



MARSOL Workshop Technical Solutions for Managed Aquifer Recharge



Wednesday, March 11th 2015. 10 h.

Centro cultural "Las Fuentecillas", C/ Alta, nº 21 -23. Gomezserracín (Segovia)
Activity to involve groundwater users.

Collaborate:



Ayuntamiento de Alcazarén

This initiative takes place in the framework of 'FP7-ENV-2013 MARSOL' (GA 619.120). Demonstrating Managed Aquifer Recharge as a Solution to Water Scarcity and Drought (WP5) with the support of the European Commission, however it reflects the views only of the authors, and the Commission cannot be held responsible of any use which may be made of the information contained therein.

<http://www.marsol.eu/>



Comisión Europea



Within the framework of MARSOL project (FP7, Water Innodemo call) are intended activities regarding "Training of project participants' staff, researchers, industry/SMEs, and end users on Managed Aquifer Recharge (MAR) and new developments in this field, to foster knowledge among all project partners and to ensure that the project's RTD and DEMO results effectively reaches the end-users." In this context, the main objectives for this training workshop are:

- To expose the technical solutions applied by the partner's expertise regarding each demo-site, studying the applicability to be used in other equivalent environments.
- Exposition of successful construction criteria (specific designs, materials...)
- Exposition of successful water management criteria, mentioning the "must" as well as the "mustn't".
- Criteria for cleaning and maintenance of the existing structures lengthening the infiltration capacity and the life-span of the structures.
- Other criteria that the expert speakers could include in their presentations regarding technical solutions, benchmarking, indicators and dissemination procedures.
- Response to all the questions that could arise along the full workshop.

The activity is directed to MARSOL partners, technicians, practitioners, public authorities, farmers and irrigation communities' board, as well as students and the population in general.

Important notice: As it is a rural area, speakers will employ a colloquial language in their expositons.

FINAL PROGRAM

10:00 - 10:10	Welcome. Mr. Enrique Herranz. ATE. President of the Carrascal Irrigation Community. Chairwoman: Ms. Elvira del Pozo Campos. Agronomic Engineer (TRAGSATEC)
10:10 - 10:30	MAR and water footprint <ul style="list-style-type: none"> Ms. Elvira del Pozo Campos. Agronomic Engineer (TRAGSATEC)
10:30 - 10:55	Methodology for probabilistic risk evaluation linked to MAR activities based on fault tree analysis. <ul style="list-style-type: none"> Dr. Xavier Sánchez Vila. Civil Dr. Engineer (UPC, MARSOL)
10:55 - 11:15	Practical technical solutions for Managed Aquifer Recharge facilities <ul style="list-style-type: none"> Dr. Enrique Fernández Escalante. Hydrogeologist (TRAGSA, MAR to MAR-kEt)
11:15 - 11:35	Urban rain water harvesting and infiltration. Architectonical designs and solutions <ul style="list-style-type: none"> Mr. Ignacio Prieto Leache. Architect (TRAGSATEC, DINA-MAR)
11:35 - 12:00	Coffee break
12:00 - 12:20	Low impact MAR activities and benchmarking <ul style="list-style-type: none"> Dr. Jon San Sebastián Sauto. Biologist (TRAGSATEC, DINA-MAR)
12:20 - 12:40	MAR, energy efficiency and use of alternative energy systems for irrigation. Tech. solutions <ul style="list-style-type: none"> Mr. Francisco J. García Gómez. Irrigation Engineer (TBC)
12:40 - 13:00	ICTs solutions for MAR activities <ul style="list-style-type: none"> Ms. María Eugenia García de Garayo y Millán. Telecom. Eng (TRAGSA-WIRE AG)
13:00 - 13:20	Technical solutions for MAR experiences in Spain. State of the art and future panorama <ul style="list-style-type: none"> Dr. José Antonio de la Orden Gómez. Mining Dr. Engineer (Spanish Geological Survey).
13:20 - 13:35	Premiere of the film "MAR Technical solutions in Arenales aquifer"
13:35 - 14:00	Open debate. Rapporteur: Dña. Elvira del Pozo Campos (TRAGSATEC)
14:00	Clausure. Sra. Dña. Laura del Río Arranz. Mayor of Gomezserracín (TBC).

