

CNR-ISMAR IN SITU OBSERVATIONS NETWORK: NEW APPROACHES FOR AN INTERACTIVE, HIGH PERFORMANCE, INTEROPERABLE SYSTEM

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CNR - INSTITUTE OF MARINE SCIENCES

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INDEX

- Context: fragmentation, RITMARE, SDI, SOS, Data Policy
- Objectives
- Architecture
- Implementation: InfluxDB, Grafana (also as quick quality check for data), app, script to export and synchronize SOS, kapacitor
- Advantages

ISMAR

Short introduction of the Institute of Marine Sciences?

CNR-ISMAR IN SITU OBSERVATIONS NETWORK

Northern Adriatic Network

TODO: add map with location of the buoys

CNR-ISMAR IN SITU OBSERVATIONS NETWORK

Northern Adriatic Network

- Paloma mast (Gulf of Trieste)???
- Acqua Alta oceanographic tower (Gulf of Venice)
- S1 mast and E1 buoy (Emilia Romagna coast)
- Telesenigaglia mast (Marche coast)



PAST SITUATION

Unharmonized network

- different managing system
- separated databases
- different validation procedure
- non-standard publishing of data
- non-common (or non existent) data policies

RITMARE PROJECT

www.ritmare.it

"Italian Research for the Sea" national flagship project

- 7 sub-programs:
 - SP1 - Maritime Technologies
 - SP2 - Technologies for Sustainable Fishing
 - SP3 - Planning of the Maritime Space in Coastal Waters
 - SP4 - Planning of the Deep Marine Environment and the Open Sea
 - SP5 - Observation System for the Marine Mediterranean Environment
 - SP6 - Research, Training and Dissemination Structures
 - SP7 - Interoperable Infrastructure for the Observation Network and Marine Data

OBJECTIVES

- Unique access point for data from all nodes of the network
- Interactive and efficient system
- Interoperability
- Open data

ARCHITECTURE

- DB raw
- Quality control
- DB Qc
- Publication DB
- Standard output services
 - OGC SOS
 - NetCDF

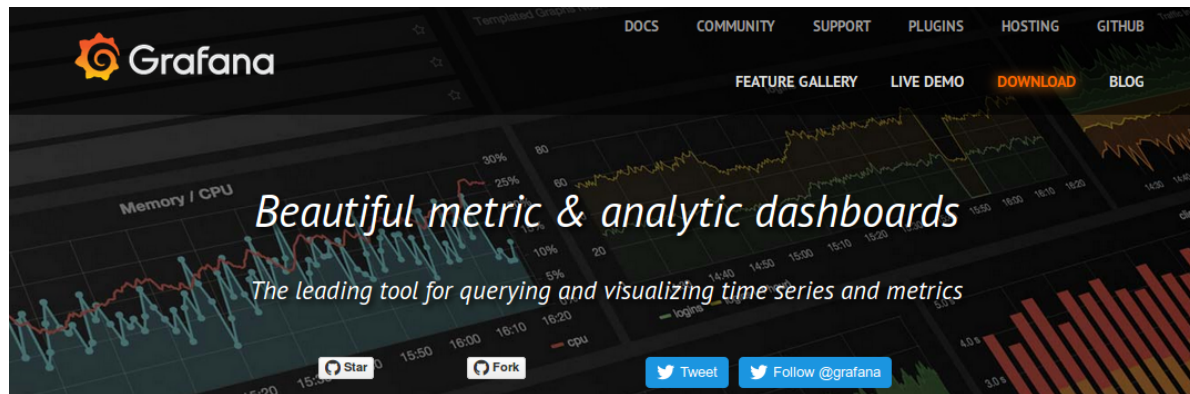
TODO: add architecture schema

IMPLEMENTATION

- InfluxDB: open source time-series data storage



- Grafana: open source dashboards for querying and visualizing time series and metrics



PARAMETERS AND VARIABLES ACQUIRED

- ...

OPEN SCIENCE APPROACH

- Open access to data
- Standard open licences for access and reuse:

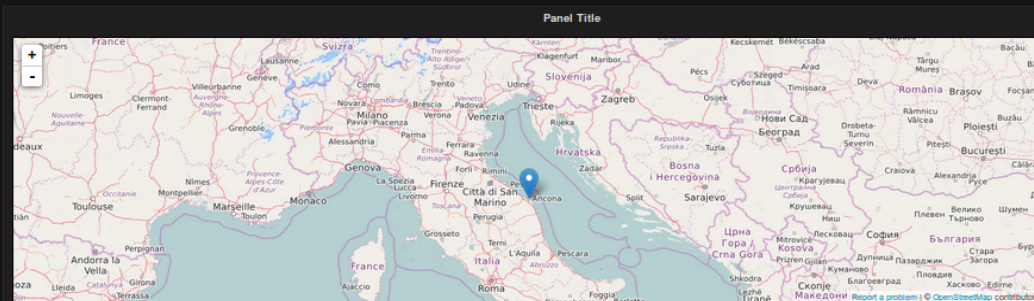
[Creative Commons Attribution 4.0 \(CC-BY\)](#)



