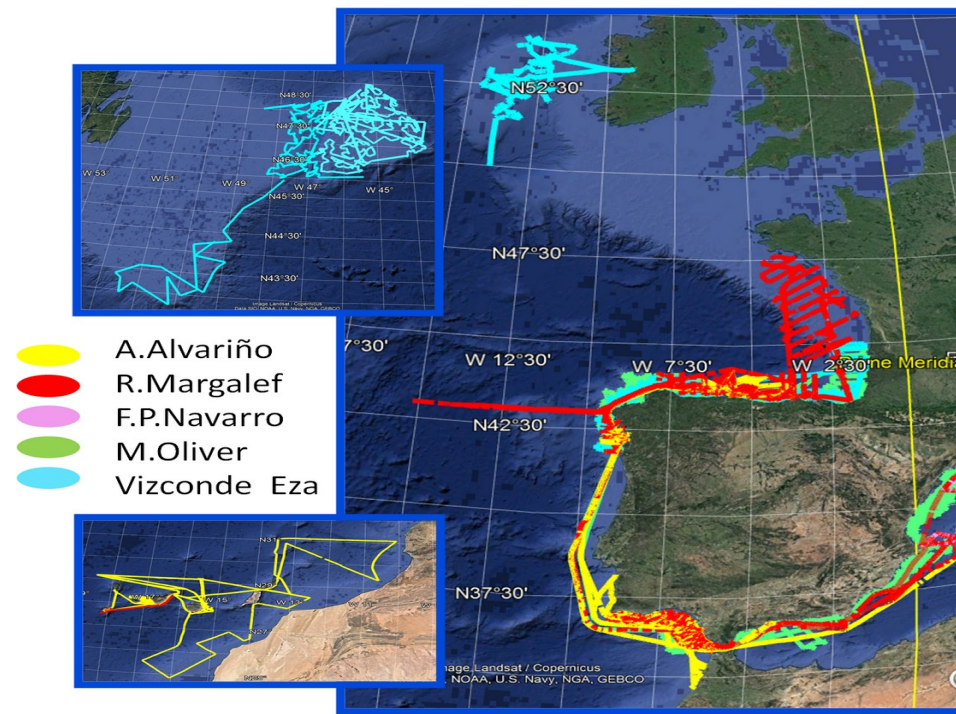


Information Technology applied for harmonization, quality control, and dissemination of data provided by the Surface Water Sampling System of the IEO



González-Nuevo G., Marcote D., Lamas A., Fraga I., Nieto M., Tel E., Garcia L. and Ruiz Villarreal M.

gonzalo.gonzaleznuevo@ieo.csic.es



Interreg
España - Portugal



CAPTA



Interreg
Atlantic Area
European Regional Development Fund



PRIMROSE
Predicting the Impact of Regional Scale
events on the Aquaculture Sector

IEO research vessels fleet

Lura



Margalef



Alvariño



Navarro



Vizconde de Eza (SGP)



Oliver (SGP)



Mytilus



IEO research vessels fleet

Odon de Buen



Alvariño



Oliver (SGP)



