

Sviluppo ed implementazione di servizi per il confronto dei prodotti modellistici e delle misure

(Development and implementation of services for the comparison of modeling
products and measurements)

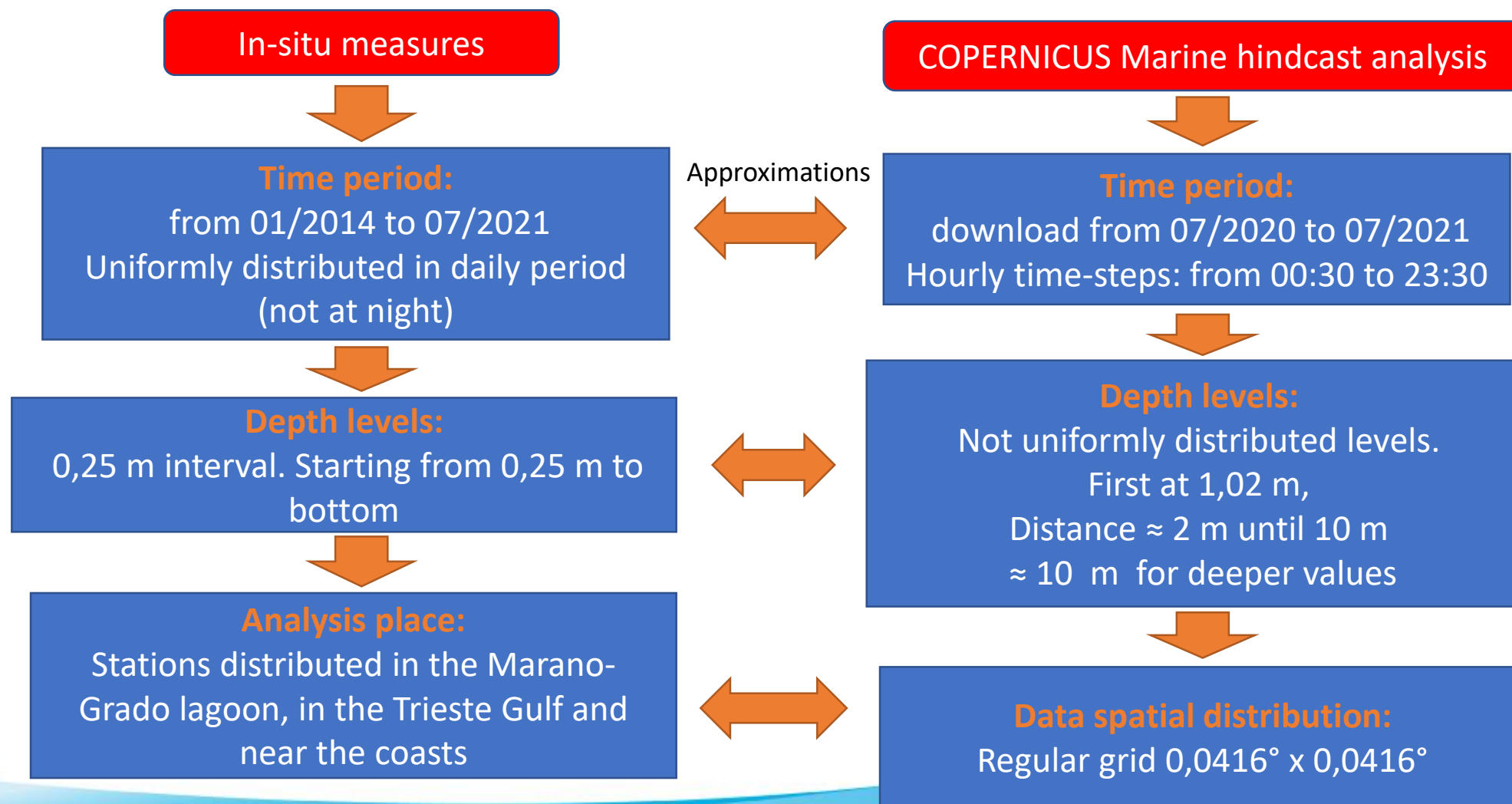
CASCADE | PP4 | Alex Pividori

Palmanova | 28th September 2021

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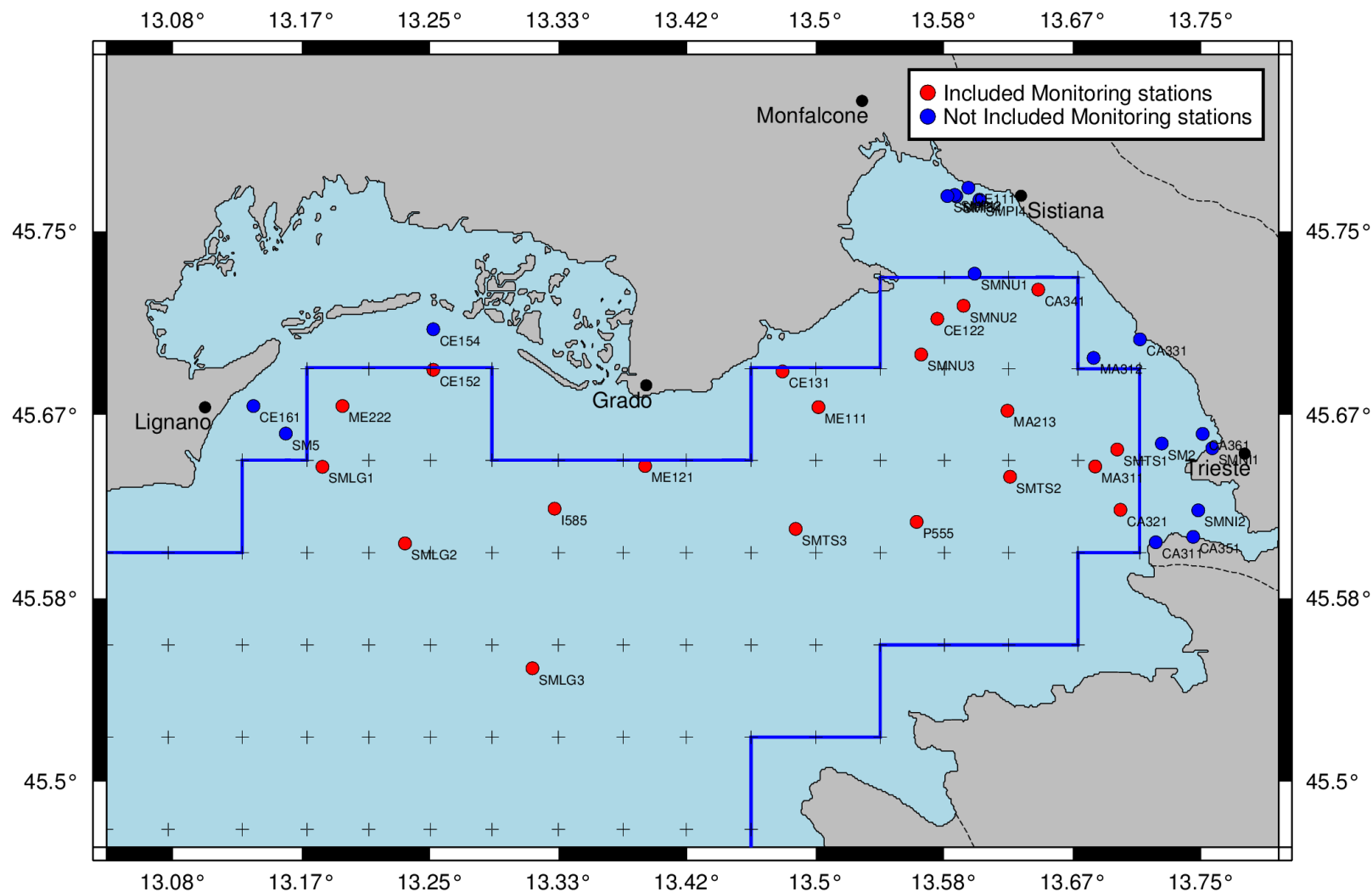
- Description of data: measured and CMEMS analysis
- Description of samples stations used
- TS-Diagrams, boxplots and mean values graphs
- Future application and next analysis

