

Azzarone A., Marinaro G., Giovanetti G., Marcucci N., Sensale G., Beranzoli L., Favali P.
Istituto Nazionale di Geofisica e Vulcanologia, Roma, Italy

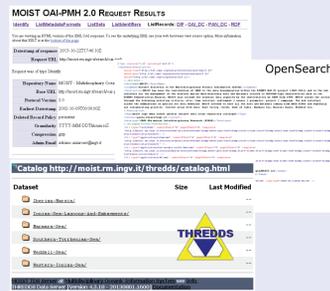
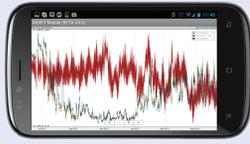
The scientific data management has recently become a big challenge in terms of storage capacity and data access in many disciplinary sectors. Analyse a large amount of data is considered necessary to reply to urgent questions on Earth changes at different spatial and time scale.

Multiparameter seafloor observatories, supporting a multidisciplinary approach to investigate the processes with different time scales, has posed the need to collect, organise and maintain a variety of long time series.

MOIST (Multidisciplinary Oceanic Information SysTEM) is a data provider system initiated within the EC ESONET NoE and now under development in the frame of EMSO, according to directions expressed within other EC projects (e.g. Genesi-DEC, ENVRI, CoopEUS).

MOIST is aimed at hosting multidisciplinary data and metadata obtained by means of seafloor observatories of GEOSTAR-class observatory managed by INGV in some EMSO nodes.

SERVICES



ATOM
DIF
DublinCore
DataCite
KML
RDF
SensorML

NetCDF (CF)
ODV4
miniSEED
FLAC
CSV

Website & APP phone
Data discovery
Plotting tool

Harvesting
Transfer protocols

Dataset
metadata

Common
Data Formats

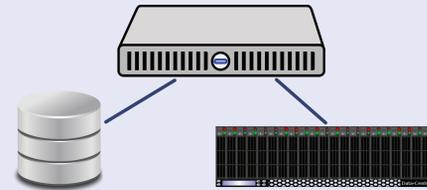
Dissemination, Interoperability, Persistent Identifiers

The MOIST overall configuration constitutes an e-infrastructure which serves the data flow from acquisition to dissemination. To ensure such working environment a special attention is devoted to all standardisation aspects in terms of file formats, metadata, interoperability, transport protocols and controlled vocabularies for keywords and parameters. MOIST is developed to adopt the most common standards (e.g., OGC, NASA, INSPIRE, SEADATANET) for organising its information system.

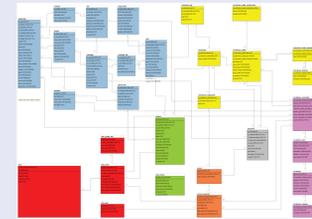
DATA CENTER

Features

- Centralized database.
- Fast data retrieve (fine tuning, cache system).
- Easy management and backup.
- Database replication capability.
- Versatility and longevity.
- Metadata standards agnostic.
- Controlled Vocabulary based terms.
- Based on dedicated ontology.
- Centralized storage server with policy files



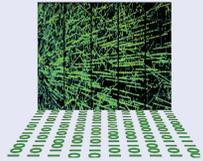
Application server
Database & file system



Schema data model

The harvesting and data retrieval system is a full web architecture that can be joined using a web browser or a service client. A user-friendly interface integrates and is able to visualize all the data according to specific user request (e.g., time, type of measurements, spatial location of equipment's).

ACQUISITION



RAW Data

Different types / formats
Timeseries / waveforms / profiles

Metadata

- Parameters
- Sensors
- Instruments
- Datasets
- Campaigns
- Projects
- Researchers

Tracking

- History
- Repairs
- Calibrations
- Events
- LOGs

QC/QF

Documents

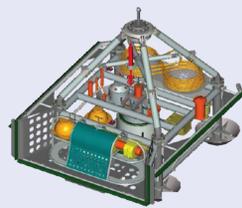
- Calibrations
- Datasheets
- Manuals
- Drawings
- Tests
- Configurations
- Reports
- Publications



MOIST is a flexible and advanced tool, able to support EMSO nodes, according to their own specific suite of sensors and eventual scientific campaigns, by organising, indexing and transforming data into a compatible data scheme, and preserving the node local data acquisition systems and databases. MOIST serves to the development of the data management structure of the EMSO Research Infrastructure with the primary service task of making data available on the net.

SOURCES

- Accelerometers
- ADCPs
- CTDs
- Current meters
- DPGs
- Gravimeters
- H2S meters
- Hydrophones
- IMUs
- Magnetometers
- Methane meters
- Oxygen meters
- Pressure gauges
- Seismometers
- Transmissometers
- Turbidity meters



Instrument types

Seafloor observatories

Cruises

Buoys

Researchers

MOIST guarantees the quality, completeness and availability for different sciences, anticipating the future by initiating a long-term data preservation strategy.

