AN INTEGRATED REGIONAL DATA MANAGEMENT CENTER IN EMILIA - ROMAGNA

Stefania Nanni
Lepida Spa
stefania.nanni@lepida.it

Vinicio Manzi
University of Parma
vinicio.manzi@unipr.it

Enrico Chini
O.T.R. Srl
info@otr.it

Gianluca Mazzini
University of Ferrara
g.mazzini@ieee.org

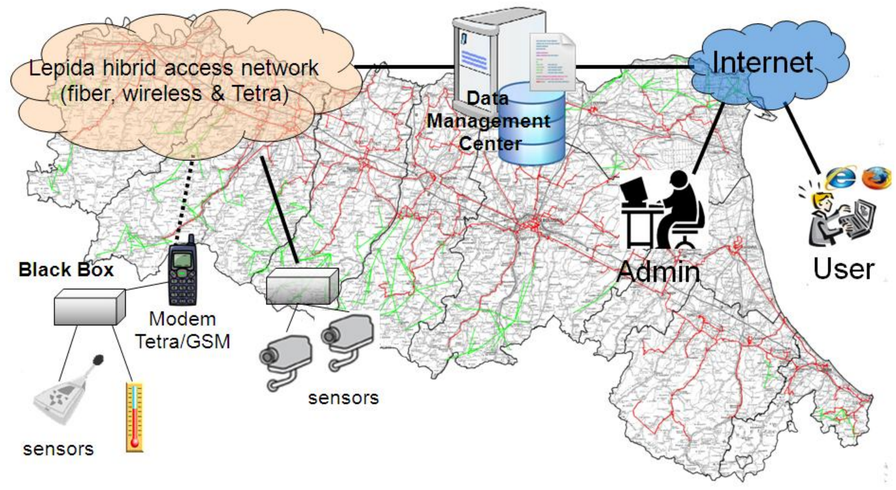
Enrico Leuratti
Emilia-Romagna Region
eleuratti@regione.emilia-romagna.it

The project

A survey of the sensor networks deployed in the territory of Emilia-Romagna has highlighted the presence of thousands of **environmental sensors** with different purposes and different owners. These different sensors networks are currently **not interoperable and not shared**.

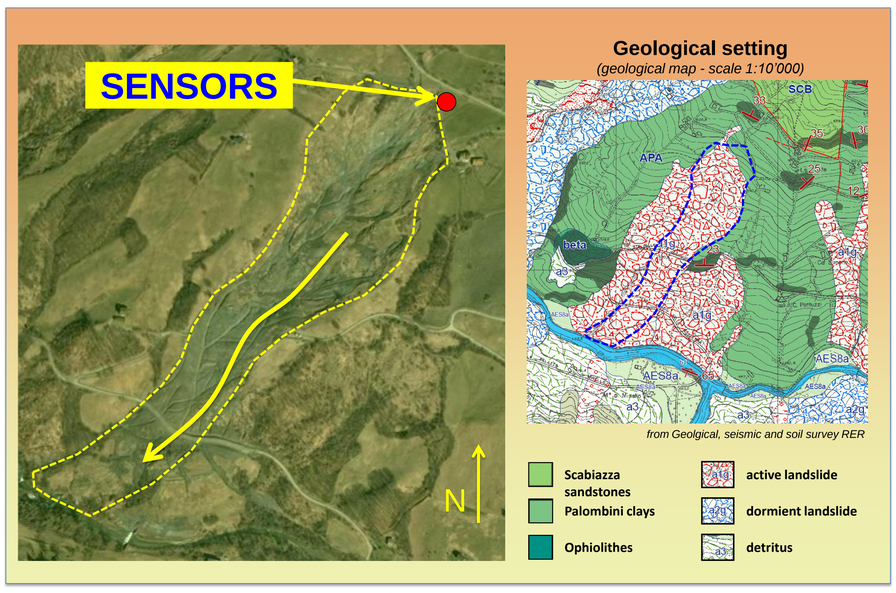
The **Integrated Regional Data Management Center (IRDMG)** aims to integrate all the sensors spread throughout the territory of the Emilia-Romagna Region through two basic elements:

- **a unified communication infrastructure**, regional fiber optic (Lepida) and mobile (ERretre) networks**;**
- **a unique center for data collection.**