Collected data: in-situ measures and CMEMS hindcast



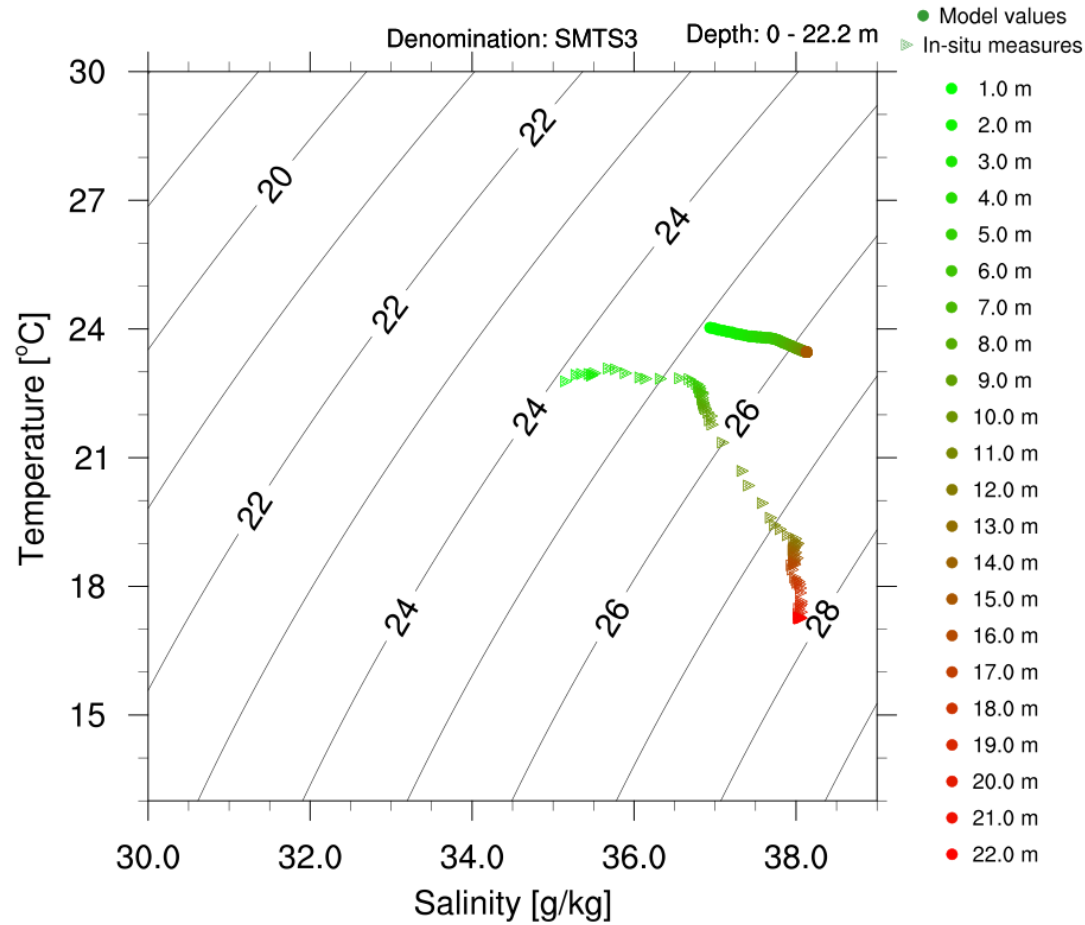
Entire set of monitored points from 07/2020 to 07/2021