TBC: To be confirmed.

This schedule, approved in principle, might be subject to modification. Organized by:



Comisión Europea





GrupoTragsa
Garantía Profesional. Servicio Público



Information and Communication Technology (ICT) Solutions for Managed Aquifer Recharge (MAR) Activities in Arenales

Soluciones con Tecnologías de la Información y las Comunicaciones (TIC) para las actividades de Recarga de Acuíferos en Arenales

Maria Eugenia G^a de Garayo (mqgm@tragsa.es)



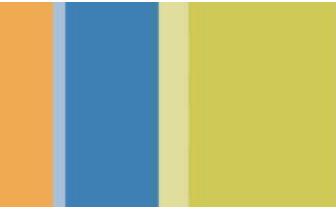
MANAGED AQUIFER RECHARGE SOLUTIONS

*<http://www.marsol.eu>



Índex

1. Introducción / Introduction
2. Situación actual / Current state
→ Mejoras / Improvements
3. Soluciones TIC / ICT Solutions
4. MEGA Project:
Ejemplo de aplicación /Real implementation
1. Conclusiones / Conclusions
2. Ruegos y preguntas / Questions & Answers



INTRODUCCIÓN / INTRODUCTION

- Situación actual / Current state**
- Problemas actuales /Present problems**
→ **Mejoras / Improvements**
- Soluciones TIC / ICT Solutions**
- MEGA Project**
- Conclusiones / Conclusions**

SITUACIÓN ACTUAL EN ARENALES CURRENT STATE IN ARENALES



SENsoRES /
SENSORS

Medidas in situ / Measurements in situ



¿Es esto
suficiente?