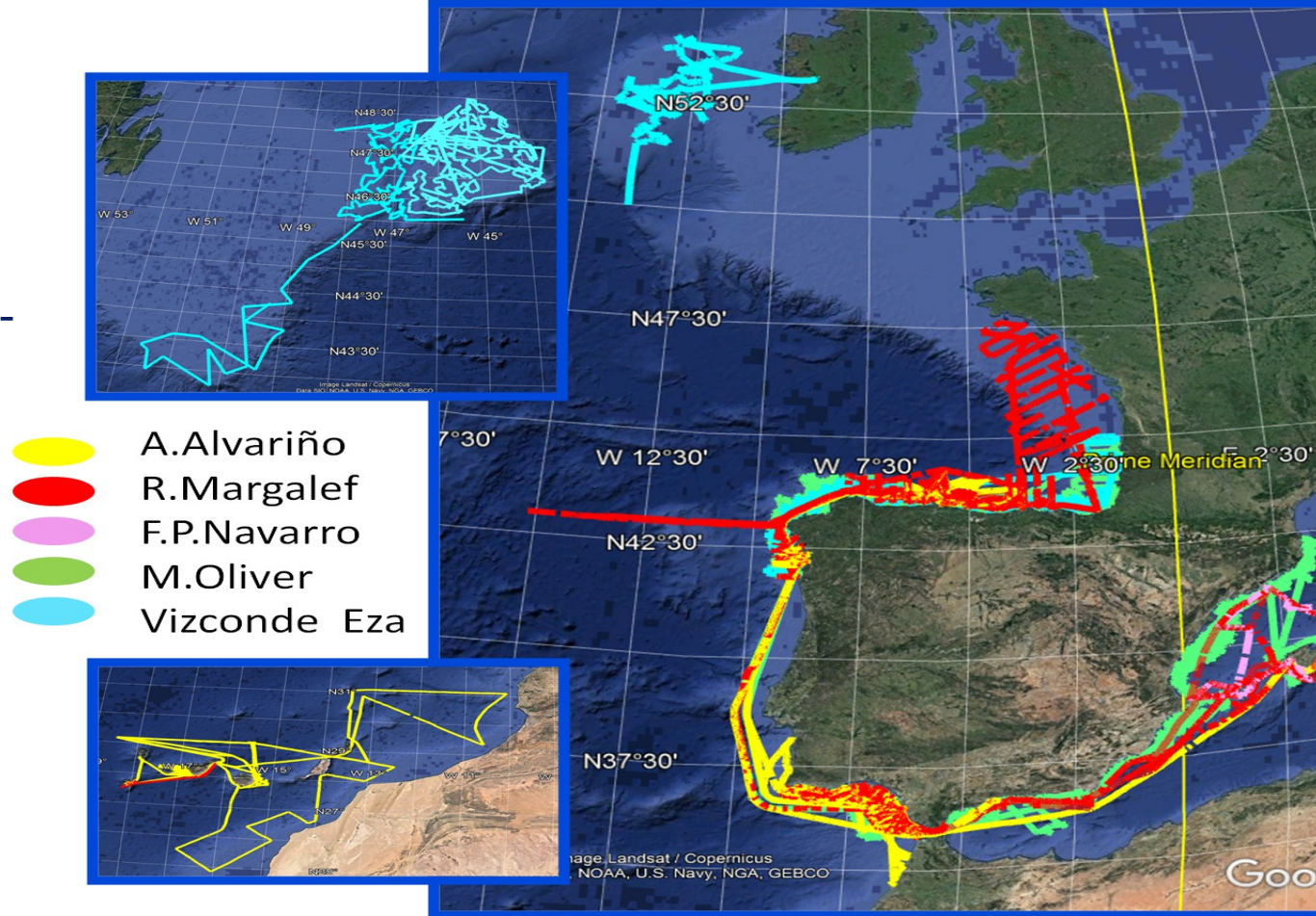
©ALF-VIGO 2014



Mytilus

Cruise activities

- Give response to institutional/research/social demands
- Consolidate oceanographic observation ship-based network
- Develop of new technologies in the field of oceanography monitoring
- Creation of common data infrastructure platform
- Development of specific final user products



R. V. Lura

- Base port A Coruña
- Length 14 m
- TSG data
 - 2016-present
 - Monthly sections
 - 2019-present
 - Weekly sections



