SeaDataCloud Kick-Off Meeting
Riga
November 30- December 1, 2016

ALMA MATER STUDIORUM
UNIVERSITÀ DI BOLOGNA

Alma Mater Studiorum Università di Bologna
UNIBO
SeaDataCloud Partner 56

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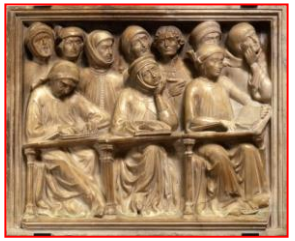
Nadia Pinardi, Marco Zavatarelli:

Active at

Department of Physics and Astronomy.
Bologna Campus



Interdepartmental Centre for Environmental Sciences
Ravenna Campus

Numerical climate and ecosystem simulations laboratory (SiNCEm Lab.)

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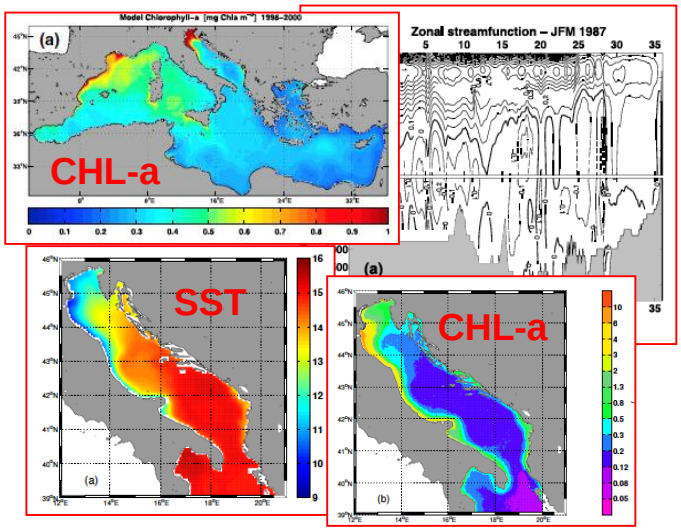
UNIVERSITÀ DI BOLOGNA
DIPARTIMENTO DI FISICA E ASTRONOMIA

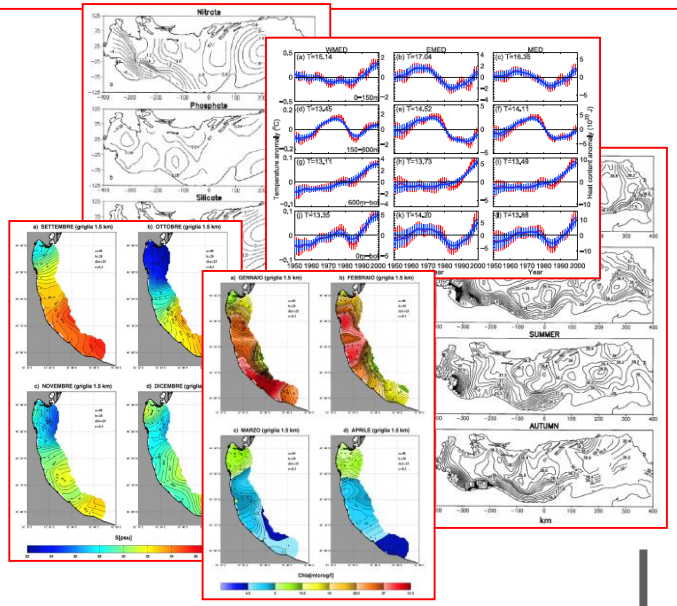
SiNCEM – Simulazioni Numeriche del Clima e degli Ecosistemi Marini – Università di Bologna

Interdisciplinary (numerical) Oceanography

Numerical simulations of the coupled ecosystem dynamics



Interdisciplinary oceanographic data analysis (climatologies)



UNIBO- Involvement in SeaDataCloud:

WP2- Project work coordination

WP7- Tuning of requirements and overall integration

WP11 – Development update and publication of data products for European Seas Regions

Work Organisation
The activities for the generation of standard observational products will be conducted at regional level under the Supervision of regional coordinators,. In SeaDataCloud we will include also observational data products for the Global Ocean.
The regional coordinators of SeadataCloud products are:

- **Mediterranean Sea: INGV**
- **Black Sea: METU**
- **North Atlantic: IFREMER**
- **North Sea: RBINS**
- **Arctic: IMR**
- **Baltic Sea: SMHI**
- **Global Ocean: UNIBO**

