



**POLITECNICO**  
MILANO 1863

# MIGRATE: MIGRation pATterns in Europe

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# Recent trends in migration

Worldwide (UNHCR - Global trends 2015):

**65.3 million** forcibly displaced people, meaning 34,000 people every day

**21.3 million** refugees, over half of whom are under the age of 18

**10 million** stateless people



The war in Syria produced **4.9 million registered refugees** by the end of 2015, more than from any other country in the world (source: UNHCR)



In 2015 **1,015,078 people** have crossed the **Mediterranean Sea** and **3771 people** died in their attempt to reach Europe.

In 2016 the number of arrivals by sea has reduced (333,940); however, still **3949 dead or missing people** have been registered (source: UNHCR)

# MIGRATE – MIGRation pATterns in Europe

- ✓ A Web mapping application

- developed with a gamification approach
- based on open data
- available at <http://geomobile.como.polimi.it/migrate>



- ✓ Purposes:

- educating and raising awareness about the phenomenon of migration in Europe
- deriving insights on people's perception of migration by analyzing the

- ✓ The application is funded under the third call of MYGEOSS project by the European Commission – Joint Research Center (JRC).



# MIGRATE – The open data used

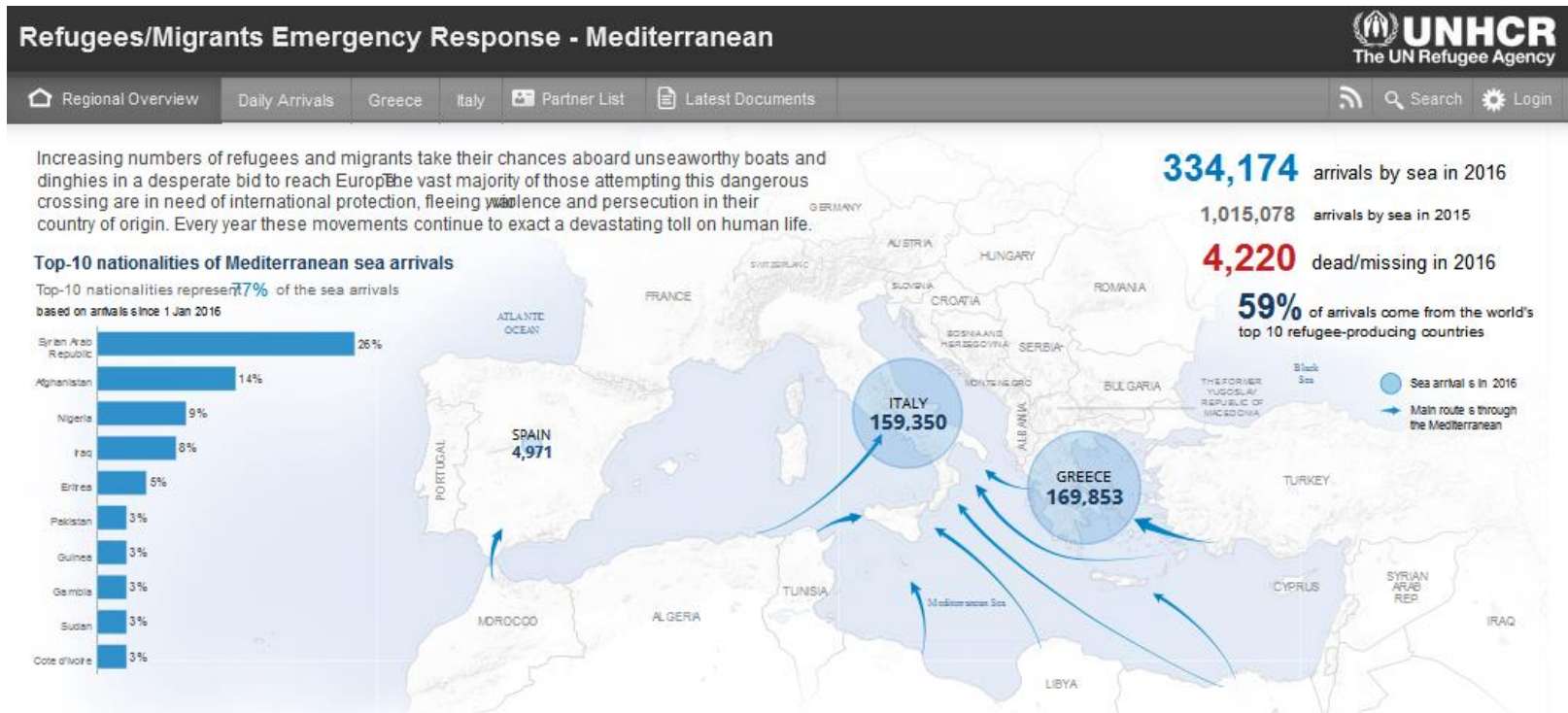
- ✓ MIGRATE makes full use of on open-licensed data:
  - **OpenStreetMap (OSM)** - <http://www.openstreetmap.org>
    - license: ODbL