Sensors



SBE 21 Thermosalinograph

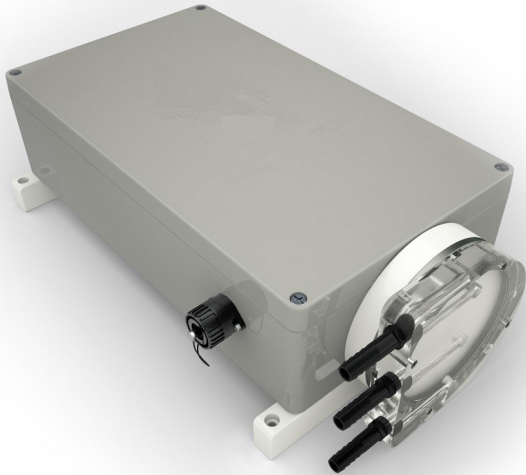


Fluorimeter + CDOM + Turbidimeter + Optode



Last Sensors added

CONTROS HydroC® CO2



Sunburst AFT-pH



General Data Flow

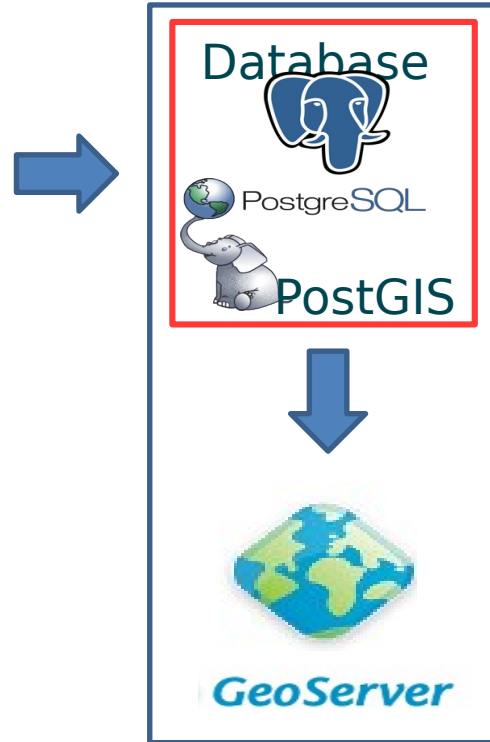
Vessels



Data Processing



OGC Data servers



Final Users



Instant Messaging Platforms

- Telegram
- Easy to implement bots
- Allow interaction with python
- As others, easy to manage
 - Chats, channels, users, permissions.

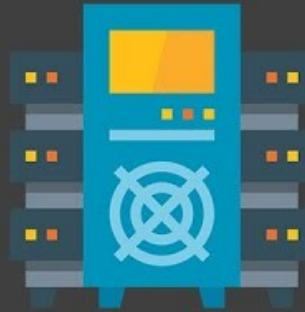
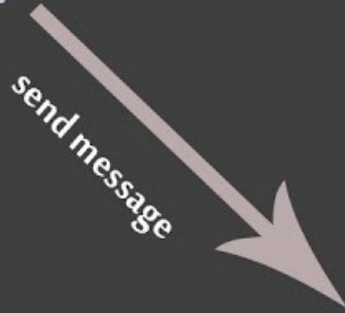