UNIBO- Involvement in SeaDataCloud:

WP11 – Development update and publication of data products for European Seas Regions
Responsible for Task: **Task WP11.3: Development of new products *(UNIBO and all partners)***

"The feasibility and creation of new type of products will be explored by the partners in collaboration with the Scientific Committee"

Starting points:

1. products merging in situ and satellite data (CMEMS satellite data, SeaDataCloud and EMODnet Portals in situ data);
2. products oriented towards other disciplines like biogeographical maps;
3. in situ based reconstruction of monthly mean time series of gridded Temperature and Salinity and derived quantities such as mixed layer depth;
4. Climate indicators such as heat content and steric height;
5. Quality check & improved statistics like horizontal and vertical correlation scales (fundamental for data quality control methods among other issues).

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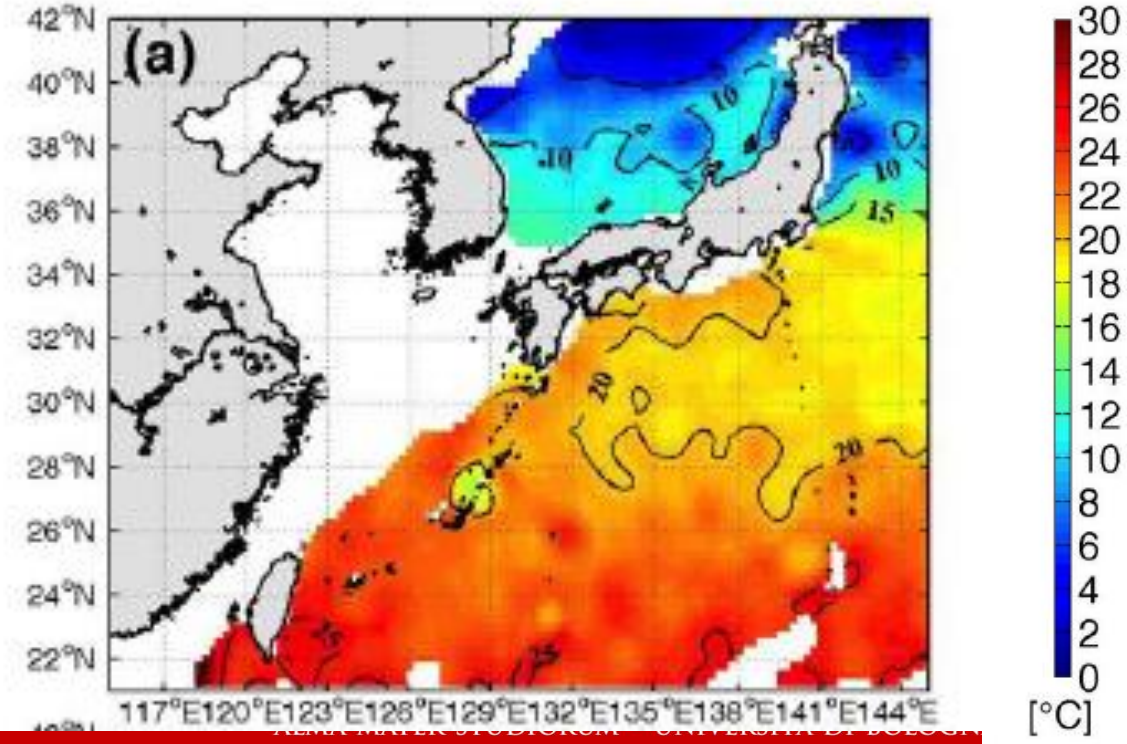
Global Ocean products (maps) at variable resolution.