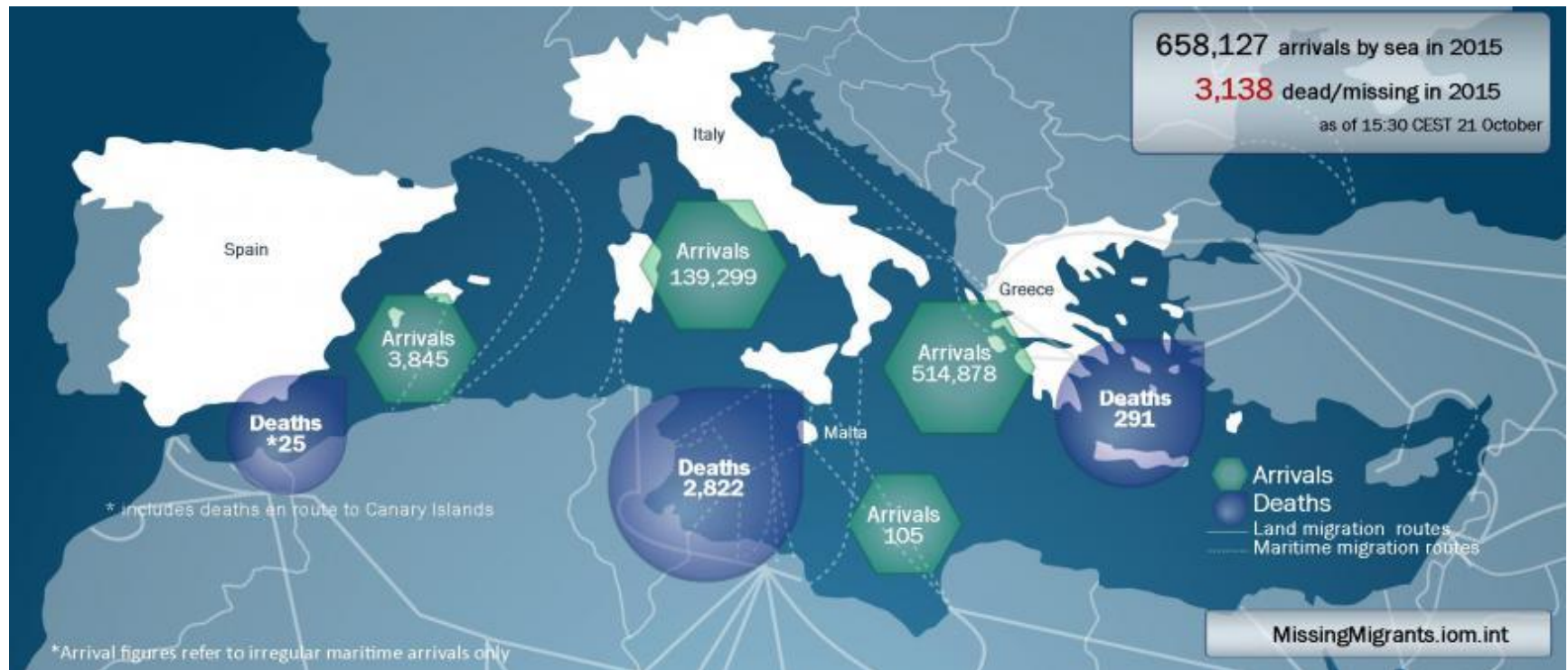
# MIGRATE – The open data used

- ✓ MIGRATE makes full use of on open-licensed data:
  - **United Nations High Commissioner for Refugees (UNHCR) - The UN Refugee Agency** – <http://www.unhcr.org>
    - licenses: CC BY, CC BY-IGO, CC BY-SA, ODbL, ODC-BY, PDDL, CC0
    - aggregated data on **2015 global trends & Mediterranean area**