Telegram System



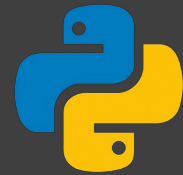
USERS



TELEGRAM



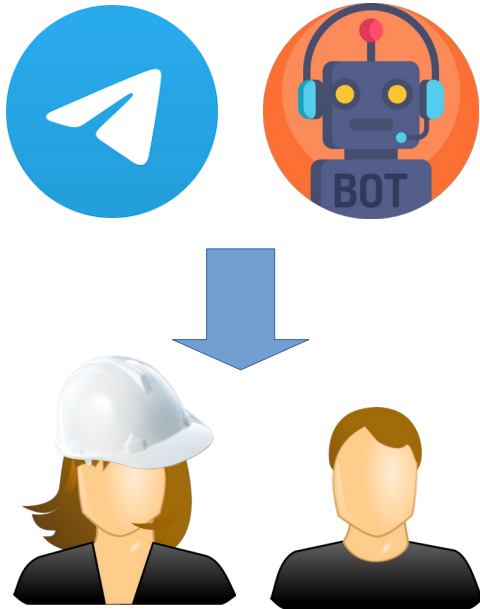
OUR SERVER



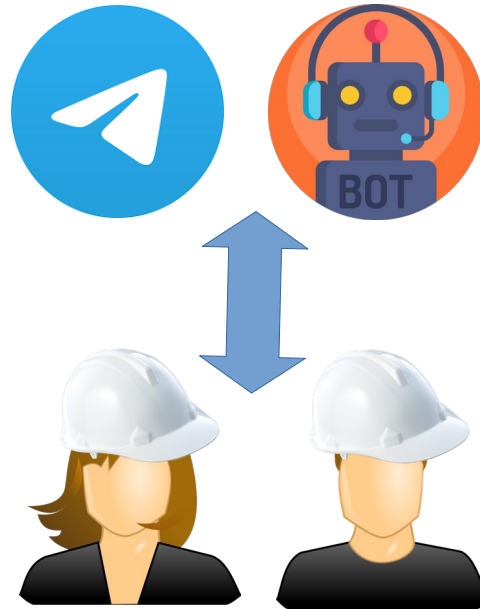
python

Telegram Implementation

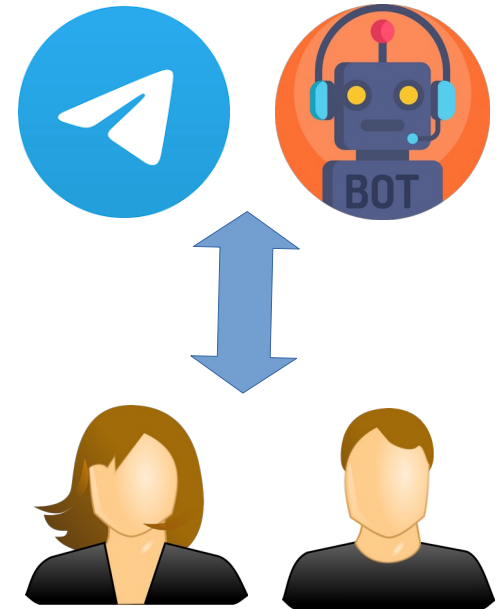
Passive Notifications



Interaction with System



Active Dissemination



Passive notifications

System Info

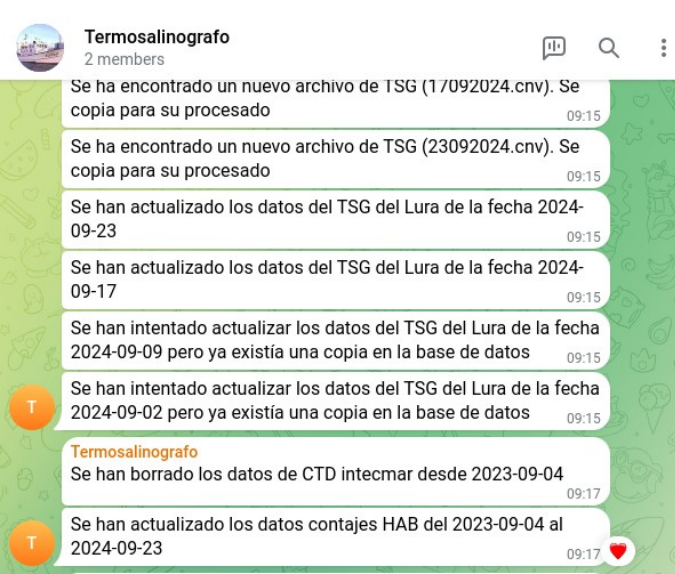
- Positive and negative
- Secondary log
- Availability of new data to end-users
- ...

Quality Control Events

- Bad data
- Sensor drifts
- Out of range values
- ...