OA SST from ARGO data

Jia, Wang and Pinardi, 2016



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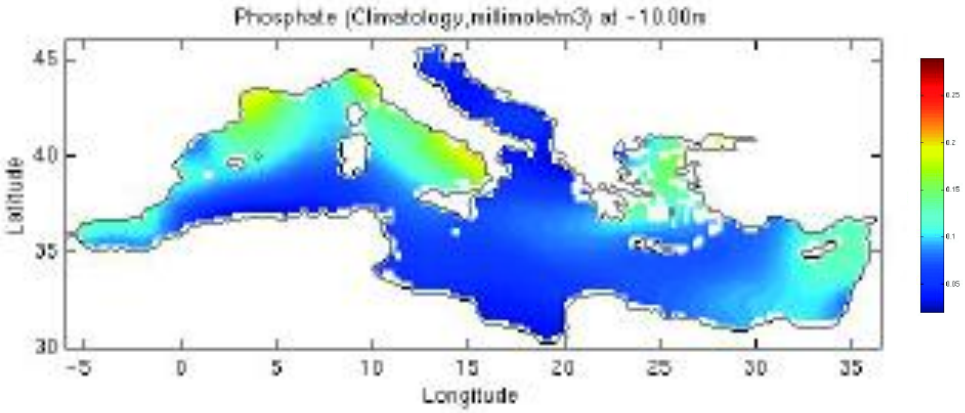
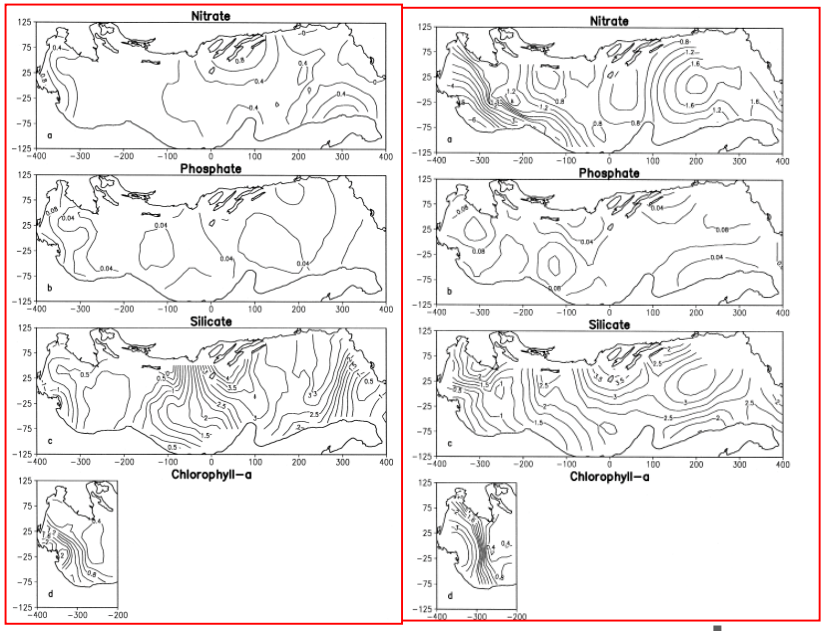
2. products oriented towards other disciplines like biogeographical maps;

-Nutrient ratios
-Functional groups distribution



Maillard et al. (2005)



Zavatarelli et al (1998)

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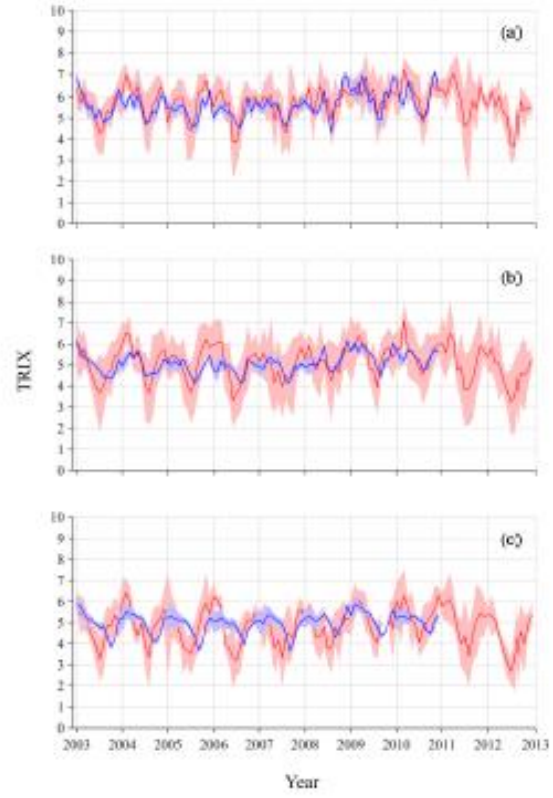
2. products oriented towards other disciplines biogeographical maps;

Environmental indexes (from Obs and Models)

TRIX Trophic index
(Observations/model comparison)
For the northern Adriatic Sea coast
(Fiori et al., 2016)