# MIGRATE – The open data used

- ✓ MIGRATE makes full use of on [open-licensed data](#):
  - **International Organization for Migration (IOM)** - <https://www.iom.int> & **IOM Missing Migrants** project - <http://missingmigrants.iom.int>
    - licenses: CC BY, CC BY-IGO, CC BY-SA, ODbL, ODC-BY, PDDL, CC0
    - aggregated data on [migration in Europe](#)



# MIGRATE – The open data used

- ✓ MIGRATE makes full use of on open-licensed data:
  - **The Migrants' Files** - <http://www.themigrantsfiles.com>
    - license: ODbL



# MIGRATE – The open data used

- ✓ MIGRATE makes full use of on open-licensed data:
  - Eurostat - <http://ec.europa.eu/eurostat>
    - license: a customized open license policy

Important legal notice  
v3.1.18-20160921-5796-PROD\_EUROBAS1  
DATA-EXPLORER\_PRODmanaged11

Explanatory texts (metadata) Information Download Preview Bookmark Demo Help Login

Population on 1 January by age and sex  
Last update: 10-10-2016  
Table Customization [show](#)

TIME GEO Age class  
Sex Unit of measure  
Total Number

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
European Union (28 countries)	496,436,597	498,300,775	500,297,033	502,090,235	503,170,618 <sup>(b)</sup>	502,964,837 <sup>(b)</sup>	504,060,345 <sup>(b)</sup>	505,166,839	506,944,075 <sup>(bep)</sup>	508,450,856 <sup>(bep)</sup>
European Union (27 countries)	492,124,110	493,987,245	495,985,066	497,780,439	498,867,771 <sup>(b)</sup>	498,674,980 <sup>(b)</sup>	499,784,361 <sup>(b)</sup>	500,904,699	502,697,266 <sup>(bep)</sup>	504,225,540 <sup>(bep)</sup>
Euro area (19 countries)	329,684,938	331,204,579	333,096,775	334,470,255	335,266,424	334,572,589 <sup>(b)</sup>	335,301,305 <sup>(b)</sup>	336,048,797	337,473,384 <sup>(bp)</sup>	338,471,000 <sup>(bep)</sup>
Euro area (18 countries)	326,395,103	327,954,596	329,884,170	331,286,399	332,124,448	331,520,001 <sup>(b)</sup>	332,297,664 <sup>(b)</sup>	333,076,892	334,529,912 <sup>(bp)</sup>	335,549,738 <sup>(bep)</sup>
Belgium	10,511,382	10,584,534	10,666,866	10,753,080	10,839,905	11,000,638 <sup>(b)</sup>	11,094,850	11,161,642	11,203,992	11,258,434
Bulgaria	7,629,371	7,572,673	7,518,002	7,467,119	7,421,766	7,369,431	7,327,224	7,284,552	7,245,677	7,202,198
Czech Republic	10,223,577	10,254,233	10,343,422	10,425,783	10,462,088	10,486,731	10,505,445	10,516,125	10,512,419	10,538,275
Denmark	5,427,459	5,447,084	5,475,791	5,511,451	5,534,738	5,560,628	5,580,516	5,602,628	5,627,235	5,659,715
Germany (until 1990 former b	82,437,995	82,314,906	82,217,837	82,002,356	81,802,257	80,222,065 <sup>(b)</sup>	80,327,900	80,523,746	80,767,463	81,197,537
Germany (including former G	82,437,995	82,314,906	82,217,837	82,002,356	81,802,257	80,222,065 <sup>(b)</sup>	80,327,900	80,523,746	80,767,463	81,197,537
Estonia	1,350,700	1,342,920	1,338,440	1,335,740	1,333,290	1,329,660	1,325,217	1,320,174	1,315,819	1,313,271
Ireland	4,208,156	4,340,118	4,457,765	4,521,322	4,549,428	4,570,881	4,582,707	4,591,087	4,605,501 <sup>(p)</sup>	4,628,949 <sup>(p)</sup>
Greece	11,004,716	11,036,008	11,060,937	11,094,745	11,119,289	11,123,392	11,086,406	11,003,615	10,926,807	10,858,018
Spain	44,009,971	44,784,666	45,668,939	46,239,273	46,486,619	46,667,174	46,818,219	46,727,890	46,512,199	46,449,565
France	63,229,635	63,645,065	64,007,193	64,350,226	64,658,856	64,978,721	65,276,983 <sup>(b)</sup>	65,600,350	65,889,148	66,415,161 <sup>(bp)</sup>
France (metropolitan)	61,399,733	61,795,238	62,134,866	62,465,709	62,765,235	63,070,344	63,375,971	63,697,865	:	:
Croatia	4,312,487	4,313,530	4,311,967	4,309,796	4,302,847	4,289,857	4,275,984	4,262,140	4,246,809	4,225,316
Italy	58,064,214	58,223,744	58,652,875	59,000,586	59,190,143	59,364,690	59,394,207	59,685,227	60,782,668	60,795,612