Disemination

- Extrem events
- Environmental indices
- HABs
- ...



Termosalinografo
2 members

Se ha encontrado un nuevo archivo de TSG (17092024.cnv). Se copia para su procesamiento 09:15

Se ha encontrado un nuevo archivo de TSG (23092024.cnv). Se copia para su procesamiento 09:15

Se han actualizado los datos del TSG del Lura de la fecha 2024-09-23 09:15

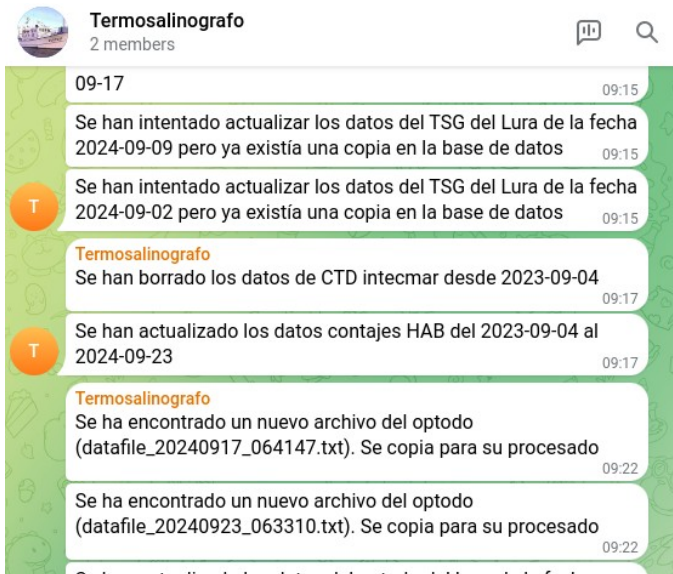
Se han actualizado los datos del TSG del Lura de la fecha 2024-09-17 09:15

Se han intentado actualizar los datos del TSG del Lura de la fecha 2024-09-09 pero ya existía una copia en la base de datos 09:15

Se han intentado actualizar los datos del TSG del Lura de la fecha 2024-09-02 pero ya existía una copia en la base de datos 09:15

Termosalinografo
Se han borrado los datos de CTD intecmar desde 2023-09-04 09:17

Se han actualizado los datos contajes HAB del 2023-09-04 al 2024-09-23 09:17



Termosalinografo
2 members

09-17 09:15

Se han intentado actualizar los datos del TSG del Lura de la fecha 2024-09-09 pero ya existía una copia en la base de datos 09:15

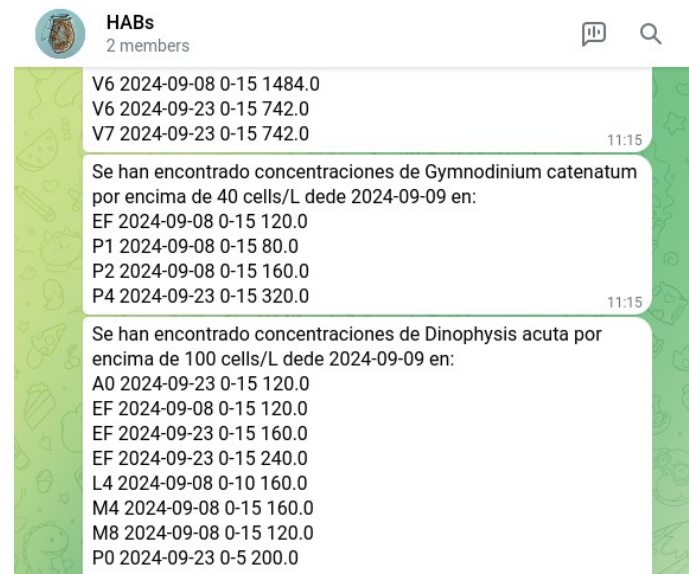
Se han intentado actualizar los datos del TSG del Lura de la fecha 2024-09-02 pero ya existía una copia en la base de datos 09:15

