



Intro

Thank you for taking the time to participate in this survey. You are receiving this survey because your contribution is essential for completion of this manuscript.

I am performing a natural language processing (NLP) analysis on the posts from reactive transport model (RTM) user forums. The goal of the NLP analysis is to identify the Quality-in-Use (QIU) characteristic and subcharacteristic RTM users are posting questions more frequently about. This analysis will assist me to identify the software usability aspect that is lacking in RTMs. On the next page, I have identified and provided 36 commonly used keywords and phrases from the user forums. I would like you to select the QIU subcharacteristic(s) you think is most applicable to the keyword/phrase. The QIU characteristic and subcharacteristic definitions are provided on the next page.

This survey is to be taken individually. Please do not share your answers or discuss this survey with anyone else.

Qualtrics is showing an estimated completion time of 10-30 minutes.

Questions

The definitions for the QIU characteristics and its subcharacteristics are below. **I suggest copying the definitions to Notepad or Word (or view them in your email) because you might need to refer back to these throughout the survey.**

QIU Characteristic and Subcharacteristic Definitions

QIU Characteristic 1: Beneficialness - The extent of benefit resulting from the use of a product, system or service. This is broken down into 3 subcharacteristics of Usability, Accessibility, and Suitability.

- **Subcharacteristic 1.1: Usability** - The extent to which a system, product or service can be used by specified users to achieve specified goals with effectiveness, efficiency, and satisfaction in a specified context of use.
- **Subcharacteristic 1.2: Accessibility** - The extent to which products, systems, services, environments and facilities can be used by people from a population with the widest range of user needs, characteristics and capabilities to achieve identified goals in identified contexts of use. *Note:* context of use includes direct use or use supported by assistive technologies.
- **Subcharacteristic 1.3: Suitability** - The extent to which behaviours or outcomes, or both, of a product meet (satisfy) specified quality requirements when used. *Note:* When a product or system is especially recognized as an information system and an IT service, suitability, which is a kind of sub-characteristic in quality-in-use, is important because it affects the gain or loss of opportunities for a more diverse and broader group of stakeholders to obtain valuable benefits of use.

QIU Characteristic 2: Acceptability - The extent to which a human response is favourable when accepting or installing a product, system or service software tool designed to perform some frequently used function. This is broken down into 3 subcharacteristics of Experience, Trustworthiness, and Compliance.

- **Subcharacteristic 2.1: Experience** - The extent to which users or stakeholders accumulate knowledge or skill acquired over time, especially that gained in a particular profession. *EXAMPLE:* Data analyses or replaying, simulating, or detecting similar/different patterns based on recorded weather data can help weather monitoring users to improve their knowledges or skills for a weather forecasting.
- **Subcharacteristic 2.2: Trustworthiness** - The extent to which users or stakeholders have confidence that their expectations are met in a verifiable way. *Note 1:* Aspects to ensure trustworthiness can include, for example, reliability, availability, resilience, security, privacy, safety, accountability, transparency, integrity, authenticity, quality, and usability. *Note 2:* Trustworthiness is an attribute that can be applied to services, products, technology, data and information as well as, in the context of governance, to organizations. *EXAMPLE:* When purchasing a product from a seller through an online shopping system, information such as product specifications, previous transaction history, comments or rating by the purchasers, description of return and

refund procedures, and ratings or warnings by the online store operation service site, as well as product photos, are used to determine the extent to which the product and seller will meet potential customer expectations for the purchase.

- **Subcharacteristic 2.3: Compliance** - The extent to which a user or other stakeholder has confidence that a product, system, software, or service in use meets requirements, as required by rules or laws.

Instructions: Please carefully read the definitions and review the list of keywords/phrases in the table below. Then select the **subcharacteristic(s)** the keyword/phrase relates to. Choose all subcharacteristics that apply. If no subcharacteristics apply, select NA.

Note: I have provided a general use context of the keyword/phrase from the user forums within the [] brackets to assist in the selection process.