Available flags:  
b break in time series  
e estimated  
n not significant  
s Eurostat estimate (phased out)  
c confidential  
f forecast  
p provisional  
r revised  
d definition differs, see metadata  
i see metadata (phased out)  
u low reliability  
z not applicable

Special value:  
: not available





# MIGRATE – The registration

- ✓ Playing the game requires a free and anonymous registration:
  - no sensitive information required – only nickname, password, gender, age range, country of origin, education level

Nickname:

Required. 30 characters or fewer. Letters, digits and @/./+/-/\_ only.

Password:

Gender:

Male ▼

Age range (years):

25 - 34 ▼

I hereby certify that I am 18 years of age or older.

Country of origin:

Italy ▼

Education level:

PhD degree ▼

Register



# MIGRATE – The game

- ✓ Each game is composed of 6 questions:
  - 1 true/false question (select True or False)

The number of refugees who returned to their countries of origin was higher in 2015 than in 2014.

☐ TRUE

☐ FALSE

Submit



# MIGRATE – The game

- ✓ Each game is composed of 6 questions:
  - 1 true/false question (select True or False)
  - 2 multiple choice questions (select one out of four possible answers)

The number of refugees who returned to their countries of origin was higher in 2015 than in 2014.

- ☐ TRUE
- ☐ FALSE

How many applications (at any stage of the asylum procedure) were pending in Italy at the end of 2015?

- ☐ About 60000
- ☐ About 16200
- ☐ About 11600
- ☐ About 113999

Submit





# MIGRATE – The game

- ✓ Each game is composed of 6 questions:
  - 1 true/false question (select True or False)
  - 2 multiple choice questions (select one out of four possible answers)
  - 2 map-based questions (select a country on the map)

The number of refugees who returned to their countries of origin was higher in 2015 than in 2014.

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How many applications (at any stage of the asylum procedure) were pending in Italy at the end of 2015?

- ☐ About 60000
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- ☐ About 11600
- ☐ About 113999

During the second quarter (April-June) of 2016, in which of these European countries did most of the migrants arrive by sea?

Select one of the countries *Italy, Cyprus, Spain, Greece* on the map, then press the *Submit* button.

Submit



# MIGRATE – The game

- ✓ Each game is composed of 6 questions:
  - 1 true/false question (select True or False)
  - 2 multiple choice questions (select one out of four possible answers)
  - 2 map-based questions (select a country on the map)
  - 1 text-based question (type a number)

The number of refugees who returned to their countries of origin was higher in 2015 than in 2014.

- ☐ TRUE
- ☐ FALSE

How many applications (at any stage of the asylum procedure) were pending in Italy at the end of 2015?

- ☐ About 60000
- ☐ About 16200
- ☐ About 11600
- ☐ About 113999

During the second quarter (April) which of these European countries did the migrants arrive by sea?