Obs.____

Mod.____

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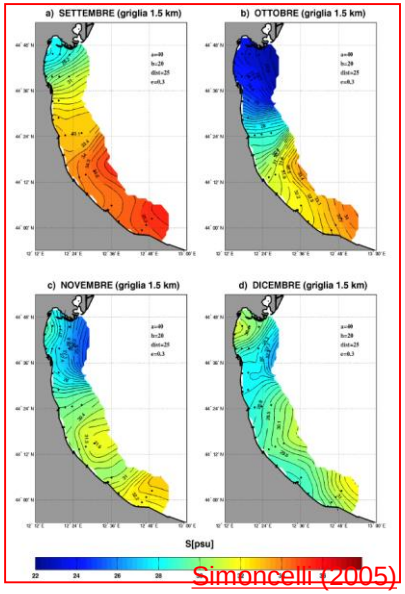
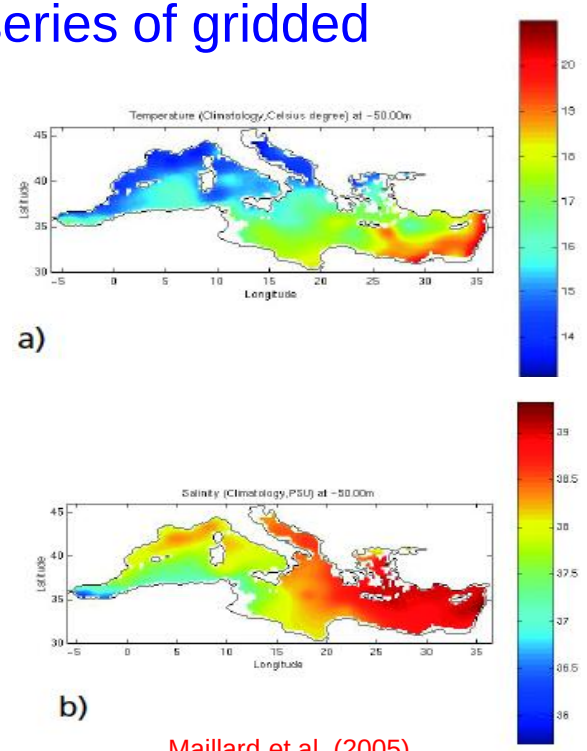
3. in situ based reconstruction of monthly mean time series of gridded Temperature and Salinity and derived quantities such as mixed layer depth;

Increase as much as possible the Temporal and spatial resolution of the gridded maps.

Provide a comparison among different gridding protocols



Simoncelli (2005)



Maillard et al. (2005)

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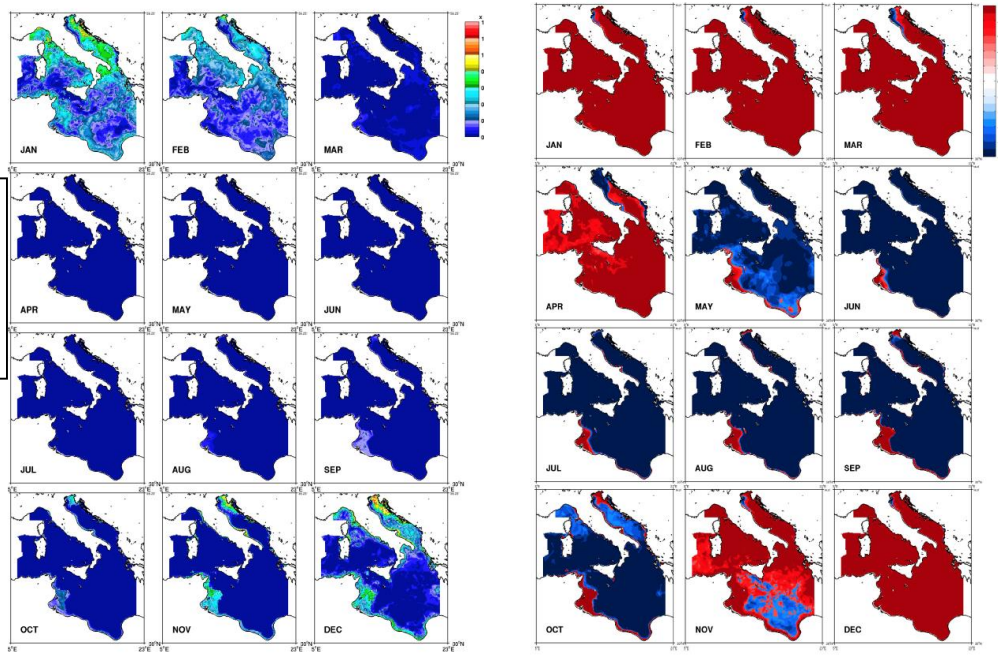
3. in situ based reconstruction of monthly mean time series of gridded Temperature and Salinity and derived quantities such as mixed layer depth;

