

Diffuse phosphorus input to surface waters
- new concepts in removal, recycling and management -

Science School 2 & TSTC4

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D4.7 & D4.8 – 2nd Science School and TSTC4

Table of contents

1. Executive summary	3
2. Organisation and content of TSTC3 & TSTC5	3
3. Impressions of TSTC3 & TSTC5.....	Error! Bookmark not defined.
3. Agenda	Error! Bookmark not defined.
4. Participants	5
5. Evaluation	Error! Bookmark not defined.
6. History of the deliverables.....	5



1. Executive summary

The Science Schools together with the Transferable Skills Training Courses (TSTC) are important network-wide training components to strengthen competencies and knowledge outside the individual ESR projects.

All ESRs followed the 4th Transferable Skills Training Course TSTC4 - Open science and communicating out of the ivory tower (21st January & 2nd February 2021) and the 2nd P-TRAP Science School – Modelling nutrient fluxes in soils, rivers, and lakes (13th January & 3rd February 2021), which were organised by the KULeuven and the UU. Initially, the two training events were planned to be held physically in Leuven, Belgium associated to the 2nd Annual Meeting. Due to the decreasing pandemic situation it was in December 2020 decided to hold both, the training event and the 2nd Annual Meeting, online by using the platform MS Teams.

Beneficiaries had the opportunity to register interested external students for the training events.

The training events were reported in the 1st Periodic Report and a blog for the general public about this activity has been published on the website (<https://h2020-p-trap.eu/2021/01/15/new-year-new-challenges/>).

2. Organisation, content, and evaluation of the Science School 2 and TSTC4

2.1 Science School 2 – Modelling nutrient fluxes in soils, rivers and lakes (D4.7)

The 2-days course was given online in two parts, 13 January and 3 February 2021, organised by KULeuven together with the UU and UBT. It aimed on giving an introduction on speciation codes and to get some hands-on about Fe-P interactions. Those speciation codes are of mutual benefit as they help to solve biogeochemical equations such as given in redox reactions, solubilities sorption or interactions between inorganic and organic materials such as Dissolved Organic Matter (DOM).

The ESRs learned to use Visual MINTEQ (<https://vminteq.lwr.kth.se/>), which is freeware. So, all students have access and can easily work with it, and by this benefit for their projects. In advance the ESRs were asked to install the software and received calculation exercises for preparation. The agenda of the school was as follows:

13 January 2021, 9-17: Modelling Fe and P speciation with VMinteq

9-9.30	Revisiting aqueous equilibrium chemical models with attention to reactions of Fe in water
9.30-10	demonstrating VMinteq for reactions in water
10-12	exercises on acid-base reactions, complexation reactions, redox reactions and mineral solubility
12-13	break
13-14	adsorption models for Fe oxyhydroxides
14-17	exercises on modelling phosphate adsorption in soils and sediments and on vivianite formation in sediments

More details about the 2nd Science School are given in the 1st Periodic Report and in a blog on the project website (<https://h2020-p-trap.eu/2021/01/15/new-year-new-challenges/>).



The course was evaluated afterwards. 7 out of the 11 participants ranked the school (Fig. 1). It was stated that the school “was a very nice combination of theory and application in the model”. Although the practical part was experienced as challenging and more time would have been preferred, the school was highly appreciated and valuable for the ESRs.

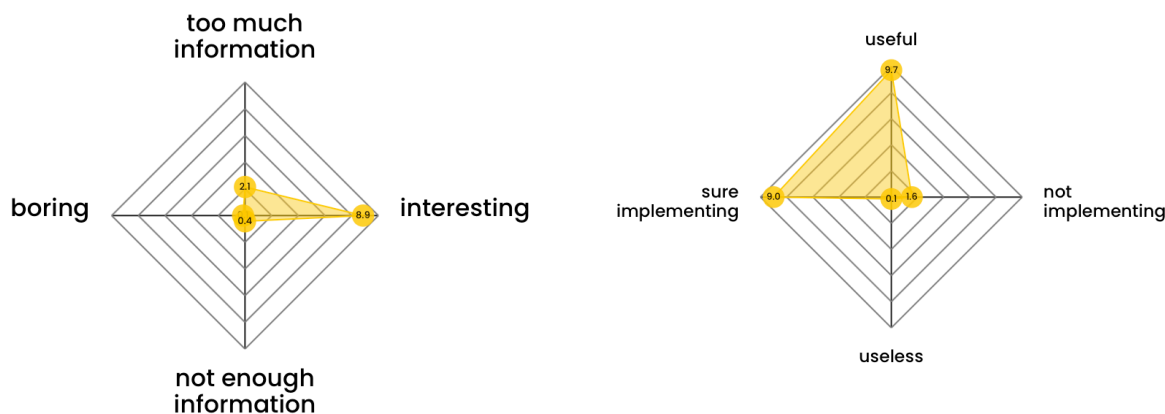


Fig. 1: a) Question “How have you experienced the level and content of given information?” b) Question “Was the course useful for you and will you implement what you have learned into your project?”

2.2 TSTC4 – Open science and communicating out of the ivory tower (D4.8)

Collaboration inside science and the communication of progress and results to audiences outside science are becoming more and more relevant for projects. P-TRAP as an international EU collaboration has to share its data, and the ESRs are expected to disseminate about their projects to a broad spectrum of stakeholders from public to policy. The training courses therefore aimed to familiarise the ESRs with the principles of open science and train their communication skills.