Select one of the countries *Italy* or *Greece* on the map, then press the

Submit

The largest single cost of Europe's immigration policy is due to the bureaucracy, especially for the deportation procedures. Can you guess which is the annual cost of deportations in Europe? Provide your answer in billion €. Your answer will be right if the deviation from the correct answer is less than 20%.

type here...

Submit



# MIGRATE – The game

- ✓ Each game is composed of 6 questions:
  - 1 true/false question (select True or False)
  - 2 multiple choice questions (select one out of four possible answers)
  - 2 map-based questions (select a country on the map)
  - 1 text-based question (type a number)
    - 2 out of the 6 questions depend on the user's country of origin
    - each question is extracted randomly from a set of 20 questions





# MIGRATE – The game

- ✓ Each game is composed of 6 questions:
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    - 2 out of the 6 questions depend on the user's country of origin
    - each question is extracted randomly from a set of 20 questions
- ✓ A limited amount of time (30 seconds) is given to answer each question.
- ✓ After the user answers the outcome (right/wrong), the correct answer and its explanation and a link to the data source are provided.



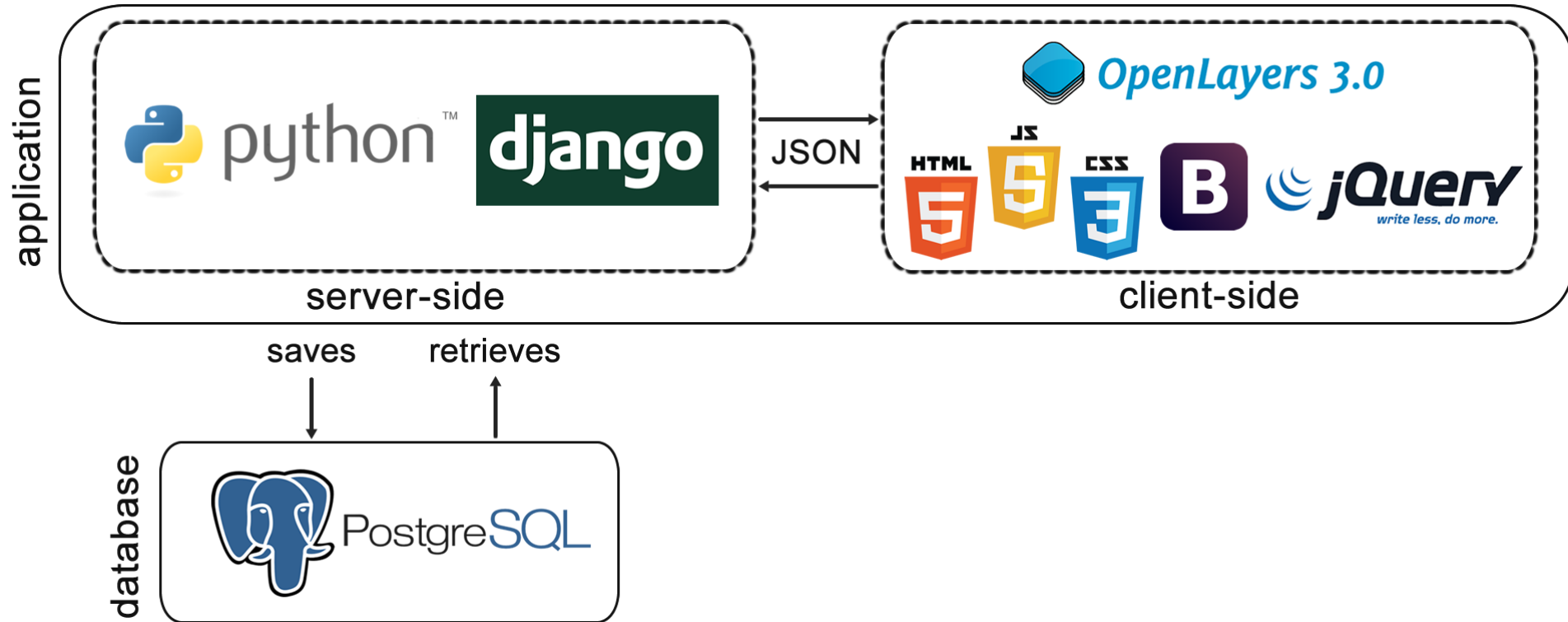
# MIGRATE – The game

- ✓ Each game is composed of 6 questions:
  - 1 true/false question (select True or False)
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  - 2 map-based questions (select a country on the map)
  - 1 text-based question (type a number)
    - 2 out of the 6 questions depend on the user's country of origin
    - each question is extracted randomly from a set of 20 questions
- ✓ A limited amount of time (30 seconds) is given to answer each question.
- ✓ After the user answers the outcome (right/wrong), the correct answer and its explanation and a link to the data source are provided.
- ✓ Computation of user's score:
  - single-game score: each type of question has a different weight and the time taken to answer is also weighted
  - aggregated score (after multiple games): average score is computed and extra points are given as long as the user keeps on playing



# MIGRATE – The technical architecture

- ✓ MIGRATE is fully based on Free and Open Source Software (FOSS).



- ✓ Source code is available at <https://github.com/kilsedar/migrate>
  - EU Public License (EUPL)
  - instructions for deployment available





# MIGRATE – The game



[Register](#) | [Log in](#)

**MIGRATE - MIGRATION pATterns IN Europe** is a Web mapping application aimed at educating and raising awareness about the phenomenon of migration in Europe. This goal is achieved using a gamification approach, that means you will interact with the application by playing a map-based game, where questions are asked and answers are provided and explained about a number of topics related to migration. Your answers will help to understand the current knowledge and perception of migration-related issues. The source code of MIGRATE can be accessed [here](#).