	Usability	Accessibility	Suitability	Experience	Trustworthiness	Compliance	NA
I want to [change my account because...]	<input type="checkbox"/>						
am trying to run [simulations of water mixing and reactions]	<input type="checkbox"/>						
I would like [to try a simple speciation model]	<input type="checkbox"/>						
I need to [set up a reaction transport model]	<input type="checkbox"/>						
[I get this error] non definito (not defined) [and don't understand what is wrong]	<input type="checkbox"/>						
how can I [fix this error]	<input type="checkbox"/>						
I tried to [create a 24h accumulated 2m, but it didn't work]	<input type="checkbox"/>						

	Usability	Accessibility	Suitability	Experience	Trustworthiness	Compliance	NA
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I am not sure
[what the value of
parameters
should be]

<input type="checkbox"/>							
--------------------------	--------------------------	--------------------------	--------------------------	--------------------------	--------------------------	--------------------------	--------------------------

	Usability	Accessibility	Suitability	Experience	Trustworthiness	Compliance	NA
--	-----------	---------------	-------------	------------	-----------------	------------	----

[I encounter an
error] no such file
[however, the file
is in the folder]

<input type="checkbox"/>							
--------------------------	--------------------------	--------------------------	--------------------------	--------------------------	--------------------------	--------------------------	--------------------------

[I encounter an
error] netcdf
invalid dimension
ID

<input type="checkbox"/>							
--------------------------	--------------------------	--------------------------	--------------------------	--------------------------	--------------------------	--------------------------	--------------------------

[I receive] the
following error
[when I port the
model]

<input type="checkbox"/>							
--------------------------	--------------------------	--------------------------	--------------------------	--------------------------	--------------------------	--------------------------	--------------------------

[to estimate the]
root water uptake
[parameters
instead of
hydraulic
parameters]

<input type="checkbox"/>							
--------------------------	--------------------------	--------------------------	--------------------------	--------------------------	--------------------------	--------------------------	--------------------------

I have to [model a
column
experiment
consisting of two
phases]

<input type="checkbox"/>							
--------------------------	--------------------------	--------------------------	--------------------------	--------------------------	--------------------------	--------------------------	--------------------------

[I tried to set up]
boundary
conditions [in the
van Genuchten-
Mualem model]

<input type="checkbox"/>							
--------------------------	--------------------------	--------------------------	--------------------------	--------------------------	--------------------------	--------------------------	--------------------------

[I am trying] to
simulate the
[water flow and
the heat transport]

<input type="checkbox"/>							
--------------------------	--------------------------	--------------------------	--------------------------	--------------------------	--------------------------	--------------------------	--------------------------

is there any
[practical
prevention against
the non-
convergent loop]

<input type="checkbox"/>							
--------------------------	--------------------------	--------------------------	--------------------------	--------------------------	--------------------------	--------------------------	--------------------------

	Usability	Accessibility	Suitability	Experience	Trustworthiness	Compliance	NA
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	Usability	Accessibility	Suitability	Experience	Trustworthiness	Compliance	NA
--	-----------	---------------	-------------	------------	-----------------	------------	----

i am simulating [the water, heat and CO2 transport]	<input type="checkbox"/>						
is it possible to [make the Solute Transport conditions time dependent]	<input type="checkbox"/>						
[i need to fill out the] solute transport [parameters]	<input type="checkbox"/>						
[is it appropriate to choose] variable pressure head [as the lower boundary condition]	<input type="checkbox"/>						
how do I [specify the geometry of the soil profile]	<input type="checkbox"/>						
I am trying to model [an unsaturated clay sample]	<input type="checkbox"/>						
[i would like] to calculate the [saturated hydraulic conductivity]	<input type="checkbox"/>						
I was wondering [if someone could help me troubleshoot an issue]	<input type="checkbox"/>						

	Usability	Accessibility	Suitability	Experience	Trustworthiness	Compliance	NA
--	-----------	---------------	-------------	------------	-----------------	------------	----

[I'm attempting to use a] custom rate law [for a redox reaction]	<input type="checkbox"/>						
[there is an] error [message that appears]	<input type="checkbox"/>						

	Usability	Accessibility	Suitability	Experience	Trustworthiness	Compliance	NA
--	-----------	---------------	-------------	------------	-----------------	------------	----