Monitoring points (2020-07/2021-07) belonging to the COPERNICUS-Marine domain

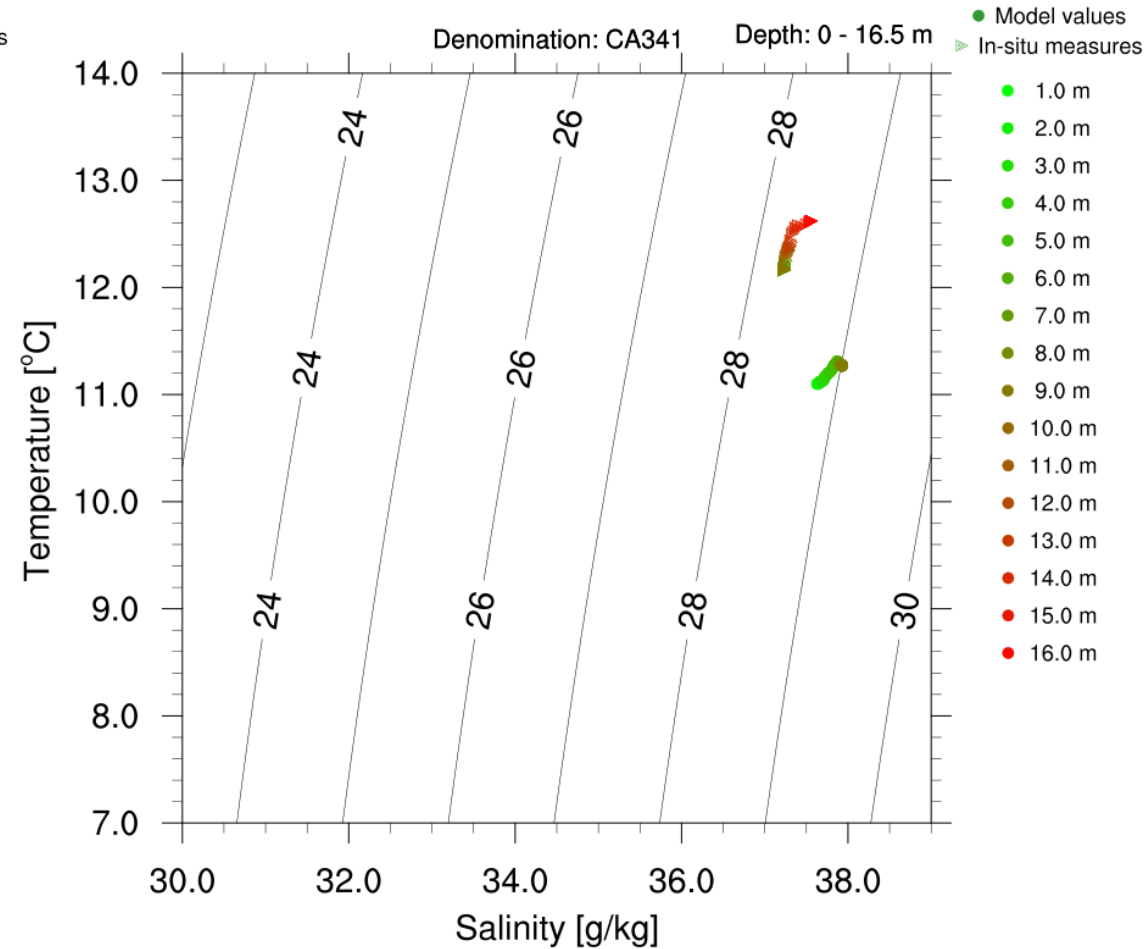


TS-Diagrams

T-S Diagram at: 2020-07-20 10:14:58 UTC

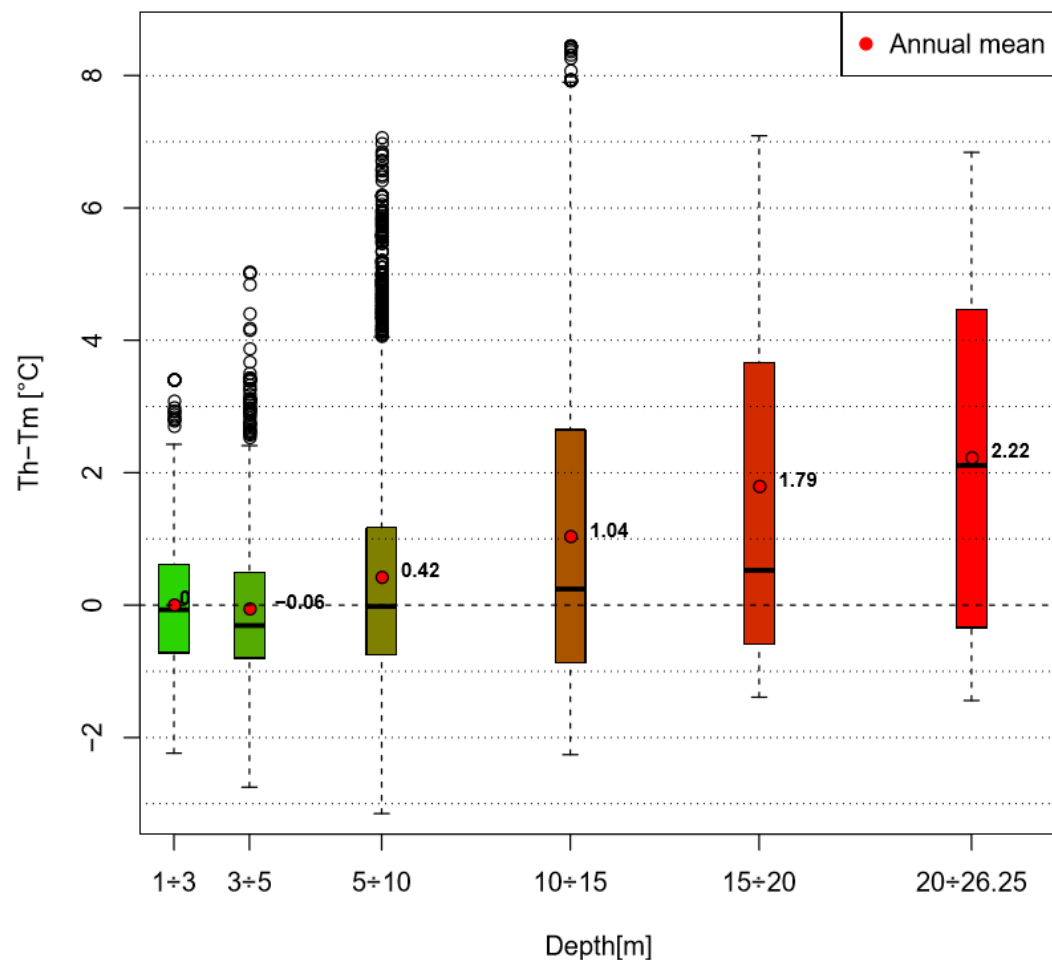


T-S Diagram at: 2020-12-14 12:21:15 UTC



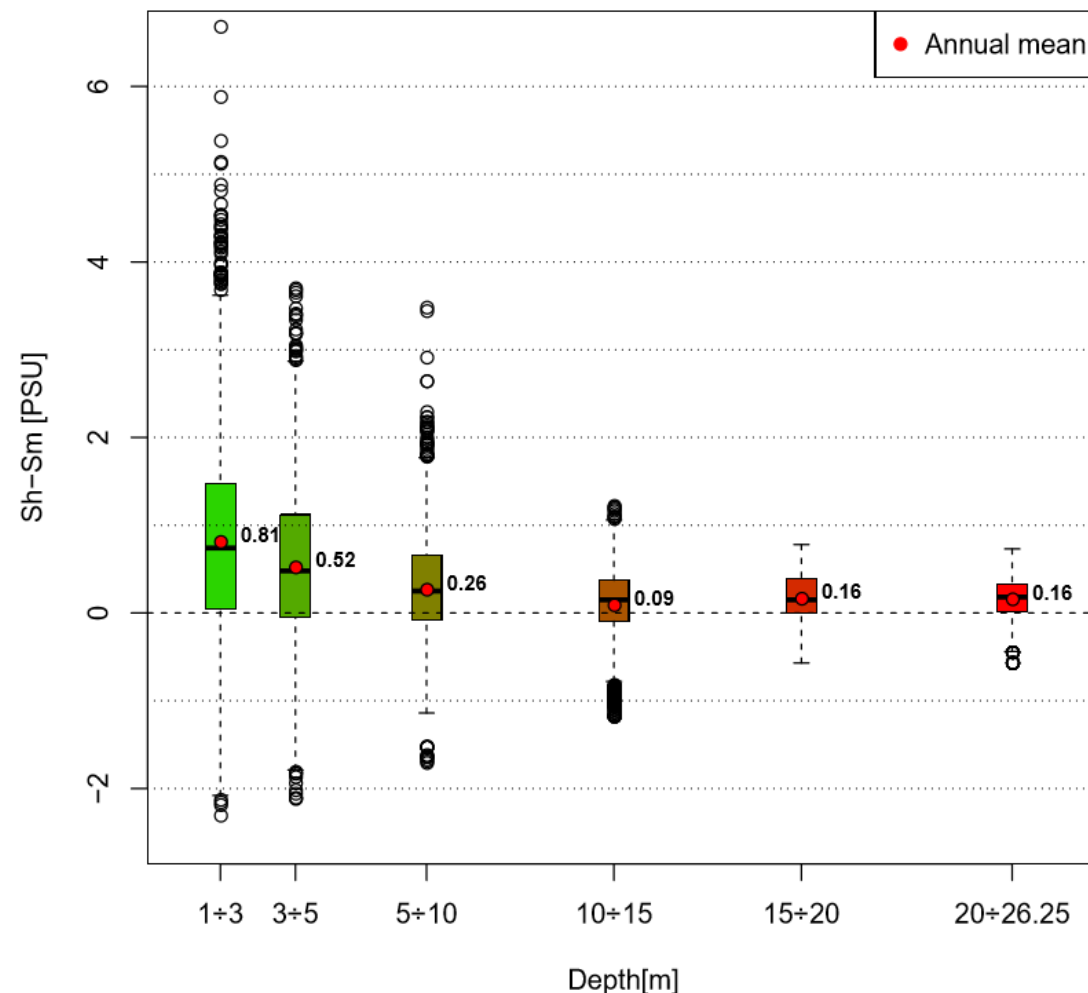
Entire domain boxplots

Thind-Tmeas Data: tot Period: Annual



Collected Data: from 2020-07-13 to 2021-07-19