Termosalinografo
Se han borrado los datos de CTD intecmar desde 2023-09-04 09:17

Se han actualizado los datos contajes HAB del 2023-09-04 al 2024-09-23 09:17

Termosalinografo
Se ha encontrado un nuevo archivo del optodo (datafile_20240917_064147.txt). Se copia para su procesamiento 09:22

Se ha encontrado un nuevo archivo del optodo (datafile_20240923_063310.txt). Se copia para su procesamiento 09:22



HABs
2 members

V6 2024-09-08 0-15 1484.0
V6 2024-09-23 0-15 742.0
V7 2024-09-23 0-15 742.0 11:15

Se han encontrado concentraciones de *Gymnodinium catenatum* por encima de 40 cells/L dede 2024-09-09 en:
EF 2024-09-08 0-15 120.0
P1 2024-09-08 0-15 80.0
P2 2024-09-08 0-15 160.0
P4 2024-09-23 0-15 320.0 11:15

Se han encontrado concentraciones de *Dinophysis acuta* por encima de 100 cells/L dede 2024-09-09 en:
A0 2024-09-23 0-15 120.0
EF 2024-09-08 0-15 120.0
EF 2024-09-23 0-15 160.0
EF 2024-09-23 0-15 240.0
L4 2024-09-08 0-10 160.0
M4 2024-09-08 0-15 160.0
M8 2024-09-08 0-15 120.0
P0 2024-09-23 0-5 200.0

Interaction with System

Without Programming Skills



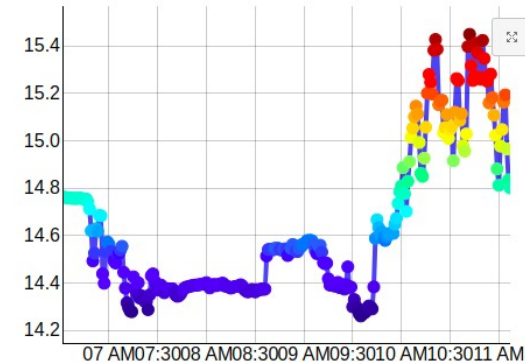
- Run System Tasks manually
- Apply QC processes
- Request system data



`/tsg` 07:59 ✓

Penosu
`/tsg`
TSG actualizado 07:59

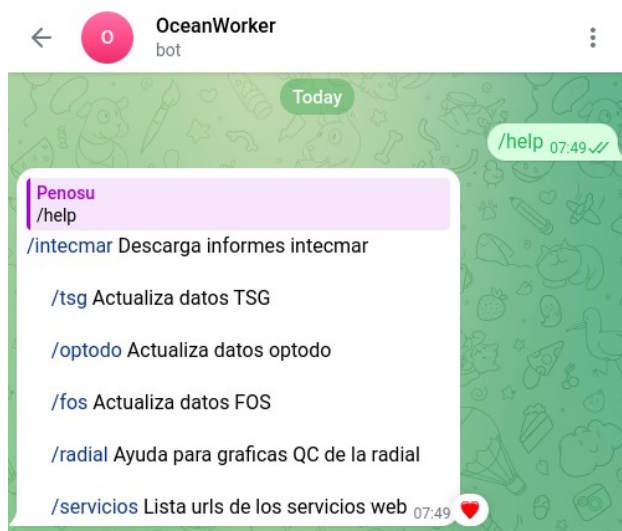
radial 20240701e2 tem 19:18 ✓



Active Dissemination

New interaction way

Simple Rigid Prototype



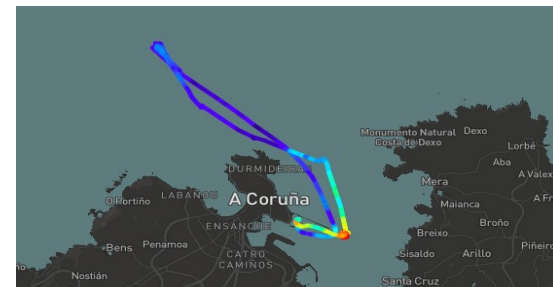
Request

- Data
- Images
- Products final users
- ...