[is it possible to get an] output [file]	<input type="checkbox"/>						
[We have a] doubt [about the saturation index calculation]	<input type="checkbox"/>						
[I've adjusted several] parameters	<input type="checkbox"/>						
[I plan to do some modification of source] code [and the development requires adding more parameters]	<input type="checkbox"/>						
[I am trying to plot [a stability diagram]]	<input type="checkbox"/>						
[I am simulating the] efficiency [of different soil cover materials]	<input type="checkbox"/>						

	Usability	Accessibility	Suitability	Experience	Trustworthiness	Compliance	NA
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[I would like to know if the installation problem is related to my] operating system	<input type="checkbox"/>						
[Floating point error] invalid [directory]	<input type="checkbox"/>						
[I'm not sure if there is a bug in the program or it is the way I am setting up my parameters...it would be one less thing to check in my analysis and] validation [routines]	<input type="checkbox"/>						

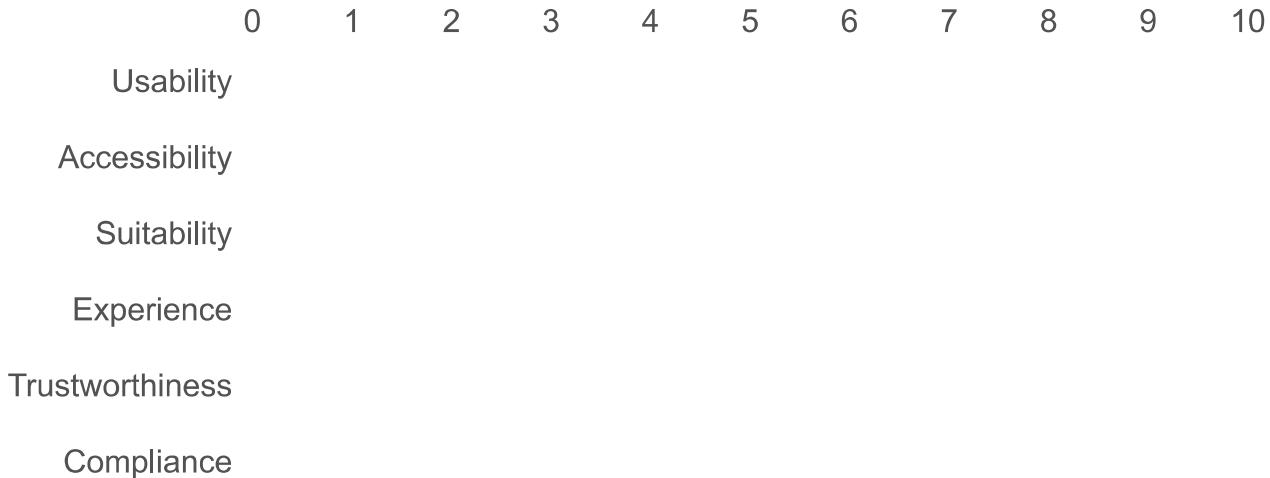
Usability Accessibility Suitability Experience Trustworthiness Compliance NA

[data is sensitive
to the
increase/decrease
of water but] fail
[in the magnitude]

You have selected multiple subcharacteristics for "I want to [change my account because...]" On a scale of 0 to 10, please rate how strongly you think the keyword is related to each subcharacteristic listed below. 0 indicates there is no relationship and 10 indicates there is a strong relationship.

Note: The scores are independent of each other and collectively do not need to add to 10.

Important: Assign a different score to each subcharacteristic (i.e., no two subcharacteristic scores can be the same).



You have selected multiple subcharacteristics for "am trying to run [simulations of water mixing and reactions]" On a scale of 0 to 10, please rate how strongly you think the keyword is related to each subcharacteristic listed below. 0 indicates there is no relationship and 10 indicates there is a strong relationship.

