



# InGeoCloudS Experts Workshop

## Return of Experience from EKBAAs:

- 1. GROUND WATER RESOURCES MANAGEMENT IN GRANULAR AQUIFERS*
- 2. ACTIVE LANDSLIDE INVENTORY MAPPING AND SUSCEPTIBILITY ZONING*

*Makis Atzemoglou*  
*Geologist - Geophysicist*

Brussels, 21st November 2013



# Return on Experience from INGC DP. Insights into EKBAAs UCs

## GROUND WATER RESOURCES MANAGEMENT IN GRANULAR AQUIFERS

### WHAT Data are available:

Water points (drills), pollution points, conductivity, pH, water levels measurements, chemical analyses time series (Ca, Mg, Na, HCO<sub>3</sub>, SO<sub>4</sub>, NO<sub>3</sub>) etc.

### WHAT WE CAN DO:

#### *Among else:*

- A. use of the water table measurements for 2 different time period to find the water balance
- B. use of the time series chemical analyses to create hydro-chemical maps

## ACTIVE LANDSLIDE INVENTORY MAPPING AND SUSCEPTIBILITY ZONING

The use case will provide an active inventory map of the occurred landslides updated after every new event recorded in the database. It will be possible to retrieve data concerning the landslides' characteristics (type of movement, causes, season and year of occurrence,..), as well as any information available for the region of occurrence (geology, precipitation, altitude, slope).



# Situation before INGC

## Situation during/after INGC

### Situation in EKBA before INGC project

- Data (water levels measurements, chemical analyses time series, landslides characteristics, available information for the region of landslides occurrence etc) were partly in traditional DBs and partly in excel sheets.
- There was not infrastructure of publishing & sharing geodata, maps and services.
- Data partially had or did not have metadata (not INSPIRE compliant)
- Data not available every time.



# Situation before INGC

## Situation during/after INGC

### Situation during/after INGC (for both Ucs)

The 2 Ucs were implemented during the InGeoCloudS project (No similar infrastructure & service before).

A. Data and mapping has been pushed in InGeoCloudS triplestore only, implemented by the Data Integration&Linking component. The data and its representation according to the geo-scientific observation model (GSOM) are available for queries through the SmartQueries application.

B. Services - availability

- Web maps & daily availability in the INGC
- Publish maps on the web,
- re-use of the data,
- re-use & dissemination of the maps (as WMS) and download facility
- INSPIRE compliant data

C. Build-in services

There is ability, through queries using the Data Linking component, to display vector data on a map.

The user can: 1.call kriging WPS in order to produce contour maps, water table contour maps etc. and 2. fetch and display other maps available as WMS/WFS through the Elastic Map Server and the Geospatial Metadata and Catalog Services components.

A WebGIS Client application in the InGeoCloudS framework has built with the ability to fetch boreholes' & landslides' data through queries and display them on a map.



## Did INGC succeed?

YES in the following fields:

- Ensure the performance and availability of the service 24/7 all the year.
- Provide aggregated GIS mapping services
- Provide OGC and INSPIRE compliant services
- Re-usability of data through Linked Data compliance and OGC services
- Data get/gain added value when used by other interested persons/organizations



## Return of experience

- Platform stability and reliability
- Resource consumption only as needed, only during the calculation (geo-processing)

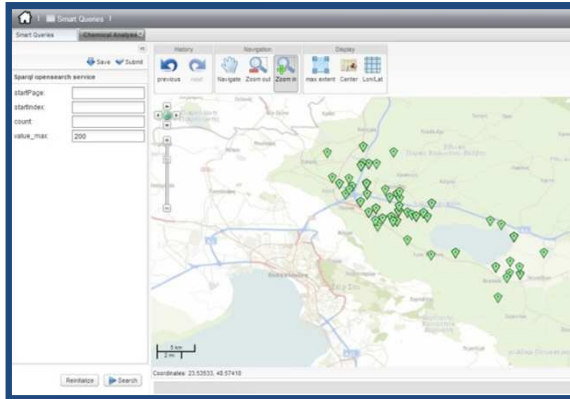
Possible pitfalls:

- 1. Greater costs than traditional solutions (local servers) when it is used occasionally