Medidas en oficina / From the office site

PROBLEMAS ACTUALES

PRESENT PROBLEMS



Cobertura de
telecomunicaciones



No alertas

Datos recogidos en distinto formatos
y de distinta procedencia

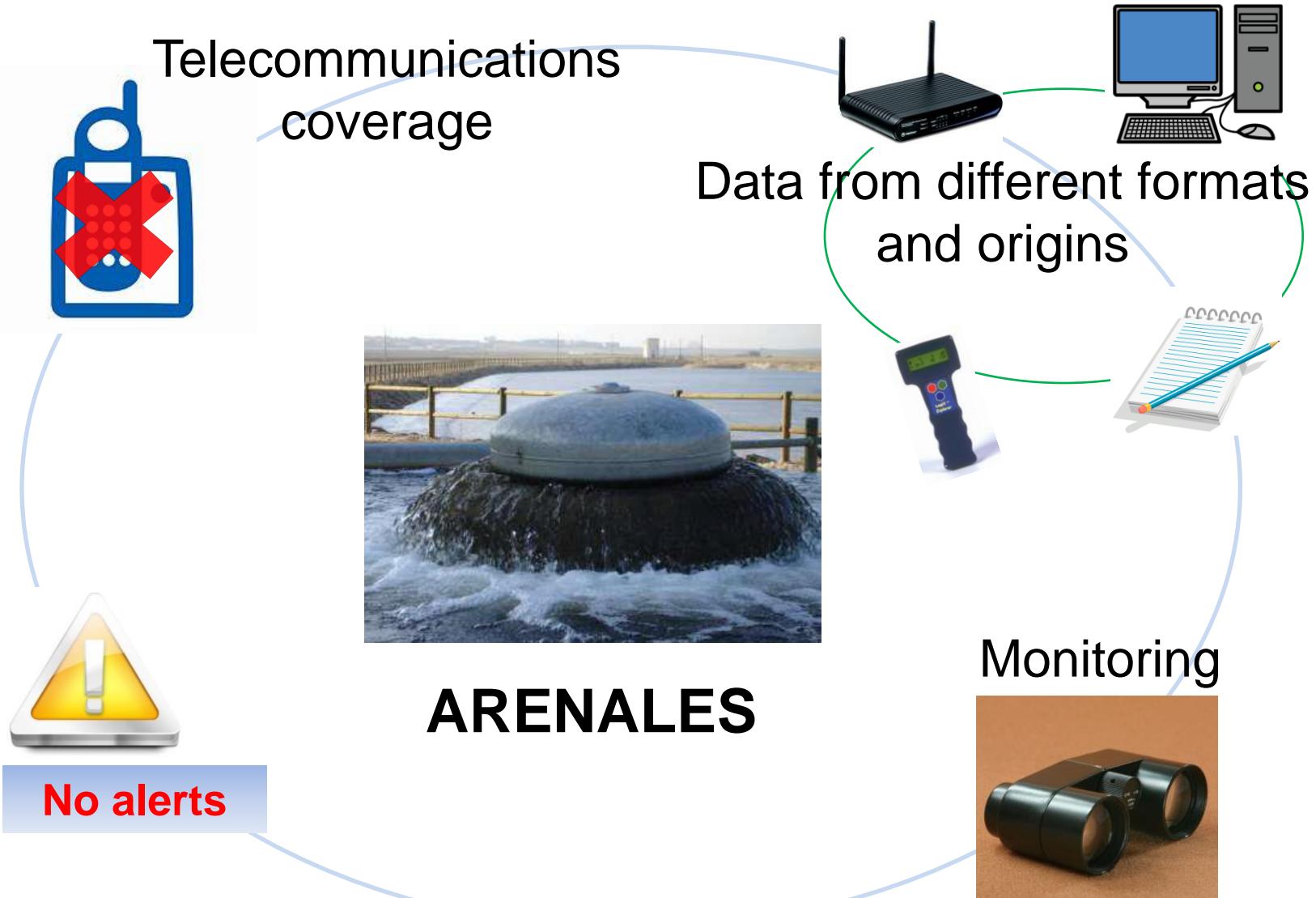


Monitorización



ARENALES

PROBLEMAS ACTUALES PRESENT PROBLEMS



No alerts

SOLUCIONES TIC / ICT SOLUTIONS



**Internet de las cosas /
Internet of things (IoT)**



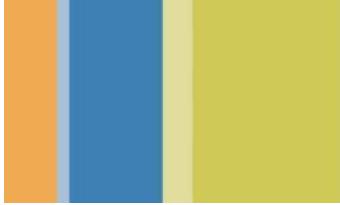
**Interoperabilidad /
Interoperability**



**Monitorización /
Monitoring**



**Histórico de datos /
Historical data**



SOLUCIONES TIC / ICT SOLUTIONS

Internet de las cosas



Interconexión digital de objetos cotidianos con internet.

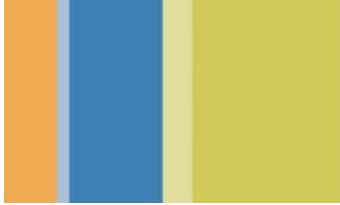
En cualquier momento y lugar.

Cada objeto lleva asociado un identificador para interactuar con otros objetos.

Cada objeto puede registrar, procesar, almacenar y transferir datos.

Fabricantes, desarrolladores de aplicaciones, gestores de redes sociales, usuarios...

Infraestructura: Sensores, redes fijas e inalámbricas.