Data

Rfecha	Longitude	Latitude	Temperature	Salinity	Fluorescence	Cdm	Turbidity	Optodo_tem
2021-07-15 07:46:00	-8.4425	43.4153	17.5791	34.8252	0.9879	1.1484	69.3014	17.5805
2021-07-15 07:46:00	-8.4425	43.4153	17.5791	34.8252	0.9879	1.1484	69.3014	17.5805
2021-07-15 09:11:00	-8.4220	43.3996	17.2623	35.0859	0.8152	1.1548	69.2283	17.2690
2021-07-15 09:11:00	-8.4220	43.3996	17.2623	35.0859	0.8152	1.1548	69.2283	17.2690
2021-07-15 09:28:00	-8.4026	43.3932	17.3263	35.2601	0.8412	1.0818	69.2679	17.3158
2021-07-15 09:28:00	-8.4026	43.3932	17.3263	35.2601	0.8412	1.0818	69.2679	17.3158
2021-07-15 09:46:00	-8.3783	43.3857	17.7237	35.1620	0.8550	1.1279	69.3293	17.7154
2021-07-15 09:46:00	-8.3783	43.3857	17.7237	35.1620	0.8550	1.1279	69.3293	17.7154
2021-07-15 10:04:00	-8.3684	43.3643	18.1001	34.9786	1.2065	1.1869	69.1729	18.0787
2021-07-15 10:04:00	-8.3684	43.3643	18.1001	34.9786	1.2065	1.1869	69.1729	18.0787
2021-11-16 08:41:00	-8.4362	43.4208	14.4703	35.2217	1.7091	0.9100	72.2098	14.4627

Images and Graphs



Products



Data and Metadata

Data Model



Observations,
measurements and
samples standard



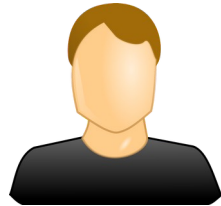
Metadata

Ontologies

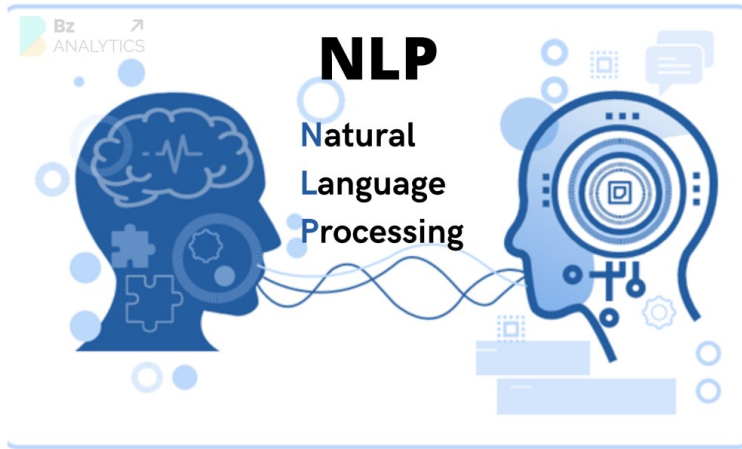
Standard
Vocabularies



Interfaces



Future



Natural and flexible interaction

M2M MACHINE TO MACHINE





N42.625°

N42.575°

W8.875°

W8.825°

N42.525°

Thank you
for your attention

Data SIO, NOAA, U.S. Navy, NGA, GEBCO

Image © 2013 DigitalGlobe

Google earth

lat. 42.621656° long. -8.947970° elev. 95 m alt. obj. 5.59 km

Nivel 3: Meteorología e Oceanografía