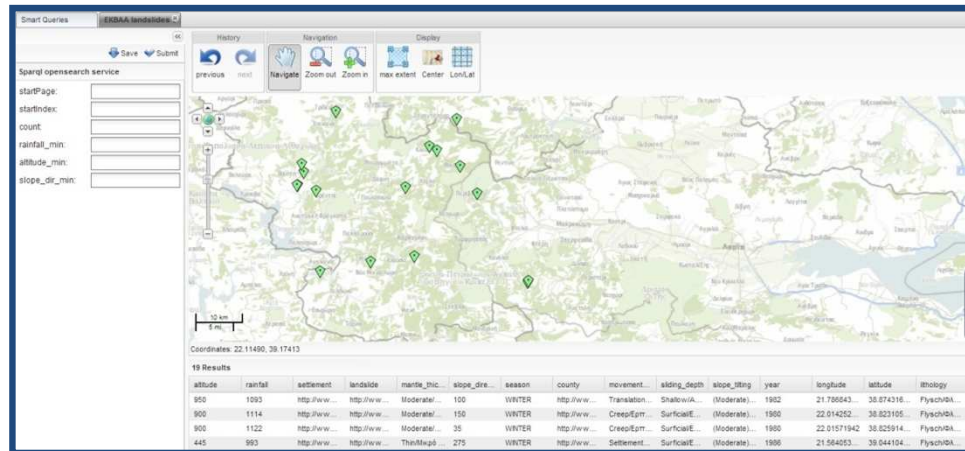


**InGeoCloudS**  
Inspired GEOdata CLOUD Services

# Return on Experience from INGC DP. Insights into EKBAAs UCs



Chemical analyses 1st query: Select a compound [Ca], [Mg], [Na], [K], [HCO3], [Cl], [SO4], [NO3], [F] having concentrations (=, >, <, interval) or (=, >, <) the maximum accepted limits

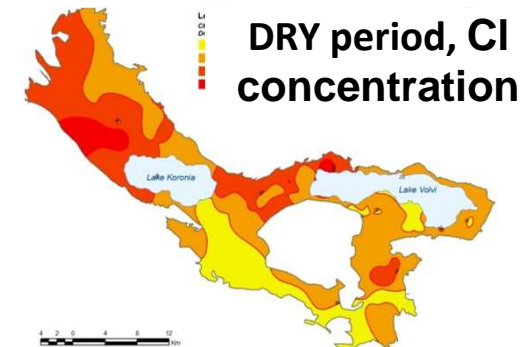
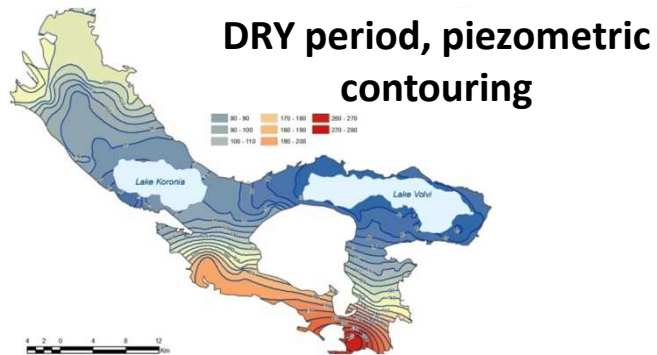
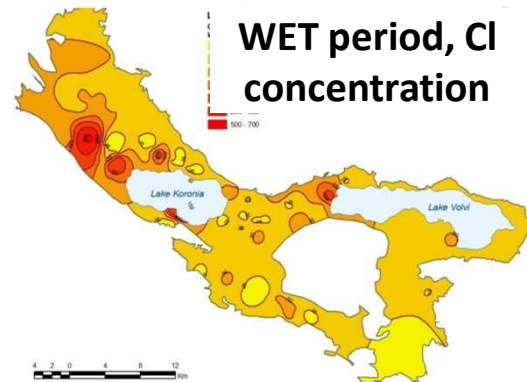
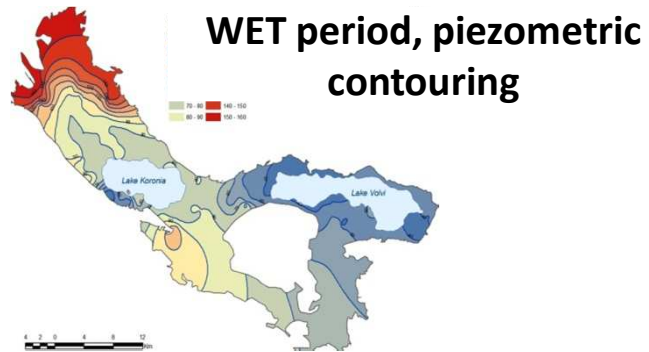


EKBAAs landslides query: Show landslide events where rainfall is (a value) in (attitude) and having (slope direction)



**InGeoCloudS**  
Inspired GEOdata CLOUD Services

# Return on Experience from INGC DP. Insights into EKBAAs UCs





# Return on Experience from INGC DP. Insights into EKBAAs UCs