Note: The scores are independent of each other and collectively do not need to add to 10. **Important: Assign a different score to each subcharacteristic (i.e., no two subcharacteristic scores can be the same).**



You have selected multiple subcharacteristics for "I would like [to try a simple speciation model]". On a scale of 0 to 10, please rate how strongly you think the keyword is related to each subcharacteristic listed below. 0 indicates there is no relationship and 10 indicates there is a strong relationship.

Note: The scores are independent of each other and collectively do not need to add to 10. **Important: Assign a different score to each subcharacteristic (i.e., no two subcharacteristic scores can be the same).**



You have selected multiple subcharacteristics for "I need to [set up a reaction transport model]". On a scale of 0 to 10, please rate how strongly you think the keyword is related to each subcharacteristic listed below. 0 indicates there is no relationship and 10 indicates there is a strong relationship.

Note: The scores are independent of each other and collectively do not need to add to 10.

10. Important: Assign a different score to each subcharacteristic (i.e., no two subcharacteristic scores can be the same).



You have selected multiple subcharacteristics for "[I get this error] non definito (not defined) [and don't understand what is wrong]". On a scale of 0 to 10, please rate how strongly you think the keyword is related to each subcharacteristic listed below. 0 indicates there is no relationship and 10 indicates there is a strong relationship.

Note: The scores are independent of each other and collectively do not need to add to 10. **Important: Assign a different score to each subcharacteristic (i.e., no two subcharacteristic scores can be the same).**



You have selected multiple subcharacteristics for "how can I [fix this error]". On a scale of 0 to 10, please rate how strongly you think the keyword is related to each subcharacteristic listed below. 0 indicates there is no relationship and 10 indicates there is a strong relationship.

Note: The scores are independent of each other and collectively do not need to add to 10. **Important: Assign a different score to each subcharacteristic (i.e., no two subcharacteristic scores can be the same).**



You have selected multiple subcharacteristics for "I tried to [create a 24h accumulated 2m, but it didn't work]". On a scale of 0 to 10, please rate how strongly you think the keyword is related to each subcharacteristic listed below. 0 indicates there is no relationship and 10 indicates there is a strong relationship.

Note: The scores are independent of each other and collectively do not need to add to 10. **Important: Assign a different score to each subcharacteristic (i.e., no two subcharacteristic scores can be the same).**



You have selected multiple subcharacteristics for "I am not sure [what the value of parameters should be]". On a scale of 0 to 10, please rate how strongly you think the

keyword is related to each subcharacteristic listed below. 0 indicates there is no relationship and 10 indicates there is a strong relationship.

Note: The scores are independent of each other and collectively do not need to add to 10. **Important: Assign a different score to each subcharacteristic (i.e., no two subcharacteristic scores can be the same).**



You have selected multiple subcharacteristics for "[I encounter an error] no such file [however, the file is in the folder]". On a scale of 0 to 10, please rate how strongly you think the keyword is related to each subcharacteristic listed below. 0 indicates there is no relationship and 10 indicates there is a strong relationship.

Note: The scores are independent of each other and collectively do not need to add to 10. **Important: Assign a different score to each subcharacteristic (i.e., no two subcharacteristic scores can be the same).**



You have selected multiple subcharacteristics for "[I encounter an error] netcdf invalid dimension ID". On a scale of 0 to 10, please rate how strongly you think the keyword is related to each subcharacteristic listed below. 0 indicates there is no relationship and 10 indicates there is a strong relationship.

Note: The scores are independent of each other and collectively do not need to add to 10. **Important: Assign a different score to each subcharacteristic (i.e., no two subcharacteristic scores can be the same).**

0 1 2 3 4 5 6 7 8 9 10

Usability

Accessibility

Suitability

Experience

Trustworthiness

Compliance

You have selected multiple subcharacteristics for "[I receive] the following error [when I port the model]". On a scale of 0 to 10, please rate how strongly you think the keyword is related to each subcharacteristic listed below. 0 indicates there is no relationship and 10 indicates there is a strong relationship.