Each time you play, you will be asked 6 questions of different types: true/false questions, multiple choice questions, text-based questions (where you are required to enter a numerical value) and map-based questions (where you are required to select a country on the map). You will have only 30 seconds to answer each question. Questions will be focused on Europe. If you come from Europe, parts of the questions are customized according to the country you come from. To play the application, you need a user account.

[Click here](#) to create a new user account: If you already have an account, [click here](#) to login.



*This application has been developed within the MYGEOS5 project, which has received funding from the European Union's Horizon 2020 research and innovation programme. The JRC, or as the case may be the European Commission, shall not be held liable for any direct or indirect, incidental, consequential or other damages, including but not limited to the loss of data, loss of profits, or any other financial loss arising from the use of this application, or inability to use it, even if the JRC is notified of the possibility of such damages.*

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<https://youtu.be/gaVMoG8m6jo>



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# MIGRATE – Next steps

- ✓ Technical improvements of MIGRATE:
  - security fixes
  - form to download the data collected, available under an open license
  - refinement of the scoring system
- ✓ First official campaign of MIGRATE:
  - one month duration: from December 6, 2016 to January 6, 2017
    - official announcement during MYGEOSS final event in Brussels
  - awards for the 10-15 top players (Amazon vouchers)
  - advertisement required – please spread the word!
- ✓ User's answers will be analyzed and studied
  - at least an academic paper will be produced



# MIGRATE – The team



**Eng. Martina Aiello**  
data analysis



**Eng. Candan Eylül Kilsedar**  
technical manager,  
development of the application



**Prof. Maria Antonia Brovelli**  
idea, scientific consultancy,  
supervision of data and  
questions



**Dr. Marco Minghini**  
project manager, data  
analysis, questions & answers



**Prof. Marco Gianinetto**  
scientific consultancy



**Eng. Mayra Alejandra Zurbarán Nucci**  
technical manager,  
development of the application



# MIGRATE – Contacts

- ✓ For any information on MIGRATE please contact [Dr. Marco Minghini](#)
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  - [@MarcoMinghini](#)

## Thank you for the attention!



This application has been developed within the MYGEOSS project, which has received funding from the European Union's Horizon 2020 research and innovation programme. The JRC, or as the case may be the European Commission, shall not be held liable for any direct or indirect, incidental, consequential or other damages, including but not limited to the loss of data, loss of profits, or any other financial loss arising from the use of this application, or inability to use it, even if the JRC is notified of the possibility of such damages.