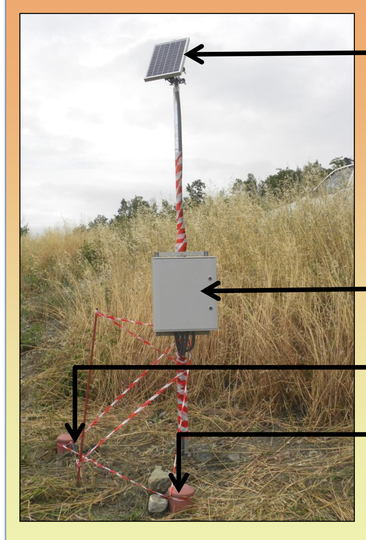


Data Management Center unified at regional level

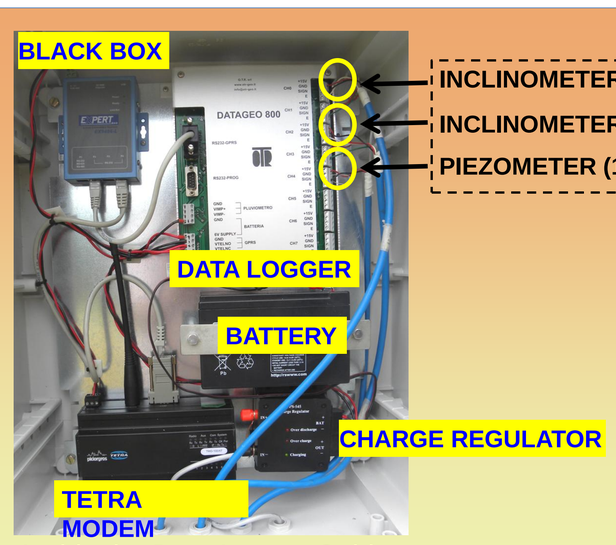
The Mobile Tetra Network Experimentation: monitoring of hydrogeological instability



The Fosso Moranda landslide (MO)



The installation (crown area)



Inside the Data Logger Cabinet

ERretre Regional Mobile Network is currently used for civil defense purposes and is characterized by **high safety and reliability.** It can also be used to transmit environmental data coming from automatic monitoring systems.

Since **June 2010** an automatic monitoring system is working at Fosso Moranda landslide (MO).

It consists of a **third party monitoring station** including two bi-axial inclinometers, a piezometer and a gateway device, called **BlackBox**, connected to the **ERretre radio network** through a **Tetra Modem.**

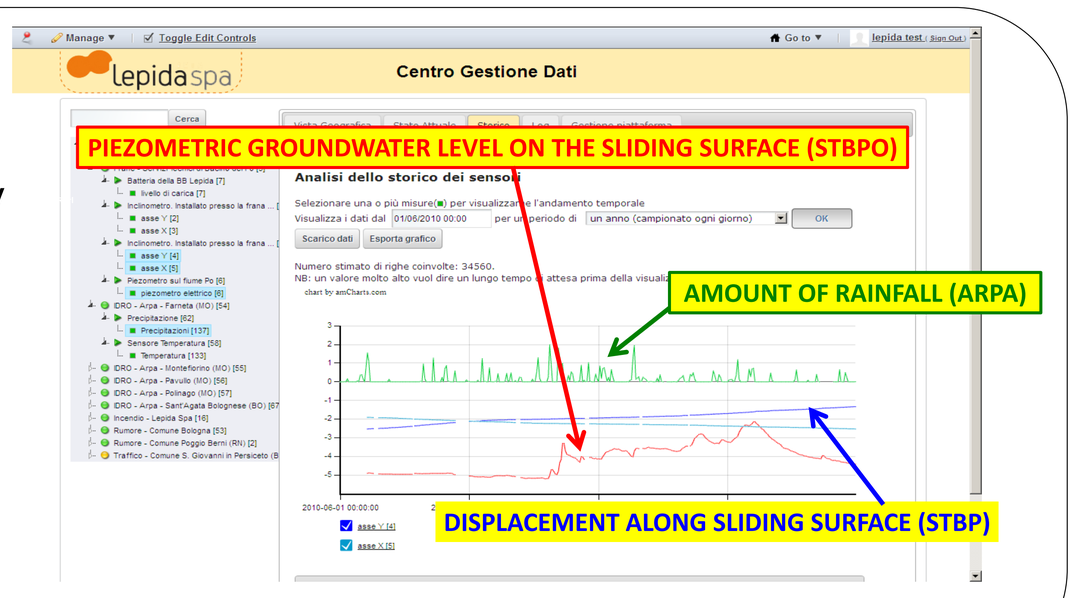
The datalogger comes on hourly to collect sensor measurements. BlackBox repackages the data into appropriate protocol to send them, via Tetra Modem, to the central storage server of the **Integrated Regional Environmental Data Management Center.**

The results

Currently the prototype of the platform integrates different types of data from different monitoring systems such as landslide and rainfall, owned by different agencies, STBP and ARPA.

Integration in the same platform of multiple data having different origins allows cross-correlation of landslide movements and their **potential triggering factors**, such as rainfall.

The deployment of such a monitoring system could provide reliable and useful information in real time, thus having relevant implications for Civil Protection agency, for example, in the management of **meteo-hydrological alerts**.



Integration from different data source: STBPO and ARPA

Direzione Ambiente e Difesa del Suolo e della Costa
Servizio Tecnico dei Bacini degli Affluenti del Po

Dipartimento di Scienze della Terra
Università degli Studi di Parma

O.T.R Srl

Contact: Stefania Nanni
Cell. +39-3666684748
E-mail: stefania.nanni@lepida.it