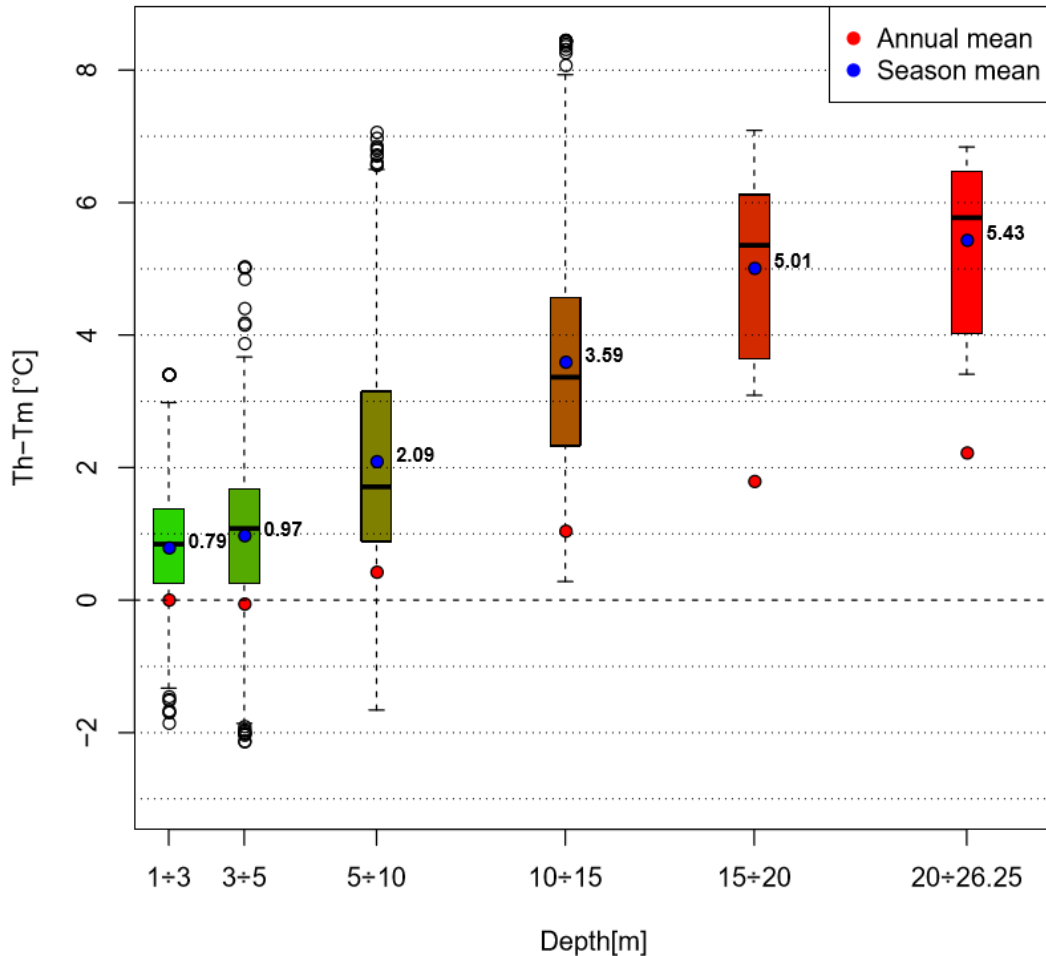
Shind-Smeas Data: tot Period: Annual



Collected Data: from 2020-07-13 to 2021-07-19

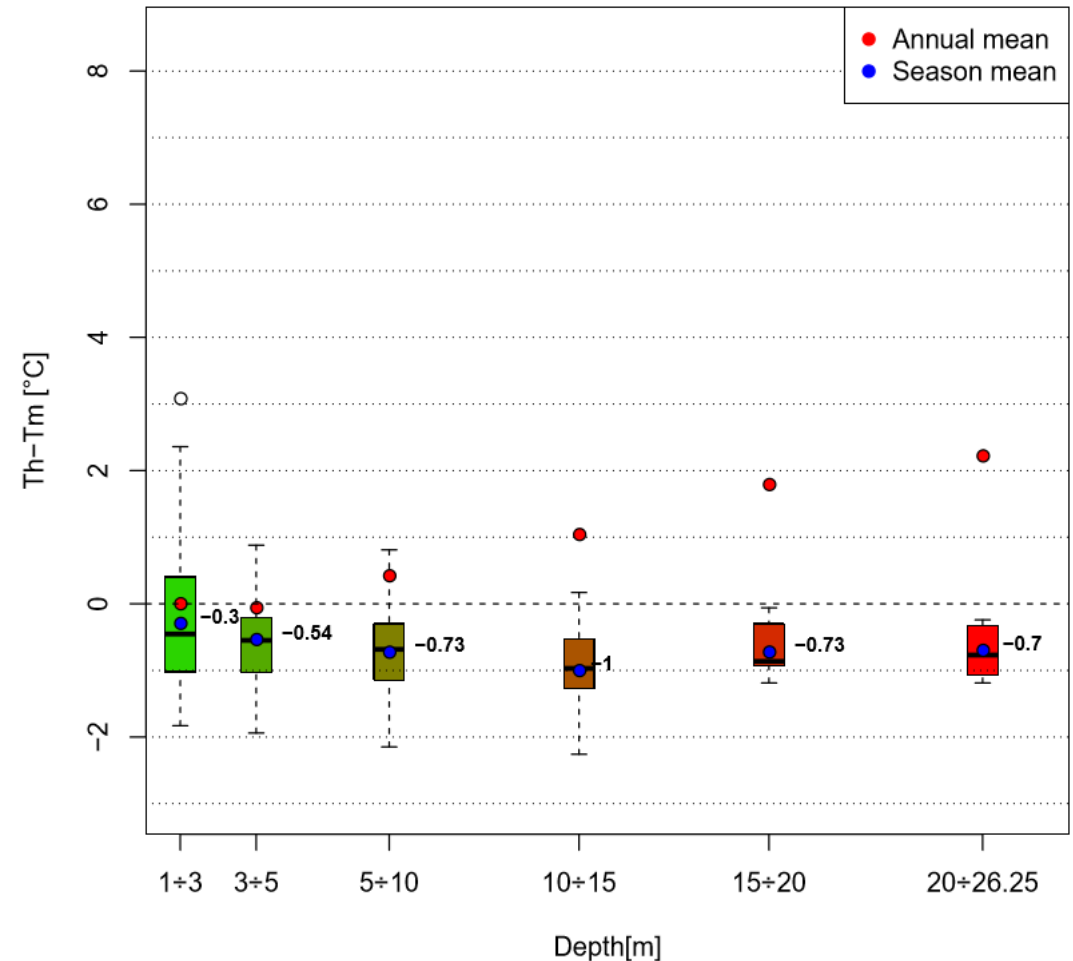
Temperature entire domain for different seasons: Jan-Feb-Mar Apr-May-Jun Jul-Aug-Sep Oct-Nov-Dec

Thind-Tmeas Data: tot Period: Jul-Aug-Sep



Collected Data: from 2020-07-13 to 2021-07-19

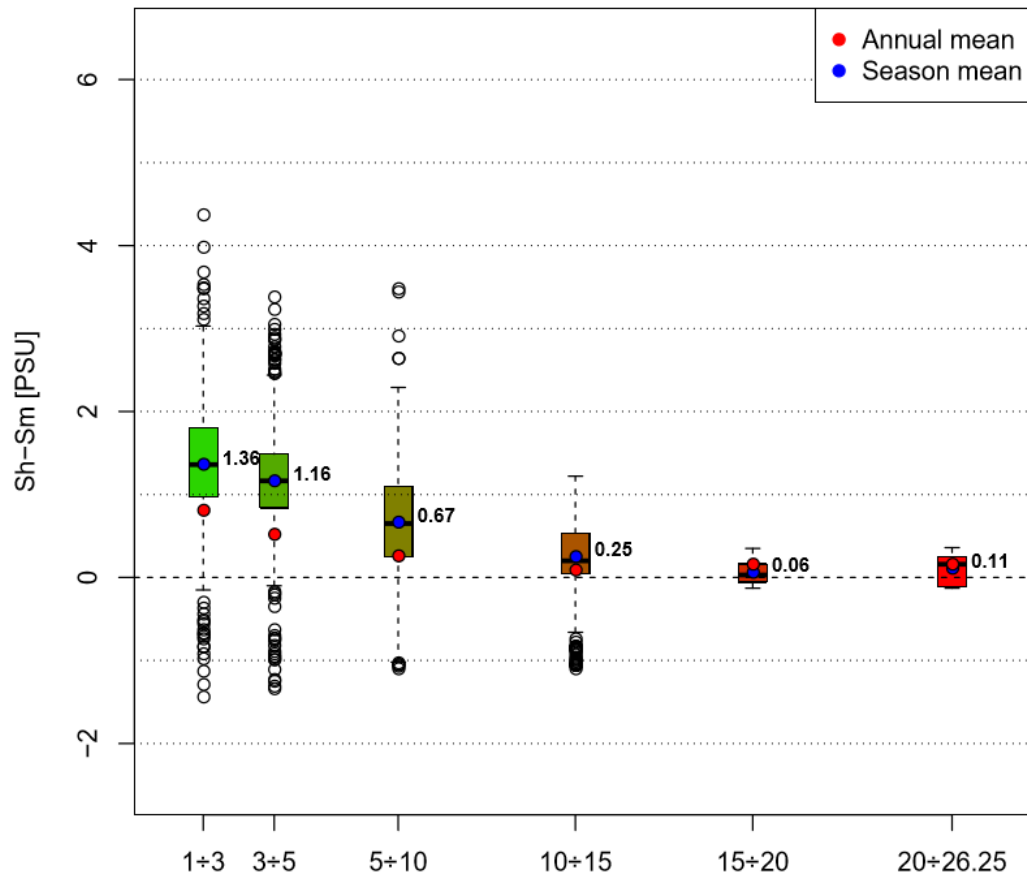
Thind-Tmeas Data: tot Period: Oct-Nov-Dec