Vertical mixing Coefficient (m^2/s) Derived from Brunt-Vaisala frequency



Mixing Index

Fratianni et al. (2016)

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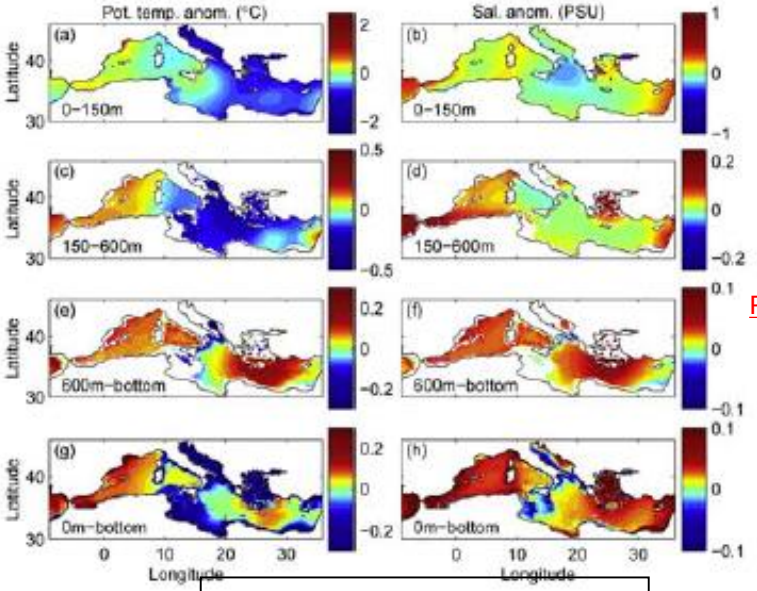
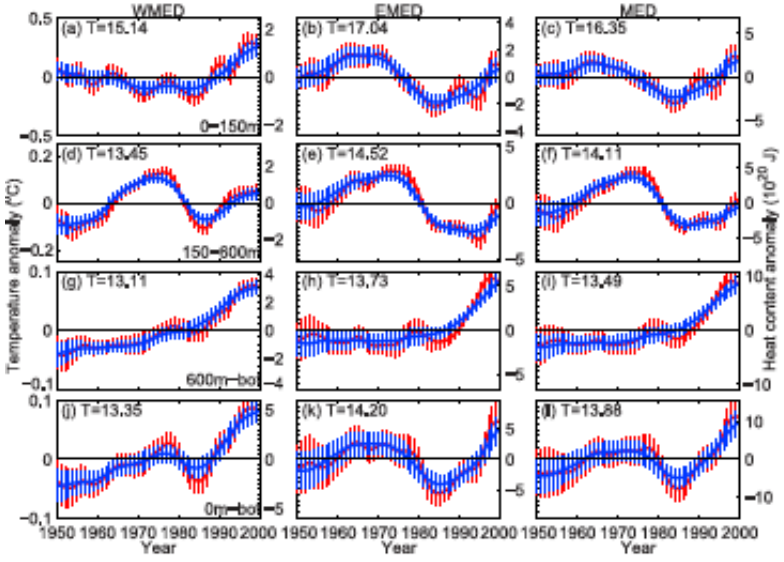
4. Climate indicators such as heat content and steric height;



Rixen et al. (2005)



Temperature and salinity Anomalies (maps)

Temperature and heat content Anomalies Time series)