Note: The scores are independent of each other and collectively do not need to add to 10. **Important: Assign a different score to each subcharacteristic (i.e., no two subcharacteristic scores can be the same).**

0 1 2 3 4 5 6 7 8 9 10

Usability

Accessibility

Suitability

Experience

Trustworthiness

0 1 2 3 4 5 6 7 8 9 10

Compliance

You have selected multiple subcharacteristics for "[to estimate the] root water uptake [parameters instead of hydraulic parameters]". On a scale of 0 to 10, please rate how strongly you think the keyword is related to each subcharacteristic listed below. 0 indicates there is no relationship and 10 indicates there is a strong relationship.

Note: The scores are independent of each other and collectively do not need to add to 10. **Important: Assign a different score to each subcharacteristic (i.e., no two subcharacteristic scores can be the same).**

0 1 2 3 4 5 6 7 8 9 10

Usability

Accessibility

Suitability

Experience

Trustworthiness

Compliance

You have selected multiple subcharacteristics for "I have to [model a column experiment consisting of two phases]". On a scale of 0 to 10, please rate how strongly you think the keyword is related to each subcharacteristic listed below. 0 indicates there is no relationship and 10 indicates there is a strong relationship.

Note: The scores are independent of each other and collectively do not need to add to 10. **Important: Assign a different score to each subcharacteristic (i.e., no two subcharacteristic scores can be the same).**

0 1 2 3 4 5 6 7 8 9 10

Usability

Accessibility

Suitability

0 1 2 3 4 5 6 7 8 9 10

Experience

Trustworthiness

Compliance

You have selected multiple subcharacteristics for "[I tried to set up] boundary conditions [in the van Genuchten-Mualem model]". On a scale of 0 to 10, please rate how strongly you think the keyword is related to each subcharacteristic listed below. 0 indicates there is no relationship and 10 indicates there is a strong relationship.

Note: The scores are independent of each other and collectively do not need to add to 10.

Important: Assign a different score to each subcharacteristic (i.e., no two subcharacteristic scores can be the same).

0 1 2 3 4 5 6 7 8 9 10

Usability

Accessibility

Suitability

Experience

Trustworthiness

Compliance

You have selected multiple subcharacteristics for "[I am trying] to simulate the [water flow and the heat transport]". On a scale of 0 to 10, please rate how strongly you think the keyword is related to each subcharacteristic listed below. 0 indicates there is no relationship and 10 indicates there is a strong relationship.

Note: The scores are independent of each other and collectively do not need to add to 10.

Important: Assign a different score to each subcharacteristic (i.e., no two subcharacteristic scores can be the same).

0 1 2 3 4 5 6 7 8 9 10

Usability

0 1 2 3 4 5 6 7 8 9 10

Accessibility
Suitability
Experience
Trustworthiness
Compliance

You have selected multiple subcharacteristics for "is there any [practical prevention against the non-convergent loop]". On a scale of 0 to 10, please rate how strongly you think the keyword is related to each subcharacteristic listed below. 0 indicates there is no relationship and 10 indicates there is a strong relationship.

Note: The scores are independent of each other and collectively do not need to add to 10. **Important: Assign a different score to each subcharacteristic (i.e., no two subcharacteristic scores can be the same).**

0 1 2 3 4 5 6 7 8 9 10

Usability
Accessibility
Suitability
Experience
Trustworthiness
Compliance

You have selected multiple subcharacteristics for "i am simulating [the water, heat and CO2 transport]". On a scale of 0 to 10, please rate how strongly you think the keyword is related to each subcharacteristic listed below. 0 indicates there is no relationship and 10 indicates there is a strong relationship.

Note: The scores are independent of each other and collectively do not need to add to 10.

10. Important: Assign a different score to each subcharacteristic (i.e., no two subcharacteristic scores can be the same).