- Publication of yearly datasets on [Zenodo](#) with DOI
- Publication of a Data Paper with relevant aggregation of data

A QUICK HANDS-ON

[HTTP://RMM.DATI.ISMAR.CNR.IT](http://RMM.DATI.ISMAR.CNR.IT)

[View Larger Map](#)

Last values - meteorology

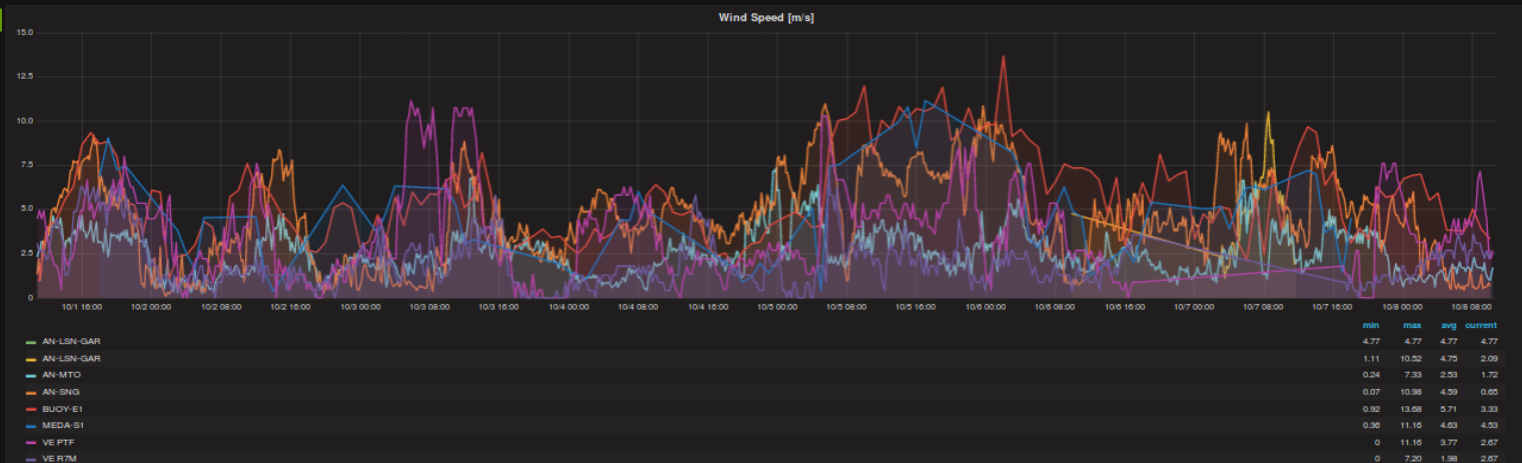
Metric	Current
AN-LSN-GAR CS100@-10m - Air_Press	1.01 K
AN-LSN-GAR CS215 - Air_Temp	18.65
AN-LSN-GAR CS215 - Air_humid	79.82
AN-LSN-GAR Windsonic Gill - RelWindDirFrom	246.83
AN-LSN-GAR Windsonic Gill - RelWindSpd	4.77
AN-LSN-GAR Windsonic Gill - WDIR	274.13
AN-LSN-GAR Windsonic Gill - WSPD	2.09
AN-MTO CS100@-10m - Air_Press	1.02 K

Last values - water column temperature and salinity

Metric	Current
AN-LSN-GAR Sbe39@2m - WC_Temp	22.11
AN-LSN-GAR Sontek@17.5m - WC_Temp	21.79
AN-SNG CS450@2m - WC_Temp	18.36
AN-SNG OBS500@5m - WC_Temp	20.21
BUOY-E1 SBE37 - WC_Sal	36.79
BUOY-E1 SBE37 - WC_Temp	20.96
LSN-LAG SBE39 - WC_Temp	18.54
MEDA-S1 SBE37 - WC_Sal	0

Last values - currents sea level and waves

Metric	Current
AN-LSN-GAR Sontek@17.5m - BinDep_ADPCPWaves	17.61
AN-SNG CS450 - BinDep_ADPCPWaves	16.07
AN-SNG Sontek@12.5m - BinDep_ADPCPWaves	12.54
LSN-LAG SBE39 - BinDep_ADPCPWaves	0.52
LSN-LAG SBE39 - BinDep_ADPCPWavesSdev	0.00
VE PTF NortekAWAC - BinDep_ADPCPWaves	16.52
VE PTF NortekAWAC - End_depth	16.02



CONCLUSIONS

- From a series of unconnected systems to a real network of interconnected data flows
- Use of open source technologies and international standards
- Vision towards open data access and sharing

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