What methods of interaction with users have proved to better perform for advanced co-development of climate services in the water sector?

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Introduction

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A wide offer of climate data-sources/services is currently available dealing with future climate scenarios and projections. However:

- The use of Climate Services is not extensive yet, and their potential is frequently underexploited; some sectors' users are not (fully) aware of climate service capabilities which prevents them from valuing and then demanding such services.
- Significant gaps between can be identified between:
  - The complexity of climate metadata and the users' capability of exploiting them.
  - The expertise of climate data providers and the every-day operation of the different potentially interested end-users.

CO-DEVELOPMENT

+ Improves and fosters climate services' usability and uptake when compared to a traditional one-side development approach.
- Time-consuming for both sides and less effective than expected if an adequate communication design is missing. In this context,

QUESTIONS-AQUACLEW Project

What methods of interaction with users have proved to better perform for advanced co-development of climate services?

And, what factors have best motivated users to interact?

Approaches

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Focus Groups act as co-developers of climate services with direct interaction with us in the context of their individual sectoral expertise and needs. With these interactions during the project, we aim at improving the quality of Climate Services dealing with future climate projections and, thus, increasing their value:

- FG1: Consultants
- FG2: Researchers
- FG3: Water Managers
- FG4: Policy Makers
- FG5: Data Providers

STUDENT'S EXPERIMENT

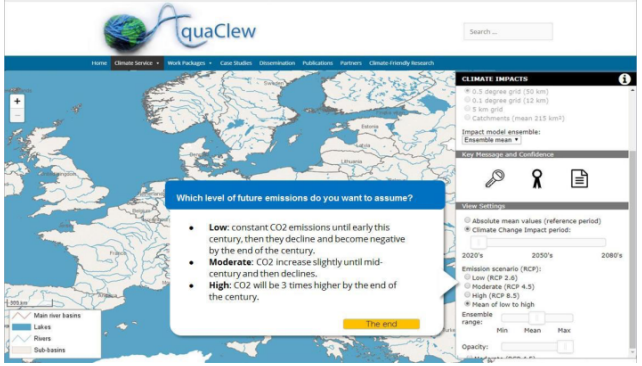
Engineering students in bachelor and master programmes (agronomic, civil, forestry, geotechnical, hydraulic) act as potential CS users with a similar background knowledge. The experiment assesses the role of previous knowledge in the user's perception of climate services (CS) and the value of co-development in improving climate data quality in a CS from both stand-alone and cooperative approaches.

Group (i) Trained

Group (ii) Non-Trained

FEEDBACK LOOPS

Use of the Aquaclew website to train the users on a stand-alone basis, and ask them feedback that help us improve our design, development, production and evaluation of climate services.
https://aquaclew.eu/user-guidance-and-feedback/



Preliminary Results (1/3)

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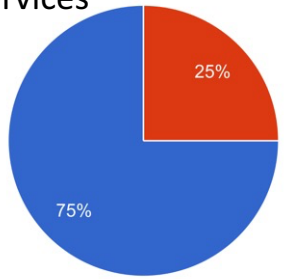
FOCUS GROUP

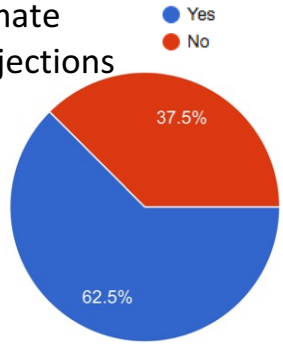
- Several trials (different approaches)
- Analysis of data
- Final form to those experts who have not participated

Have you ever used…?

Climate Services

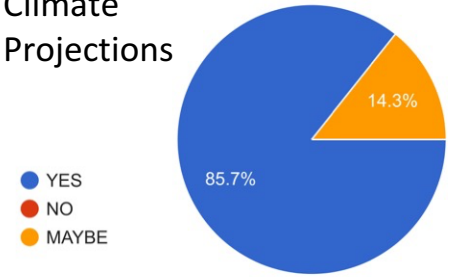


Climate Projections

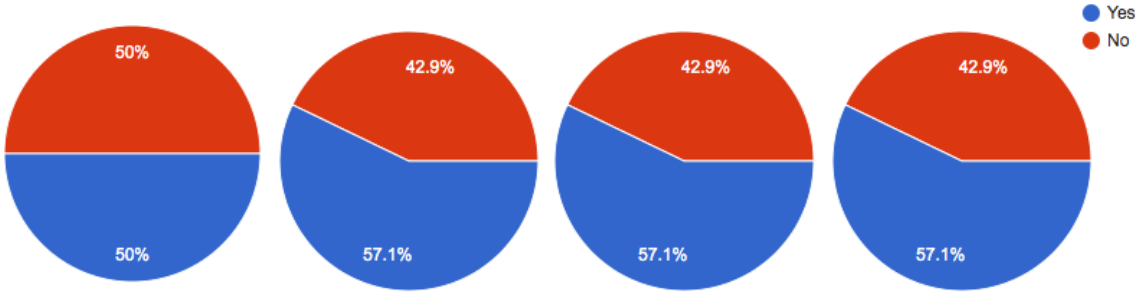


Will you use now…?