TSTC4 was initially planned to be organised by KULeuven in Leuven. Due to the pandemic this course was also held online. It was split into two parts, of which the open science / open access was facilitated by the university library of the UU (2 February 2021), and the communication part by an external trainer (R. Bisseling) (21 January and 2 February 2021).

During the 'Powerful in effective communication' training” the ESRs got some basic information about how to present a story as a scientist to various target groups. The open science / open access gave a broad overview of FAIR data, licences and research profiles.

The course was evaluated afterwards. 8 out of the 12 participants ranked the two parts (Fig. 2, on top the communication part, below the open science part). It became clear that the general parts of the training event were experienced more ambivalent than the science orientated 2nd school, and the ESRs’ appreciation clearly differ. Highlight of the communication course were the concept of communication doors and clearly the hands-on experiences from Dr. Eric van Sebille (UU, IMAU), who introduced his dissemination strategy and its development. Most of the ESRs experienced the course as valuable and will implement their learnings. Nevertheless, more detailed information and constructive feedback would have been appreciated.

For the open science course, also most of the ESRs experienced the course as valuable and will implement their learnings. However, it was stated that “the density of information in the afternoon was a real challenge”. More hand’s on practice and readings would have been welcome. Some ESRs mentioned that this kind of topic might probably of more use for ESRs later in their career.

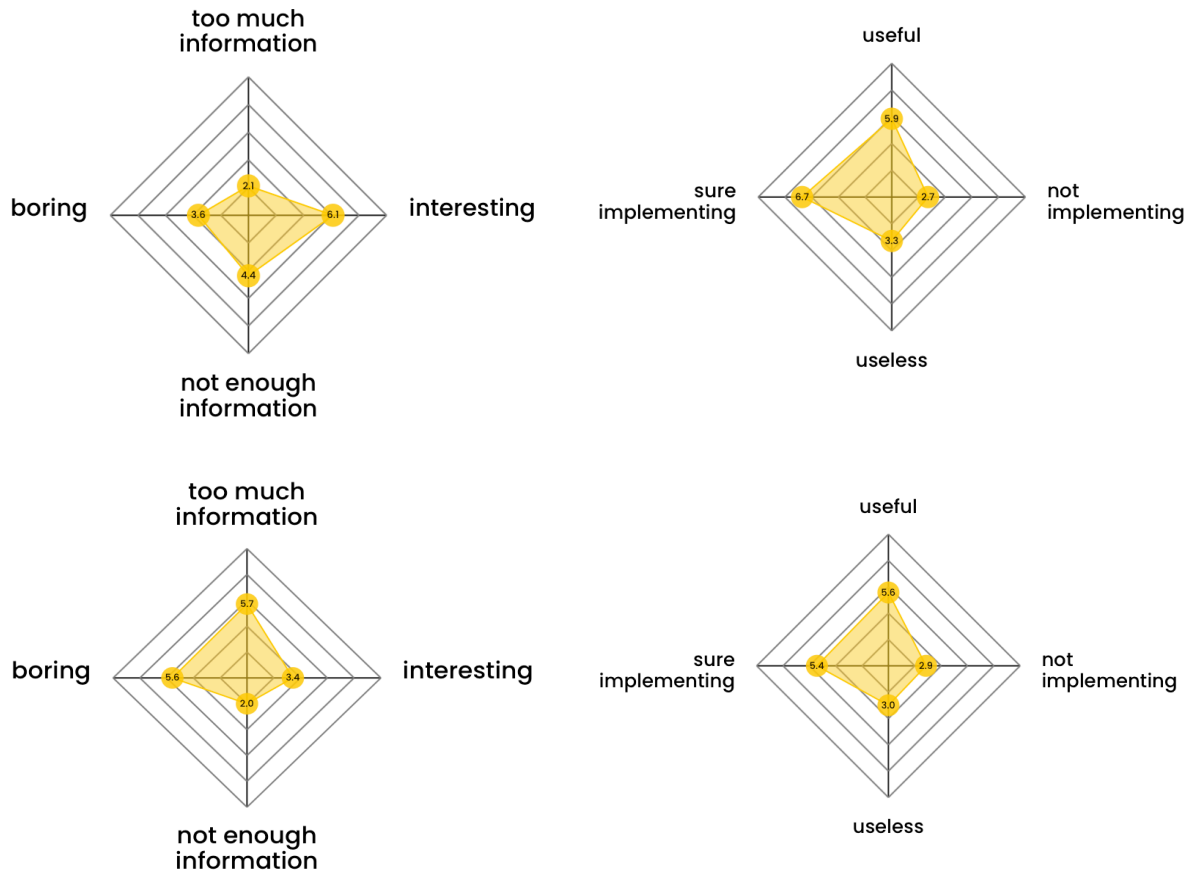


Fig. 2: a) Question “How have you experienced the level and content of given information?”, on top communication part, below open science part

b) Question “Was the course useful for you and will you implement what you have learned into your project?”, on top communication part, below open science part

3. Participants

All ESRs participated in the training, however, due the pandemic situation the course was given online. There was an option for 5 external students to participate, which was announced to all beneficiaries. One external student, Bayan Khojah from the UU, working on related P-TRAP topics participated.

4. History of the deliverables

Date	Actions / Changes
July 2020	First brainstorming sessions UU / KULeuven
October 2020	First concrete draft of agenda for a physical meeting
December 2020	Decided to held the training online, Speakers booked, ESRs informed about the final date for the training, 5 external spaces offered to beneficiaries
January 2021	Final agenda sent, training given