Collected Data: from 2020-10-14 to 2020-12-16

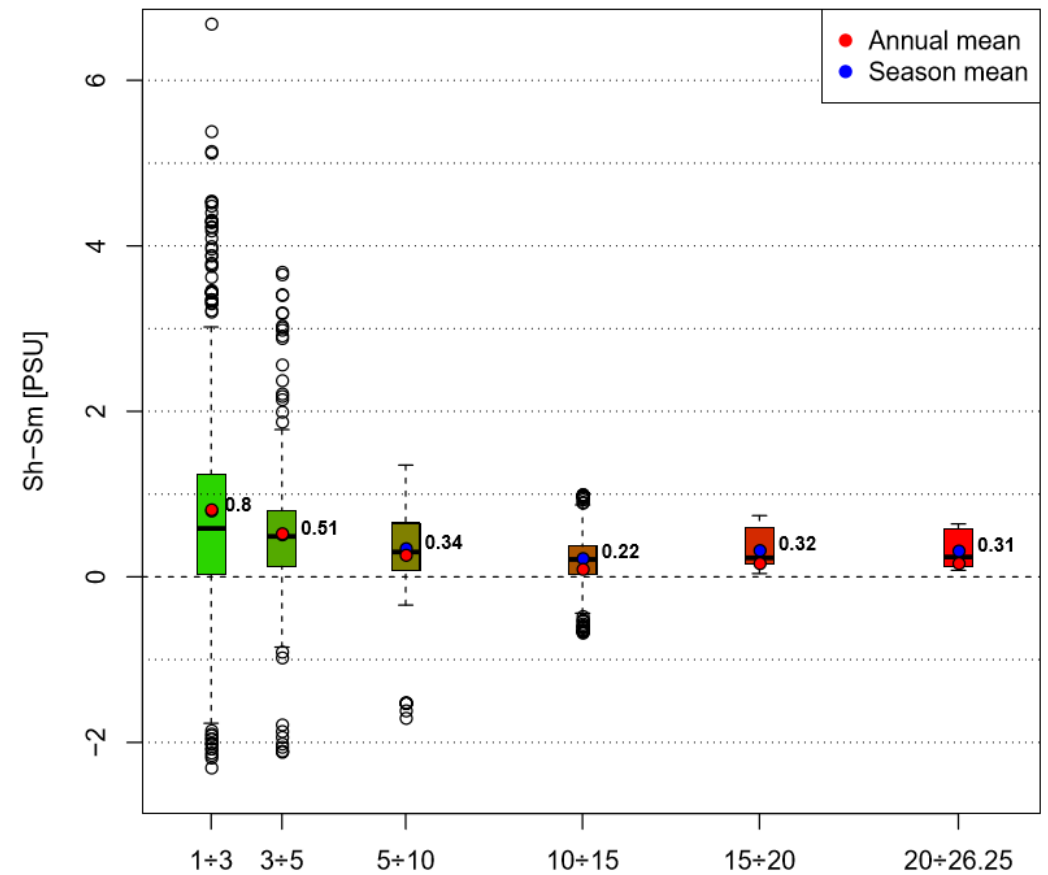
Salinity entire domain for different seasons: Jan-Feb-Mar Apr-May-Jun Jul-Aug-Sep Oct-Nov-Dec

Shind-Smeas Data: tot Period: Jul-Aug-Sep



Depth[m]
Collected Data: from 2020-07-13 to 2021-07-19

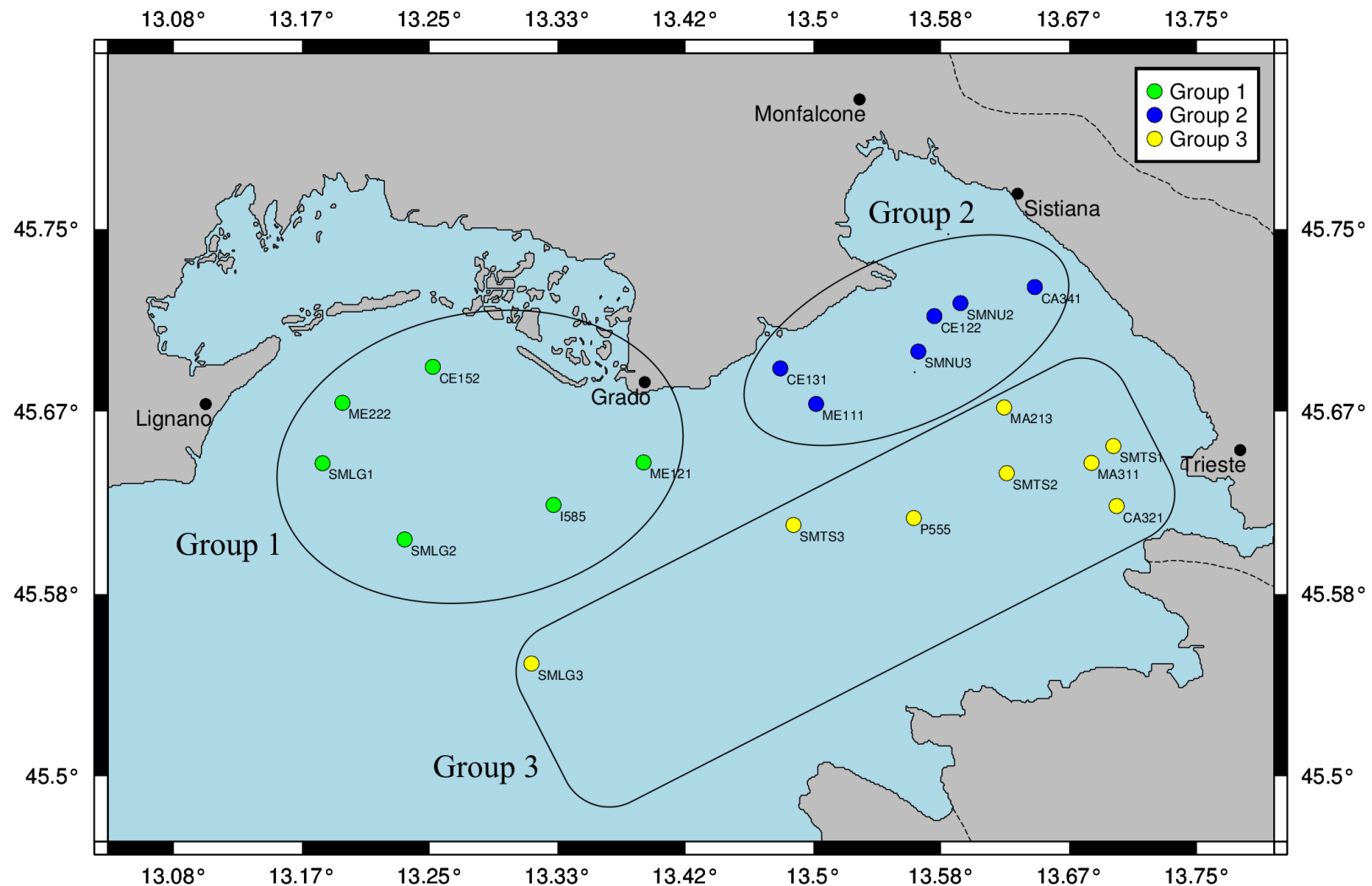
Shind-Smeas Data: tot Period: Oct-Nov-Dec