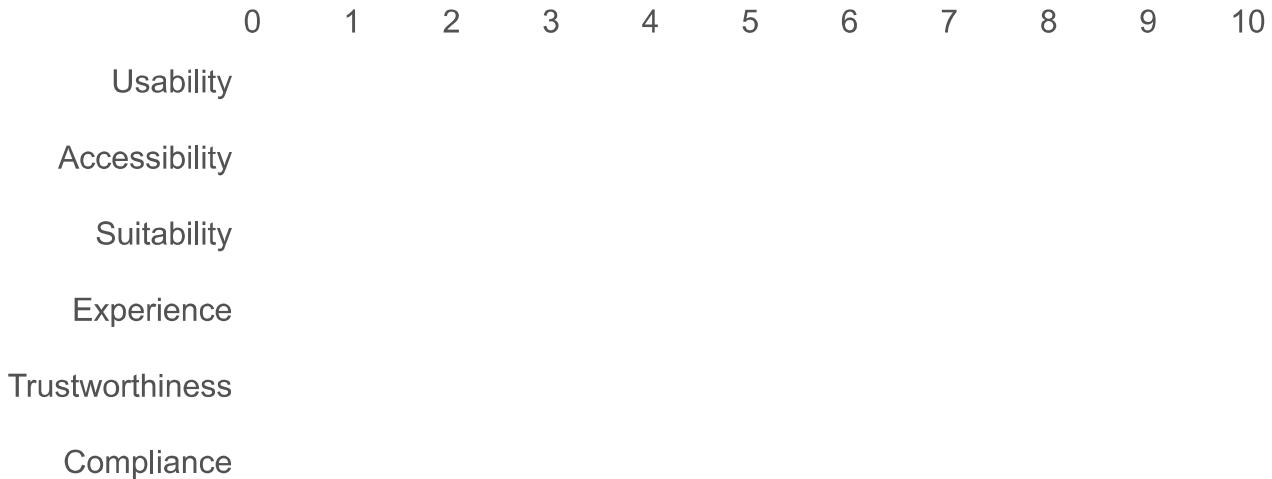
You have selected multiple subcharacteristics for "is it possible to [make the Solute Transport conditions time dependent]". On a scale of 0 to 10, please rate how strongly you think the keyword is related to each subcharacteristic listed below. 0 indicates there is no relationship and 10 indicates there is a strong relationship.

Note: The scores are independent of each other and collectively do not need to add to 10. **Important: Assign a different score to each subcharacteristic (i.e., no two subcharacteristic scores can be the same).**



You have selected multiple subcharacteristics for "[i need to fill out the] solute transport [parameters]". On a scale of 0 to 10, please rate how strongly you think the keyword is related to each subcharacteristic listed below. 0 indicates there is no relationship and 10 indicates there is a strong relationship.

Note: The scores are independent of each other and collectively do not need to add to 10. **Important: Assign a different score to each subcharacteristic (i.e., no two subcharacteristic scores can be the same).**



You have selected multiple subcharacteristics for "[is it appropriate to choose] variable pressure head [as the lower boundary condition]". On a scale of 0 to 10, please rate how strongly you think the keyword is related to each subcharacteristic listed below. 0 indicates there is no relationship and 10 indicates there is a strong relationship.

Note: The scores are independent of each other and collectively do not need to add to 10. **Important: Assign a different score to each subcharacteristic (i.e., no two subcharacteristic scores can be the same).**



You have selected multiple subcharacteristics for "how do I [specify the geometry of the soil profile]". On a scale of 0 to 10, please rate how strongly you think the keyword is

related to each subcharacteristic listed below. 0 indicates there is no relationship and 10 indicates there is a strong relationship.

Note: The scores are independent of each other and collectively do not need to add to 10. **Important: Assign a different score to each subcharacteristic (i.e., no two subcharacteristic scores can be the same).**



You have selected multiple subcharacteristics for "I am trying to model [an unsaturated clay sample]". On a scale of 0 to 10, please rate how strongly you think the keyword is related to each subcharacteristic listed below. 0 indicates there is no relationship and 10 indicates there is a strong relationship.

Note: The scores are independent of each other and collectively do not need to add to 10. **Important: Assign a different score to each subcharacteristic (i.e., no two subcharacteristic scores can be the same).**



You have selected multiple subcharacteristics for "[i would like] to calculate the [saturated hydraulic conductivity]". On a scale of 0 to 10, please rate how strongly you think the keyword is related to each subcharacteristic listed below. 0 indicates there is no relationship and 10 indicates there is a strong relationship.