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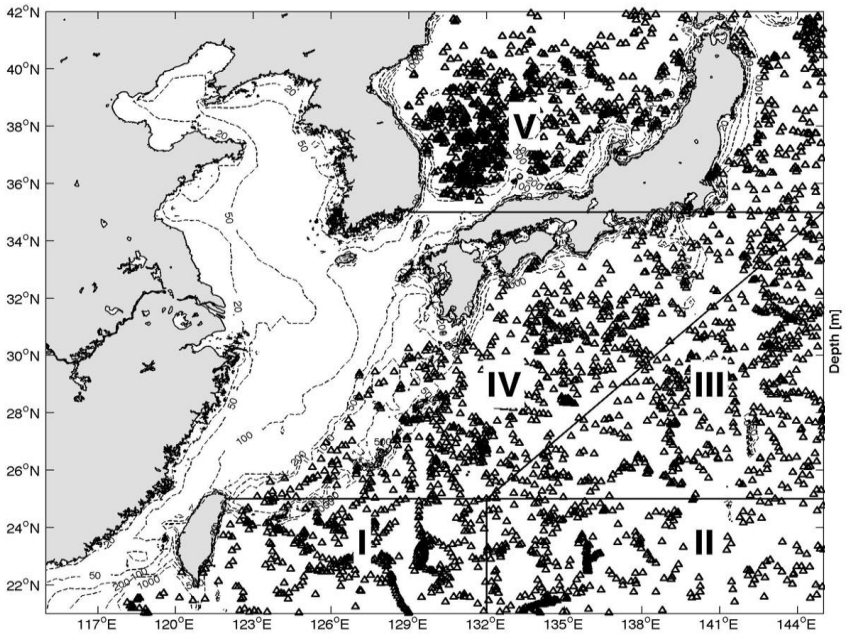
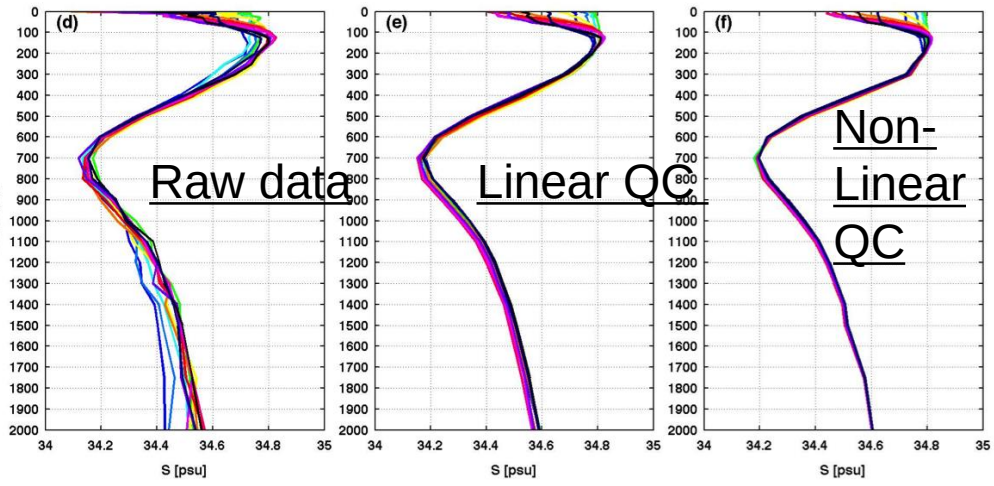
5. Quality check .....



Jia, Wang and Pinardi, 2016

QC on Salinity from ARGO data



Coppini et al (1998)

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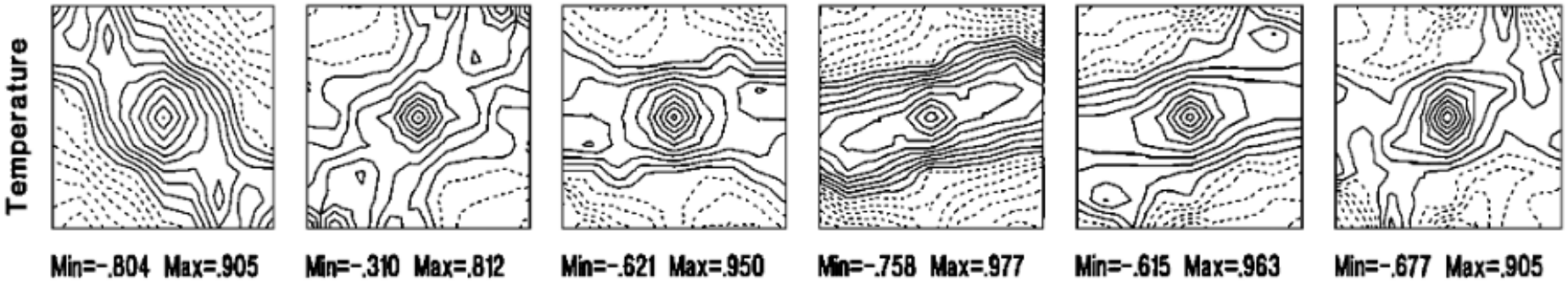
5… & improved statistics like horizontal and vertical correlation scales (fundamental for data quality control methods among other issues).

Horizontal correlations estimated from in situ data at different depth



Nittis et al. (1993)