Depth[m]
Collected Data: from 2020-10-14 to 2020-12-16

Spatial selection: group1 group2 group3

Monitoring points (2020-07/2021-07) belonging to the COPERNICUS-Marine domain



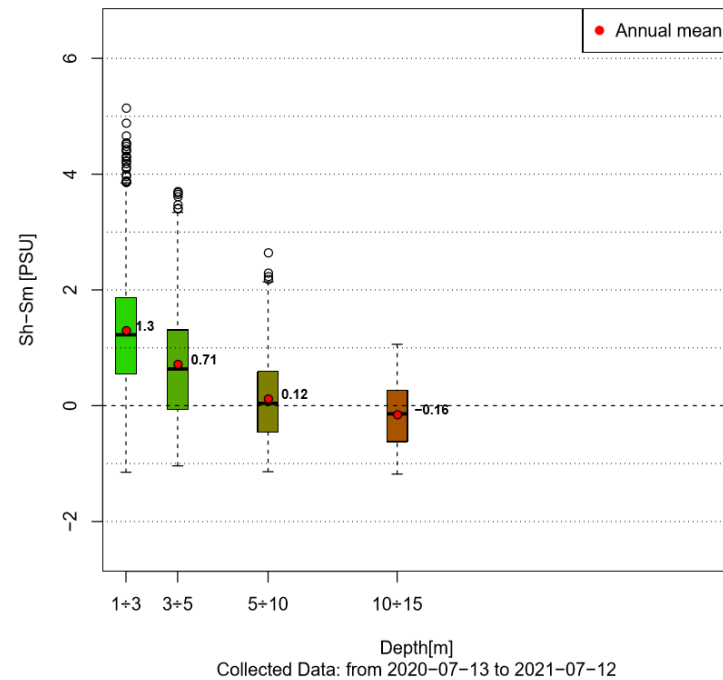
Group1 Group2 and Group3 for the entire annual period

