Socio-ecological system: semantic and modelisation

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Context

- Global Warming and Climate Change
- China and France are very involved in the fight against global warming
Development of multidisciplinary research programs

Trajectories project at Grenoble Alpes University

https://trajectories.univ-grenoble-alpes.fr/

- 12 research groups: 70 people
- Area of interest
  - 2 alpine valleys (Chamonix Mont-Blanc, Maurienne, Romanche)
  - 2 alpine National Parks (Vanoise, Ecrins)
- Creating fully integrated socio-environmental data acquisition and management system
  - Make interoperable the existing observation platforms
  - Identify relevant observations for dealing with adaptation of territories to climate change
  - Provide novel observation system linking multidisciplinary data

Context: Use-case

- Context of multidisciplinary research programs
- Scientific Domains
  - Climatology
    - climate & microclimate
  - Hydrology
  - Biology
    - biodiversity
  - Meteorology
    - atmospheric
    - precipitation
  - Glaciology
    - snow
    - ice
  - Sedimentary Archive

Many Data Bases

Kaléidos (CNES) satellite images
CEN (Météo France) meteorology
Hydrology glaciology
HieC hydroligic data Arve valley
Lacs Sentinel Alpine lakes data
Alpages Sentinel Pastoral land uses
nettoges Sentinel Tourism land uses
HA-Alpes ORCHAMPS Biology
Zones Ateliers RoZA Sedimentary Archive
Socio-Ecological System


Socio Ecological model

GCW glossary: https://globalcryosphererewatch.org/reference/glossary.php

CUAHSI ontology https://hiscentral.cuahsi.org/startree.aspx

Links with ontologies and models

**“Tools” ontologies**

- GeoSPARQL
- O&M
- LinkedEarth

**Level 1**
- Coupled dynamics of alpine ecosystems

**Level 2**
- Domain ontologies

**Level 3**
- Data models ontologies

**Mutual benefits and interactivities**

- **Common objectives:**
  - sharing, processing, analysis and visualization of data linked to global warming

- **Grenoble group’s expertise:**
  - semantic interoperability of the data, models and processes, which are available in a web of data platform

- **LIESMARS group’s expertise:**
  - know-how in geospatial services to support geoprocessing modelling and environmental monitoring based on GeoJModelBuilder platform
Expected contributions

- Long-term partnership
- Multidisciplinary consortium between our two countries
- Franco-Chinese environmental data analysis and processing network