SOLUCIONES TIC / ICT SOLUTIONS

Internet of things (IoT)



Digital Interconnection of everyday objects through Internet

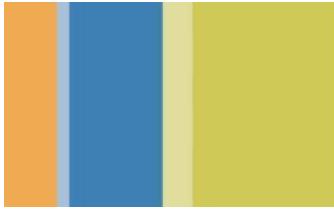
At any time, anywhere

Any object identified to interact with others

Any object to be able to register, to process, to store and transfer data

Manufacturers, application developers, managers social network operators, users,

Infrastructure: Sensor, fixed and mobile networks



SOLUCIONES TIC / ICT SOLUTIONS

Interoperabilidad



La habilidad de dos o más sistemas o componentes heterogéneos:

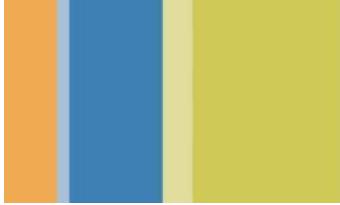
Para intercambiar información y utilizar la información intercambiada (IEEE).

Para interactuar entre ellos sin ningún tipo de restricción.

De interconectar independientemente de sus características.

De interpretar la información intercambiada de la misma manera.

Para garantizar la interoperabilidad → Estandarización



SOLUCIONES TIC / ICT SOLUTIONS

Interoperability



The ability of two or more systems or heterogeneous components:

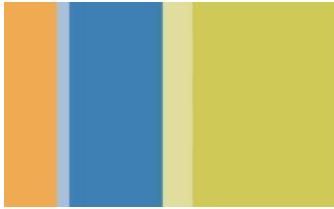
To exchange information and use the exchanged information (IEEE).

To interact among them without restrictions

To interconnect independently of the way they work

To read the information in the same way

To guarantee interoperability → Standardization



SOLUCIONES TIC / ICT SOLUTIONS

Monitorización



Observar mediante aparatos especiales el curso de uno o varios parámetros fisiológicos o de otra naturaleza para detectar posibles anomalías (RAE).

Técnica que ayuda a controlar o supervisar una situación.

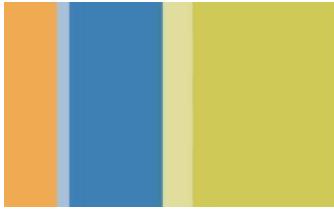
Proceso de escucha, análisis, cuantificación y
Cualificación de la información contenida en los
medios digitales.

Beneficios:

Prevenir incidencias

Establecer alertas en tiempo real

Detectar patrones de conducta



SOLUCIONES TIC / ICT SOLUTIONS

Monitoring



To observe through special equipment the development of one or more parameters to detect not expected situations (RAE).

Technique to help controlling a situation

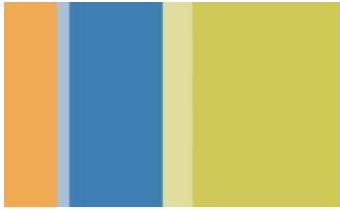
Process of lisening, analizing, quantification, cualification of the information Proceso de escucha, análisis, cuantificación y Cualificación de la información from the digital devices

Benefits:

To prevent future occurrences

To set alerts in real

To identify patterns of behavior



SOLUCIONES TIC / ICT SOLUTIONS

Histórico de datos



Datos pertenecientes a un mismo contexto y almacenados sistemáticamente para su posterior uso.

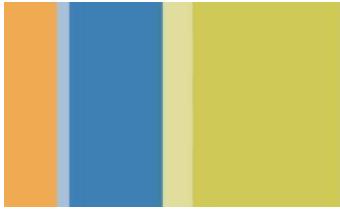
Datos recolectados por largos períodos de tiempo.

Fuentes de información histórica.

Beneficios:

Estadísticas

Patrones de comportamiento



SOLUCIONES TIC / ICT SOLUTIONS

Historical data



Data from the same context and saved systematically to use them in the future

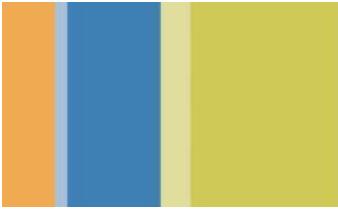
Data collected over time

Historical Data sources

Benefits:

Statistics

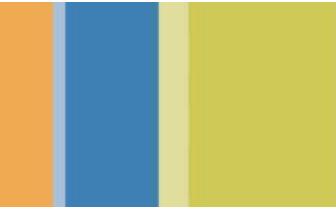
To detect behaviour patterns



LAS TIC EN ARENALES ICT IN ARENALES



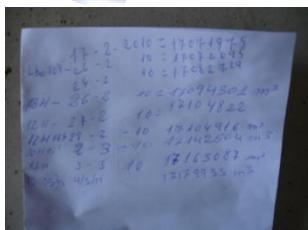
Cobertura
de telecomunicaciones/
Telecommunications
coverage



LAS TIC EN ARENALES ICT IN ARENALES

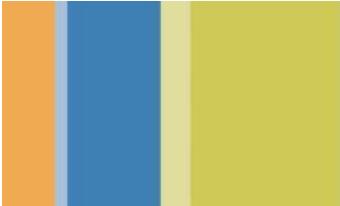


LAS TIC EN ARENALES ICT IN ARENALES

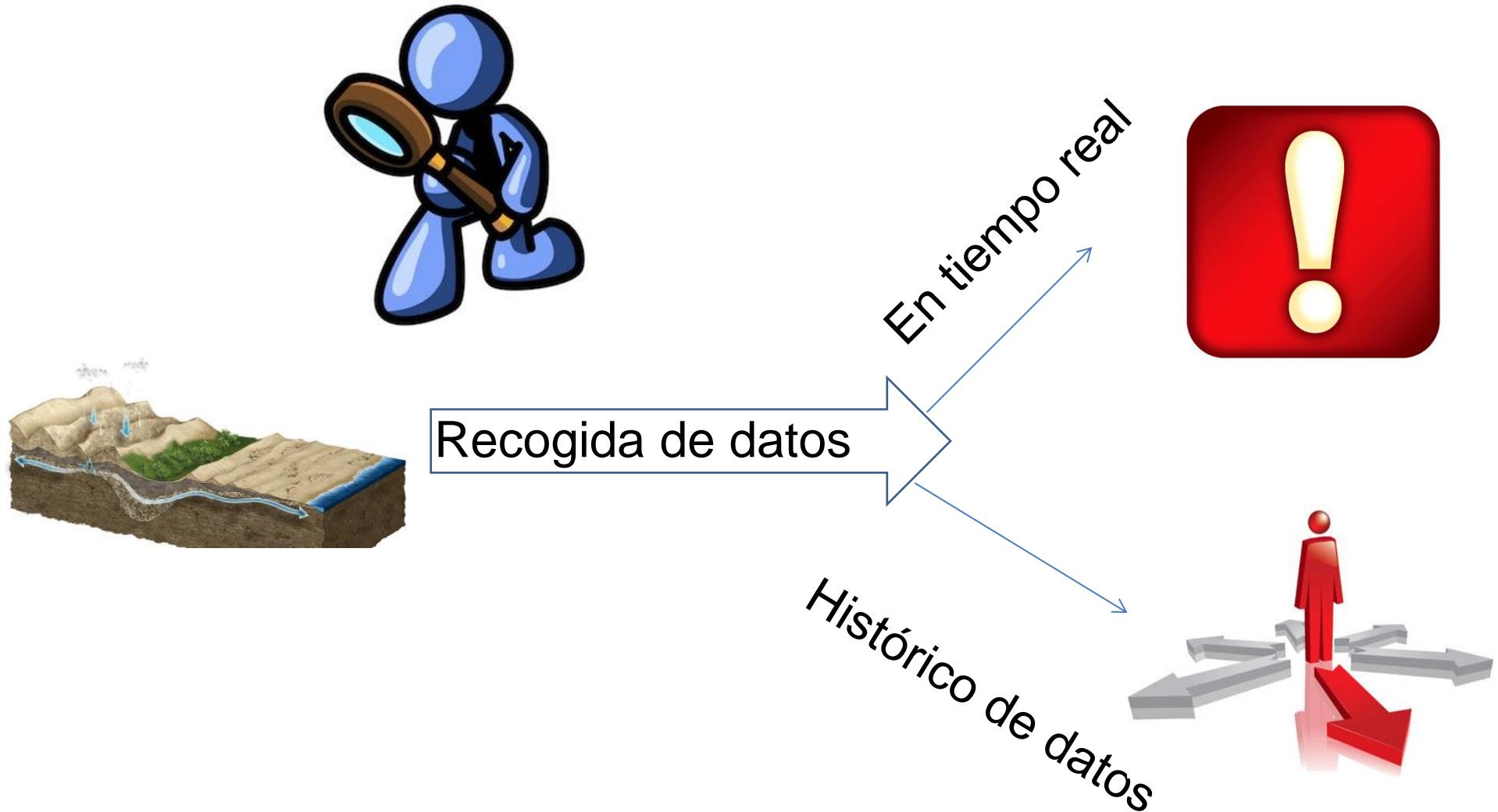


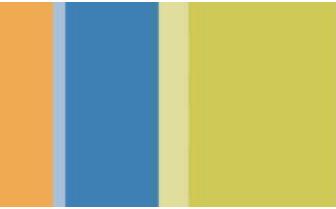
Interoperabilidad
Estandarización



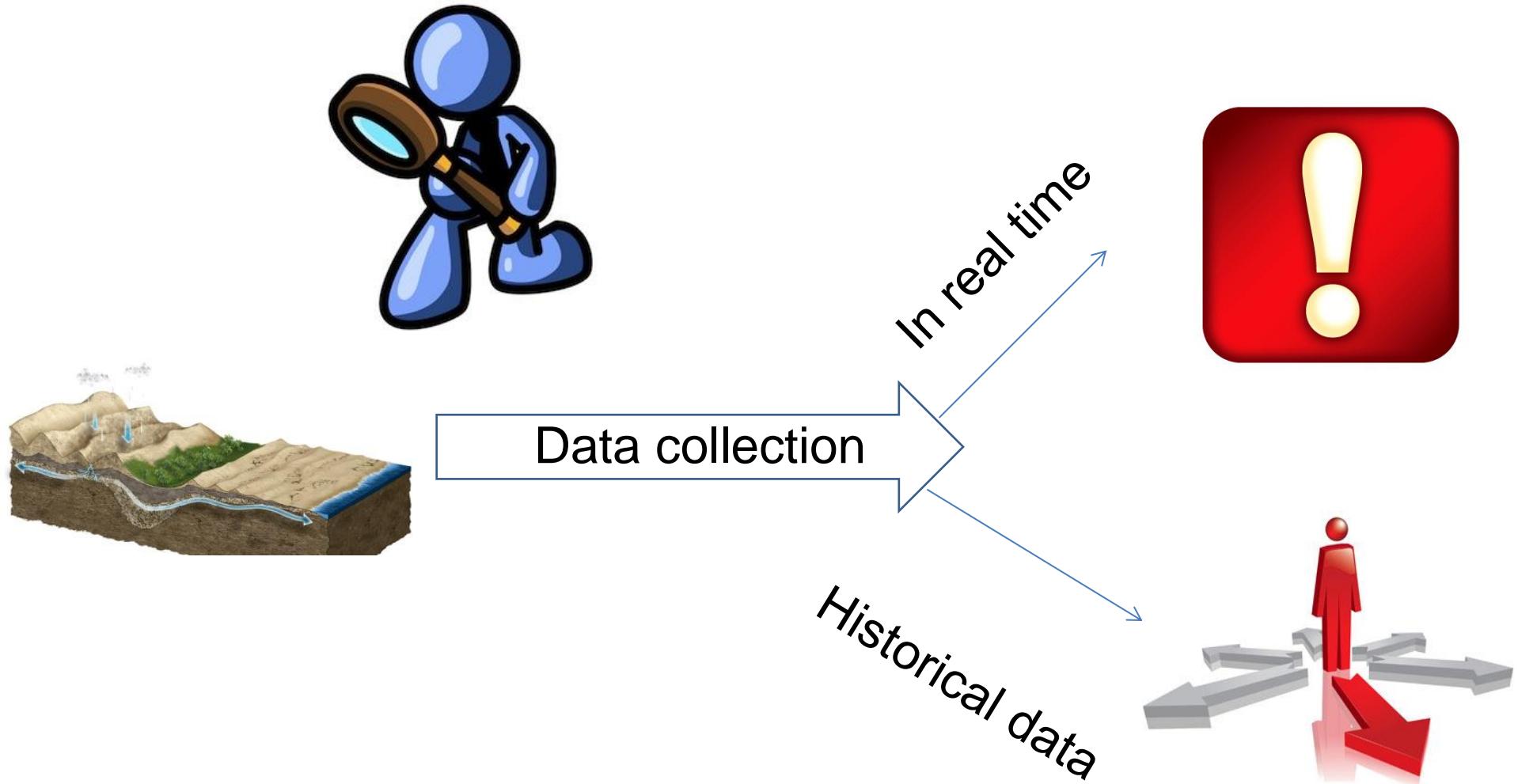


LAS TIC EN ARENALES ICT IN ARENALES





LAS TIC EN ARENALES ICT IN ARENALES

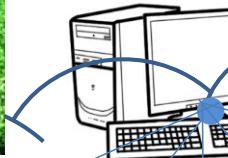


MEGA Project: Ejemplo de aplicación /Real implementation



Modelo de estandarización
de gestión del agua

Computer Center
Decision Support System



-bilities:
Efficiency
Productivity
Scalability
Interoperability



Climate conditions

Irrigation sector

Irrigation decision

Wireless Sensors
Networks:
Caudal
Temperature
Ground conditions
Weather
Security