Group 1

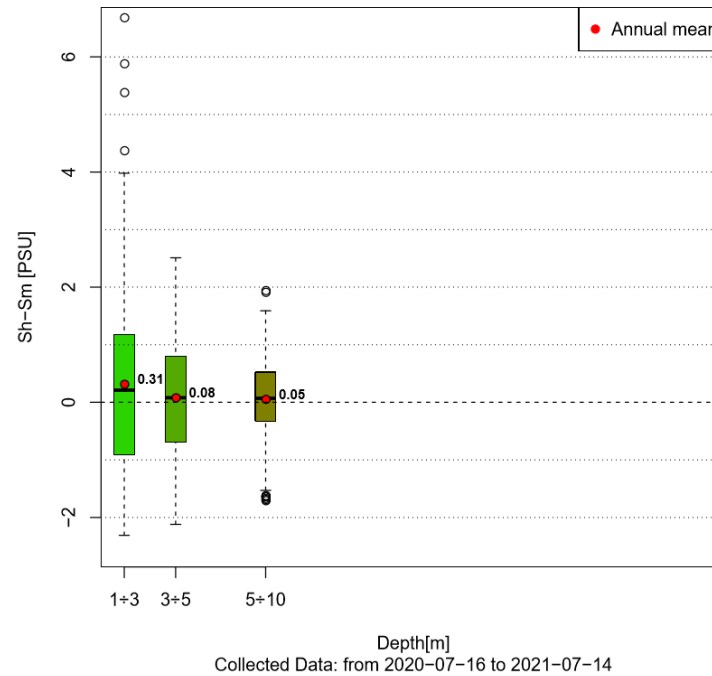
Group 2

Group 3

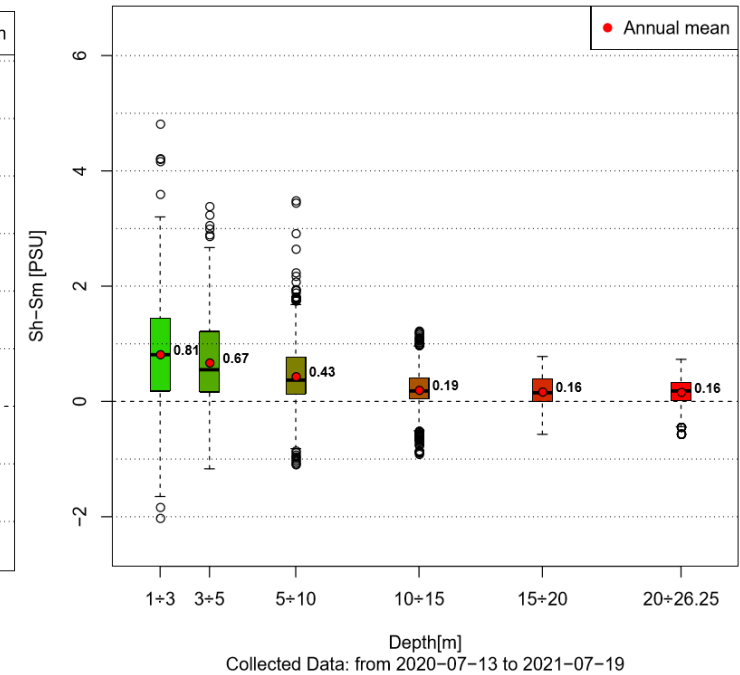
Shind-Smeas Data: group1 Period: Annual



Shind-Smeas Data: group2 Period: Annual

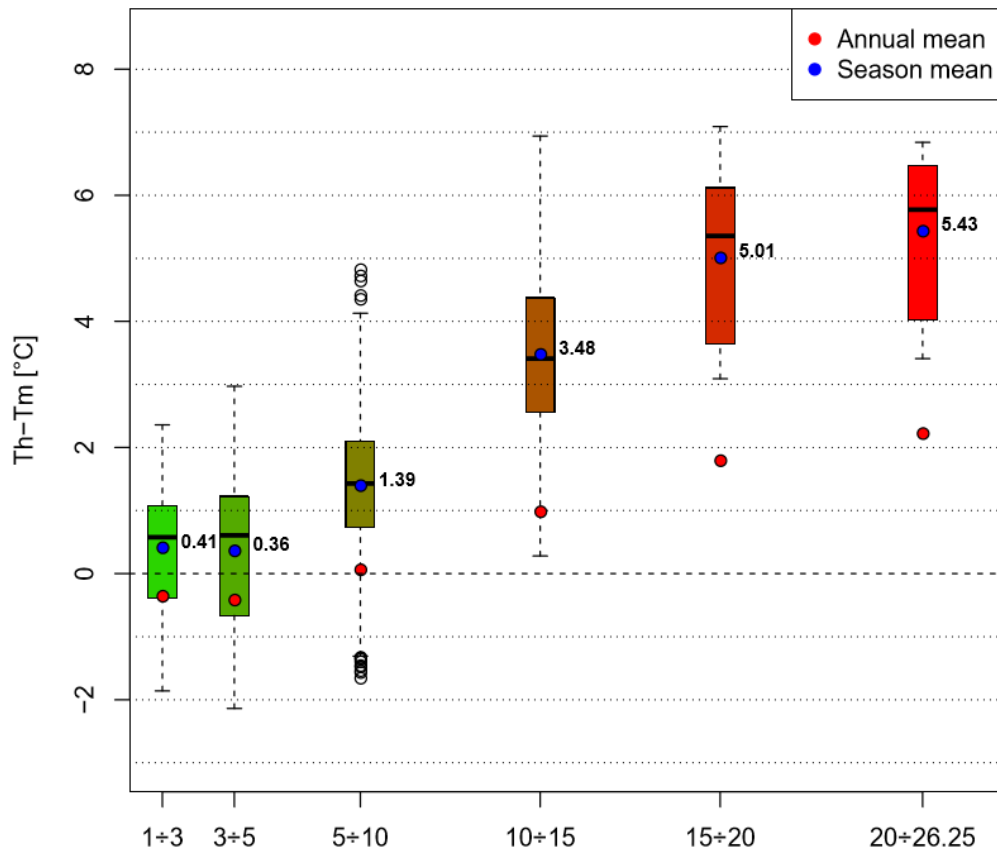


Shind-Smeas Data: group3 Period: Annual



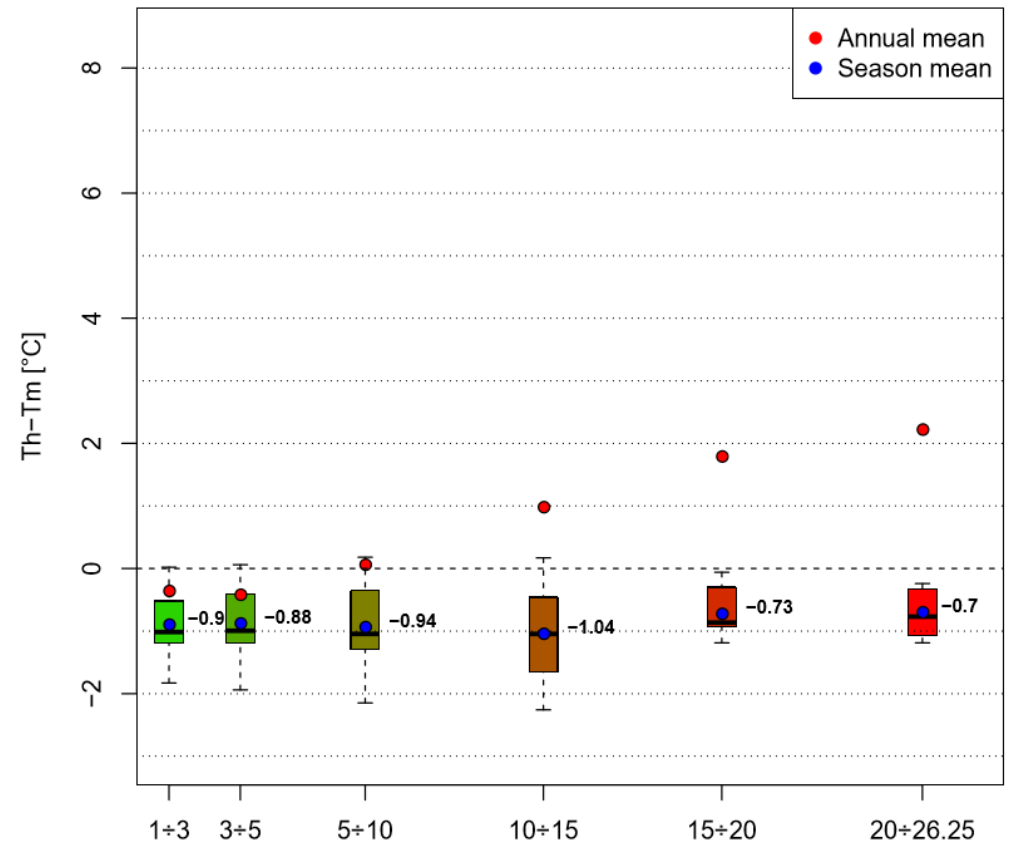
Group3 Temperature seasons comparison

Thind-Tmeas Data: group3 Period: Jul-Aug-Sep



Depth [m]
Collected Data: from 2020-07-13 to 2021-07-19

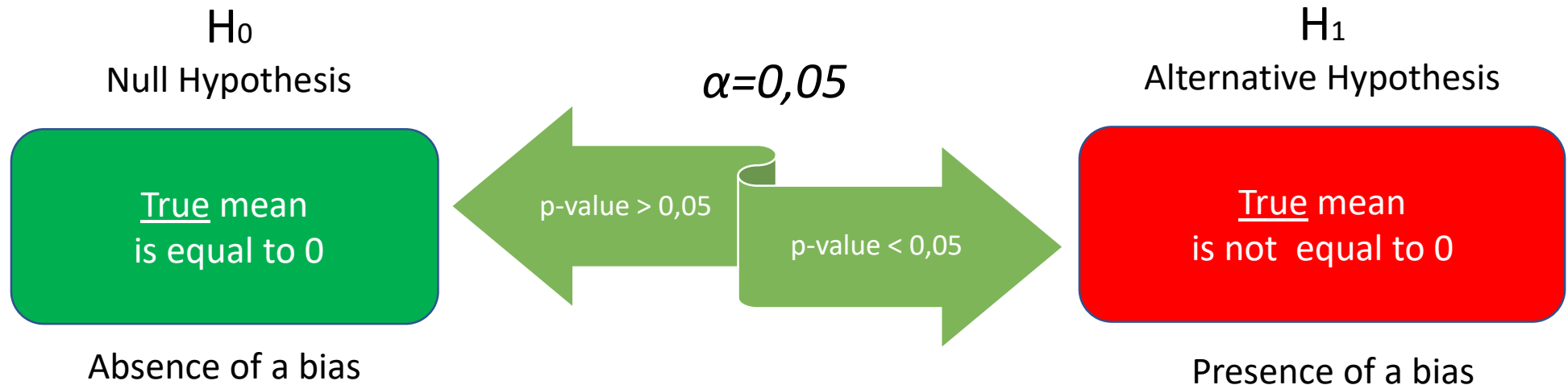
Thind-Tmeas Data: group3 Period: Oct-Nov-Dec



Depth [m]
Collected Data: from 2020-10-20 to 2020-12-16

t-test for group1 group2 and group3

Hypothesis testing compatibility for $T_{\text{model}} - T_{\text{measured}}$ ($S_{\text{model}} - S_{\text{measured}}$) with a $\mu=0$ mean value. A two sided test has been performed.

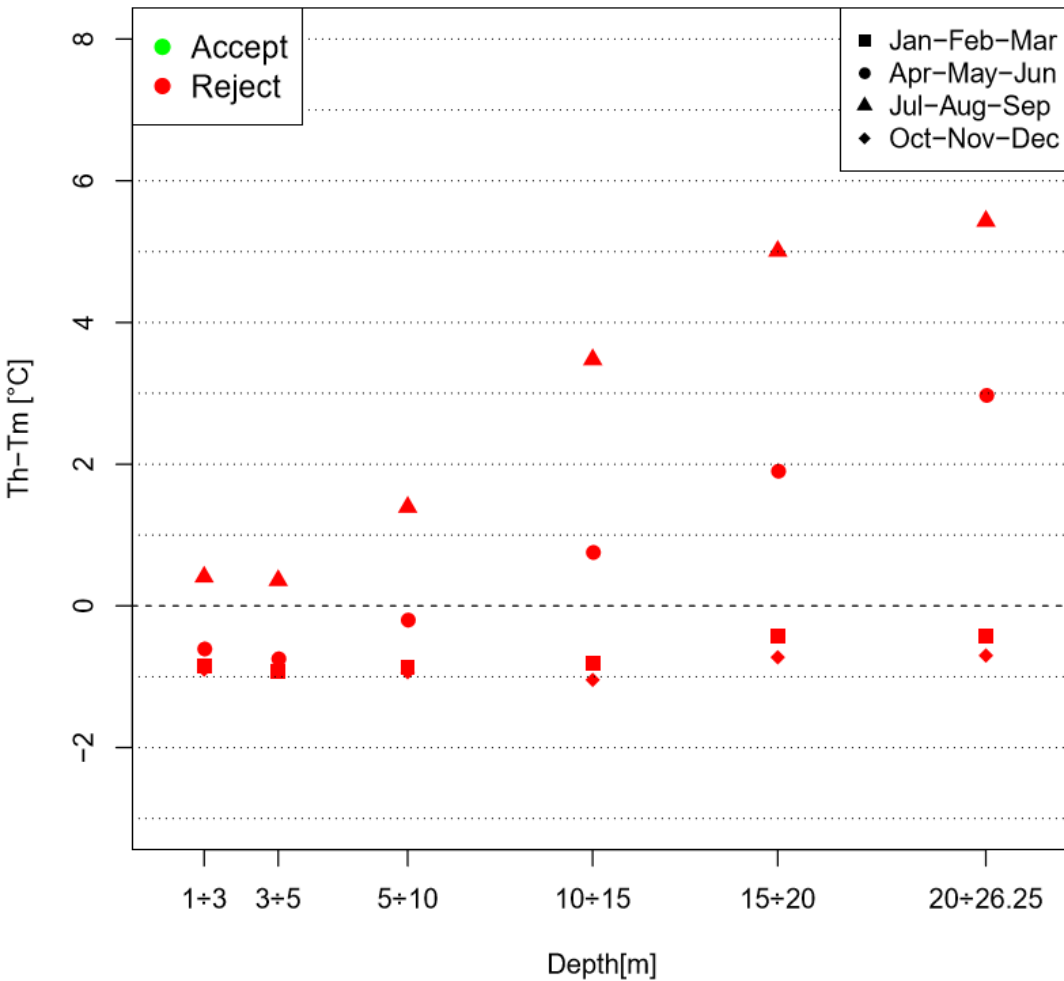


- α is the probability of wrongly rejecting H_0 when it is true, and is called the *significance level* of the test.
- p-value represents the probability of exceeding the measured value
- In the usual practice if the p-value is smaller than some predefined level (5% according to the Fisher prescription), the null hypothesis is rejected.

