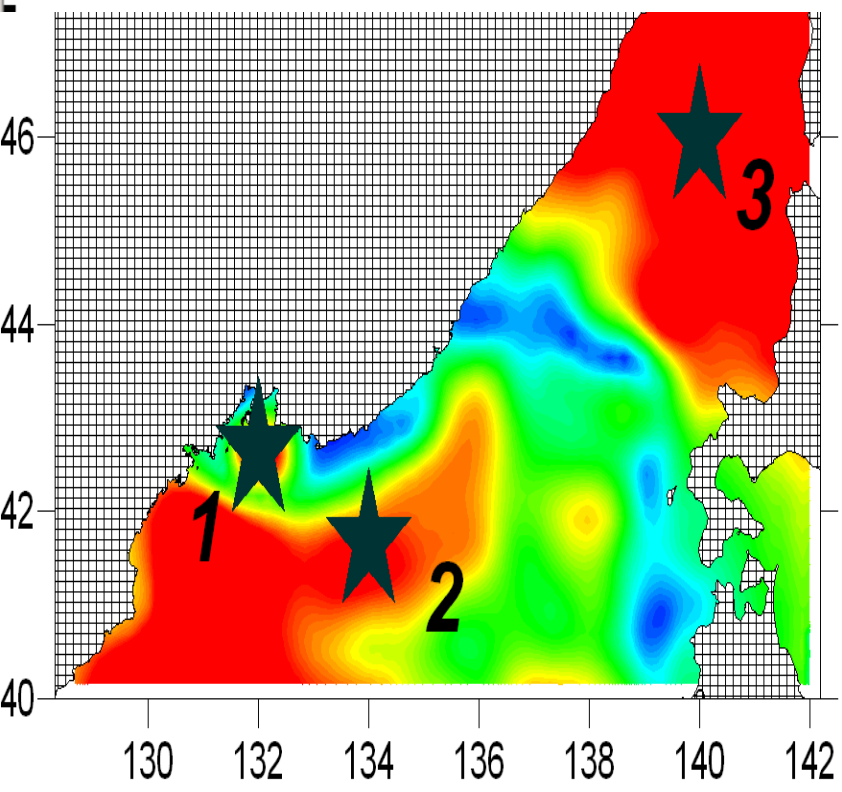
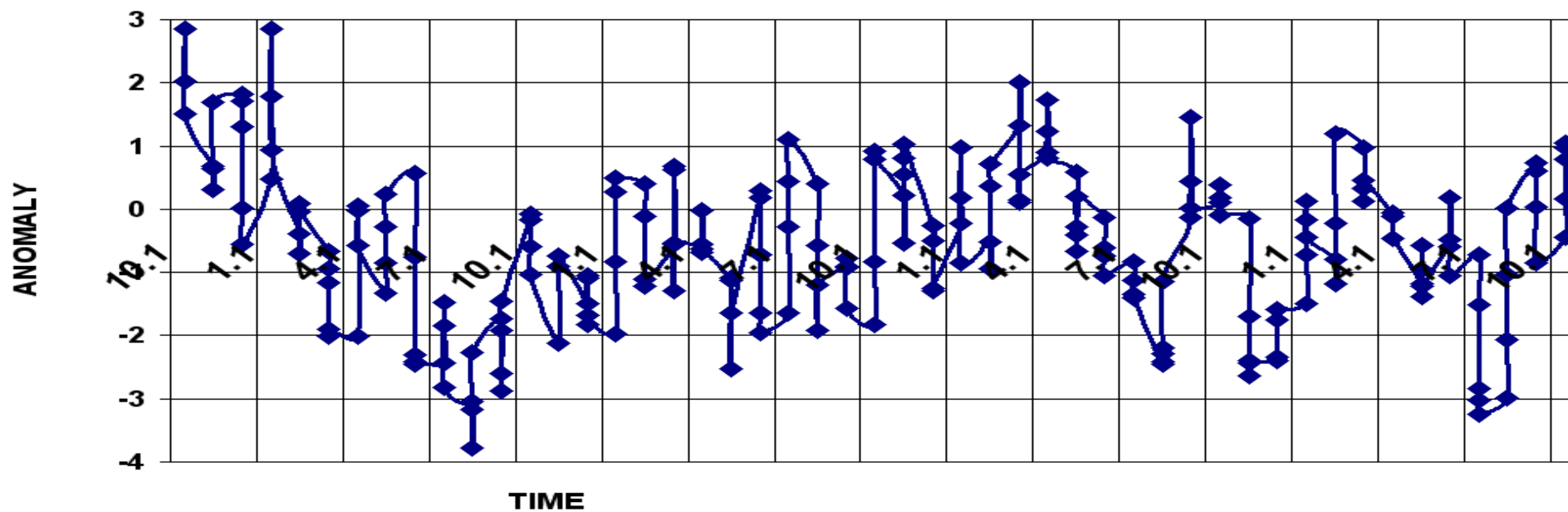
AVISO – Archivage, Validation et Interpretation des donnees des Satellites Oceanographiques

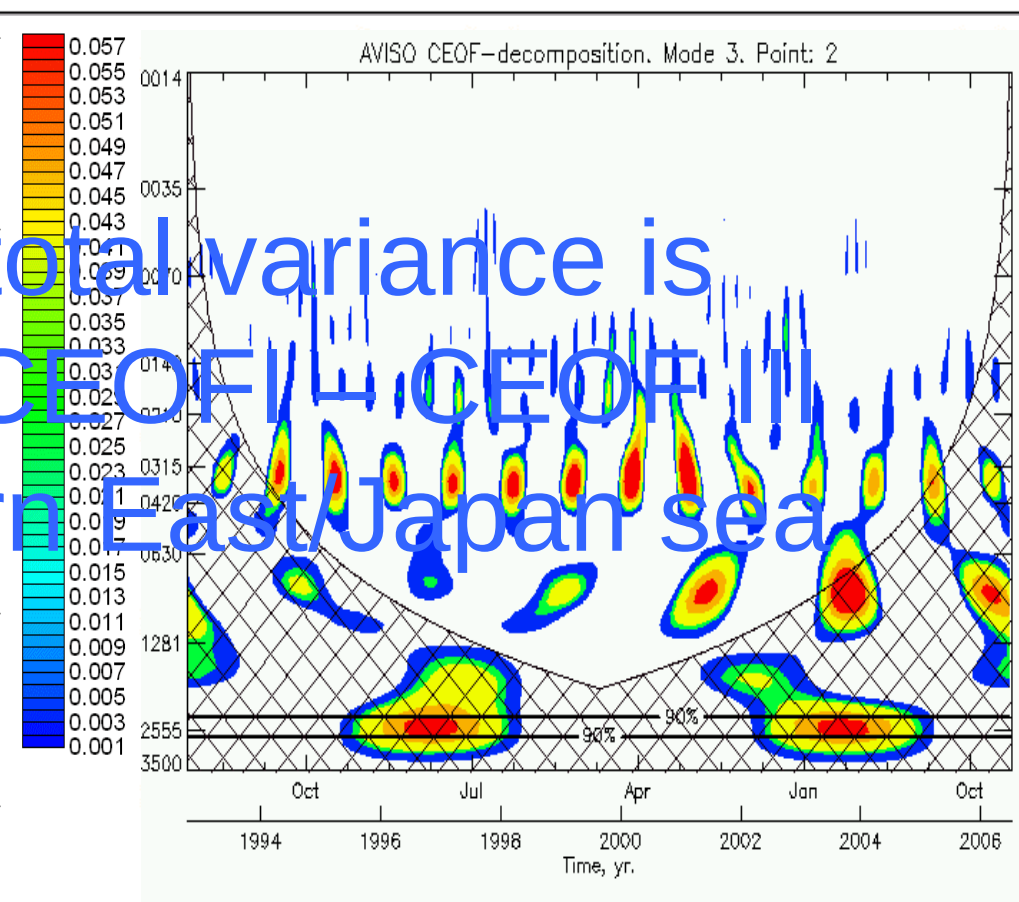
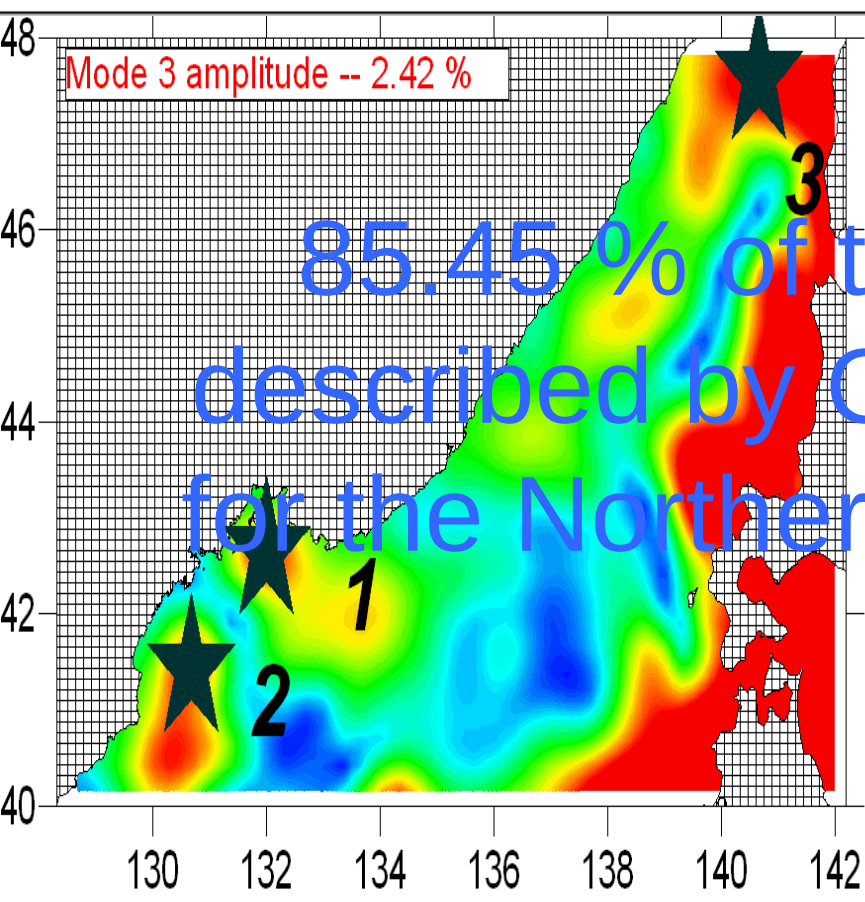
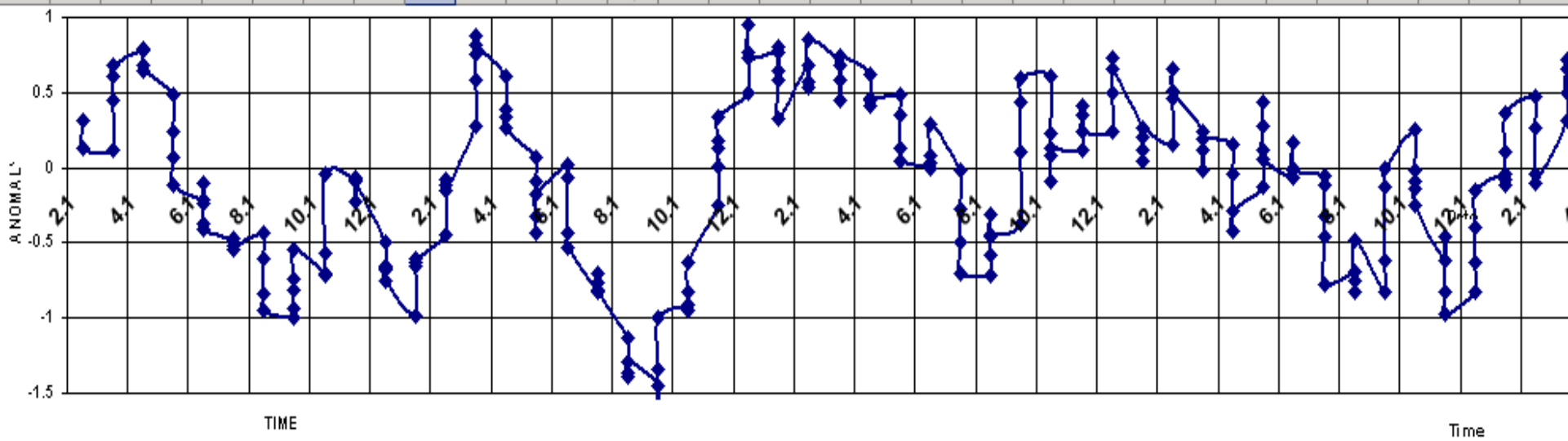












Conclusions

- The CEOF – decomposition for SSH of Northern East/Japan Sea reveals some specific features in comparison with the entire sea.
- CEOF1 of SSH is similar for the entire and Northern East/Japan Sea (e.g., seasonal signal),
- CEOF2 (northern JES) demonstrates the seesaw between the northwestern and northernmost parts of the sea, while CEOF 2 (entire JES) demonstrates details of variability of interaction Tsushima, East-Korean and Liman currents .
- CEOF3 (northern JES) reveals the seesaw between the Liman Current and the branches of the Tsushima Current while CEOF3 for entire JES demonstrates seesaw between Western and Eastern JES.
- The analysis of temporal variability for principal components shows the presence for northern JES quasibiennial and semiannual oscillation which is not seen if the entire JES is considering.

Thank you!