Climate Projections



Would you pay for the CPs service and how much…?



Level 1 Level 2 Level 3 Level 4

SUM-UP OF FEEDBACK AND IMPACTS ON USERS

Preliminary Results (2/3)

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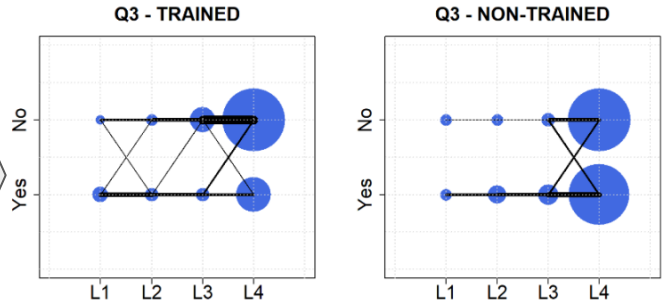
STUDENT'S EXPERIMENT

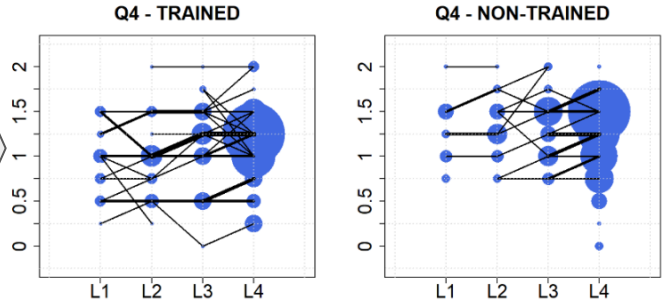
11 experiments carried out in Spain and Austria

- Did participants change their knowledge regarding basic CS definitions after the GAME? Yes, overall, but some misunderstandings in the stand-alone training

Q3: Choice between investing or not under risk



Q4: Level of trust on the scenarios used in the decision-making (1 = trust on the historical data; 0-,2+)



Preliminary Results (3/3)

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FEEDBACK LOOPS

- 118 answers collected; some engagement needed to be developed to foster participation (i.e. e-mail, meetings, etc.)

- Mostly researchers (48%), then policy makers (24%), with a nearly even split between <5 years experience or more than 10 years
- Nearly half of on-line participants use a climate service for accessing and downloading data to be used as model inputs
- Temperature, precipitation, river flow and water runoff are the most required variables
- 1-km grid size and 1000-km2 catchments are the mostly used resolutions (on-line)
- 40% use a model ensemble of 5-10 members
- 1.5 and 2degrees, and RCP4.5 and 8.5 are the future scenarios mostly demanded

Conclusions

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What methods of interaction with users have proved to better perform for advanced co-development of climate services?
And, what factors have best motivated users to interact?

Feedback loops

Global picture comprehension

Interface improvement

Most demanded data sets

Advanced co-development of climate services for future scenarios in the water sector

Focus group: Assessing added value of specific metadata

Students experiment:: Assessing learning strategies

Interaction requires some active initial engagement from the service developers, even for stand-alone approaches

Future climate scenarios less demanded than forecasts?

Conclusions

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IMPACT ON USERS

Better competences when trained; more critical awareness and a highest perception of value of these CSs

Co-development proves to improve knowledge in both users and developers, and more important, to increase awareness of the value of the added metadata to the service

FEEDBACK TO PROVIDERS

Barriers to and motivation for potential end-users to value and demand these future scenarios data

Interaction DOES require devoting time to both pre-designing of the interation process and tools, and engagement of stakeholders in a committed effort

UNIVERSIDAD DE CÓRDOBA

SMHI

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Thank you!

AquaClew

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ERA4CS European Research Area for Climate Services

Preliminary Results (2/3)

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STUDENT'S EXPERIMENT

11 experiments carried out in Spain and Austria

Did the students change their knowledge regarding basic CS definitions after the GAME?

	TRAINED (55)		**NON-TRAINED (60)**	
	Before	**After**	**Before**	**After**
Climate Projection	20 (36%)	31 (56%)	22 (37%)	22 (37%)
Emission Scenario	25 (45%)	28 (50%)	33 (55%)	30 (50%)
Models ensemble	33 (60%)	38 (70%)	28 (47%)	32 (53%)
Climate Service	37 (67%)	37 (67%)	40 (67%)	41 (68%)