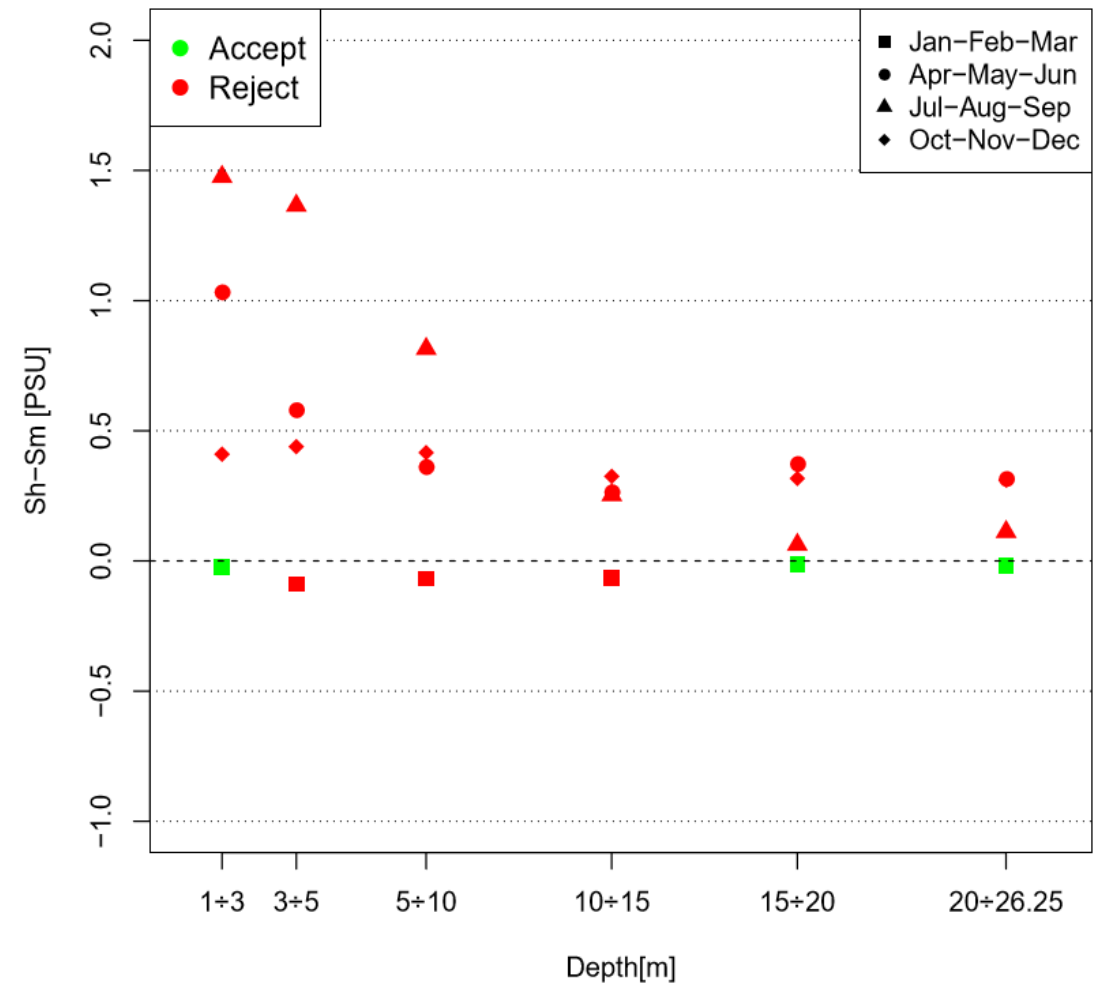
Mean value and t-test results for groups in different seasons

Group 3

Thind-Tmeas Mean value Data: group3



Shind-Smeas mean value Data: group3



Foreseen next activities and further developments:

- Web Page interface for graphic and analysis sharing
- Analysis on the SHYFEM simulations in Marano-Grado lagoon
- Analysis extension over years (2014-2019)
- Time series correlation with Taylor diagram summary
- Extension of analysis including further Adriatic monitoring stations
- Quality evaluation of CMEMS and SHYFEM Forecasts

CONTACT INFORMATION

Partner Name: **ENVIRONMENTAL PROTECTION AGENCY OF FRIULI VENEZIA GIULIA (ARPA FVG)**

Contact person: **Alex Pividori**

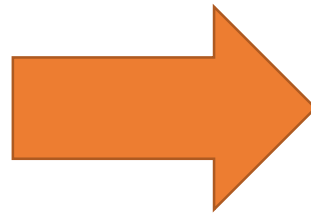
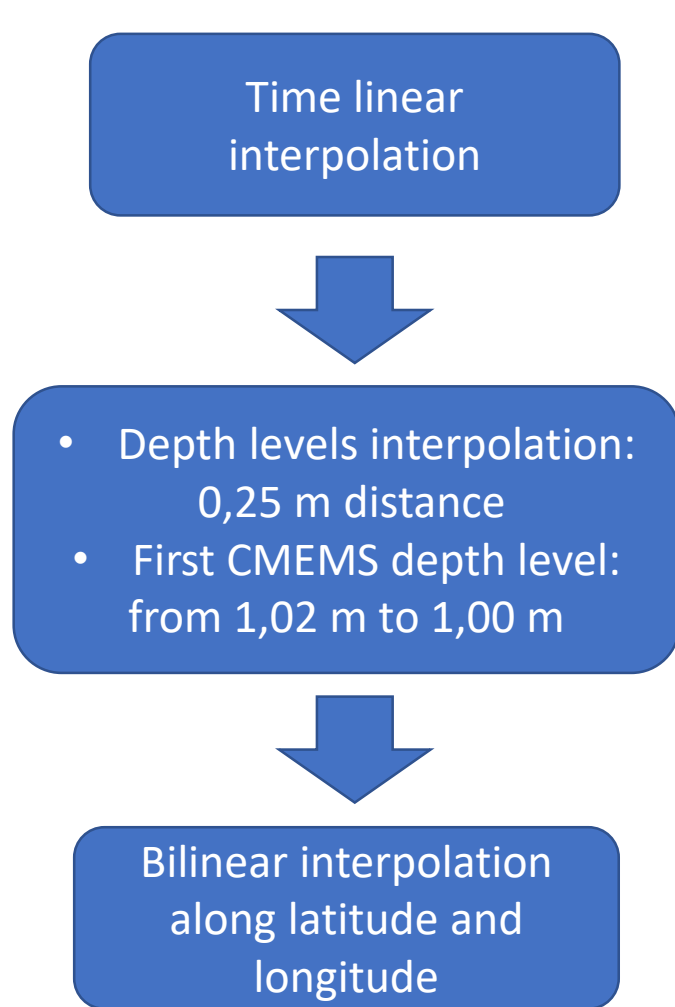
 Via Cairoli, 14 I-33057 Palmanova (UD) - ITALY

 alex.pividori@arpa.fvg.it



 <http://www.arpa.fvg.it>

Approximations Needed



Flux diagram