Heterogeneous &
Proprietary and Smart
Subsystems for Water
Management



Energy & Water
Efficiency

Data-:
Volume
Variety
Veracity
Velocity



UAVs



Conclusiones / Conclusions

Process automatization



Soluciones TIC para conseguir una mayor eficiencia hídrica. ICT solutions to achieve greater water efficiency

TECHNICAL SOLUTIONS FOR
MANAGED AQUIFER RECHARGE

MAR ENALES

A promotional graphic for the MAR ENALES project. It features the project's name at the top, followed by a large, stylized logo where the letters 'M', 'A', 'R', 'E', and 'NALES' are colored blue, green, and red respectively. The background shows a blue gradient with faint white lines resembling water or data flow. In the bottom right corner, there is an illustration of a satellite in space.



TECHNICAL SOLUTIONS FOR
MANAGED AQUIFER RECHARGE

MAR ENALES
SPANISH TRAINING WORKSHOP
2015 MARCH

π PASSIVE
INTERMITTENT

Grupo Tragsa
Partners in excellence

Ruegos y preguntas / Questions & Answers



MARSOL PROJECT
MARENALES Workshop
Technical Solutions for
Managed Aquifer Recharge



Gracias / Thank you

Gomezserracín, 2015 March 11th

Collaborate:



Ministerio de Ciencia e Innovación de España



Cubeta de Santiuste...



Comunidad de Regantes
El Carracillo



GOBIERNO DE ESPAÑA



MINISTERIO DE
AGRICULTURA, ALIMENTACIÓN
Y MEDIO AMBIENTE



MINISTERIO DE
CIENCIAS E INNOVACIÓN



GOBIERNO
REGIONAL DE CASTILLA Y LEÓN



Junta de
Castilla y León



plan 2020

AIMCRA



Exmo Ayto. de Santiuste de San Juan Bautista



Ayuntamiento de Alcazarén

This initiative takes place in the framework of 'FP7-ENV-2013 MARSOL (GA 619 120). Demonstrating Managed Aquifer Recharge as a Solution to Water Scarcity and Drought (WPS)' with the support of the European Commission; however it reflects the views only of the authors, and the Commission cannot be held responsible of any use which may be made of the information contained therein.

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