Note: The scores are independent of each other and collectively do not need to add to 10. **Important: Assign a different score to each subcharacteristic (i.e., no two subcharacteristic scores can be the same).**



You have selected multiple subcharacteristics for "I was wondering [if someone could help me troubleshoot an issue]". On a scale of 0 to 10, please rate how strongly you think the keyword is related to each subcharacteristic listed below. 0 indicates there is no relationship and 10 indicates there is a strong relationship.

Note: The scores are independent of each other and collectively do not need to add to 10. **Important: Assign a different score to each subcharacteristic (i.e., no two subcharacteristic scores can be the same).**



0 1 2 3 4 5 6 7 8 9 10

Compliance

You have selected multiple subcharacteristics for "[I'm attempting to use a] custom rate law [for a redox reaction]". On a scale of 0 to 10, please rate how strongly you think the keyword is related to each subcharacteristic listed below. 0 indicates there is no relationship and 10 indicates there is a strong relationship.

Note: The scores are independent of each other and collectively do not need to add to 10. **Important: Assign a different score to each subcharacteristic (i.e., no two subcharacteristic scores can be the same).**

0 1 2 3 4 5 6 7 8 9 10

Usability

Accessibility

Suitability

Experience

Trustworthiness

Compliance

You have selected multiple subcharacteristics for "[there is an] error [message that appears]". On a scale of 0 to 10, please rate how strongly you think the keyword is related to each subcharacteristic listed below. 0 indicates there is no relationship and 10 indicates there is a strong relationship.

Note: The scores are independent of each other and collectively do not need to add to 10. **Important: Assign a different score to each subcharacteristic (i.e., no two subcharacteristic scores can be the same).**

0 1 2 3 4 5 6 7 8 9 10

Usability

Accessibility

Suitability

0 1 2 3 4 5 6 7 8 9 10

Experience

Trustworthiness

Compliance

You have selected multiple subcharacteristics for "[is it possible to get an] output [file]". On a scale of 0 to 10, please rate how strongly you think the keyword is related to each subcharacteristic listed below. 0 indicates there is no relationship and 10 indicates there is a strong relationship.

Note: The scores are independent of each other and collectively do not need to add to 10. **Important: Assign a different score to each subcharacteristic (i.e., no two subcharacteristic scores can be the same).**

0 1 2 3 4 5 6 7 8 9 10

Usability

Accessibility

Suitability

Experience

Trustworthiness

Compliance

You have selected multiple subcharacteristics for "[We have a] doubt [about the saturation index calculation]". On a scale of 0 to 10, please rate how strongly you think the keyword is related to each subcharacteristic listed below. 0 indicates there is no relationship and 10 indicates there is a strong relationship.

Note: The scores are independent of each other and collectively do not need to add to 10. **Important: Assign a different score to each subcharacteristic (i.e., no two subcharacteristic scores can be the same).**

0 1 2 3 4 5 6 7 8 9 10

Usability

0 1 2 3 4 5 6 7 8 9 10

Accessibility
Suitability
Experience
Trustworthiness
Compliance

You have selected multiple subcharacteristics for "[I've adjusted several] parameters". On a scale of 0 to 10, please rate how strongly you think the keyword is related to each subcharacteristic listed below. 0 indicates there is no relationship and 10 indicates there is a strong relationship.

Note: The scores are independent of each other and collectively do not need to add to 10. **Important: Assign a different score to each subcharacteristic (i.e., no two subcharacteristic scores can be the same).**

0 1 2 3 4 5 6 7 8 9 10

Usability
Accessibility
Suitability
Experience
Trustworthiness
Compliance

You have selected multiple subcharacteristics for "[I plan to do some modification of source] code [and the development requires adding more parameters]". On a scale of 0 to 10, please rate how strongly you think the keyword is related to each subcharacteristic listed below. 0 indicates there is no relationship and 10 indicates there is a strong relationship.

Note: The scores are independent of each other and collectively do not need to add to

10. Important: Assign a different score to each subcharacteristic (i.e., no two subcharacteristic scores can be the same).



You have selected multiple subcharacteristics for "[I am trying to] plot [a stability diagram]". On a scale of 0 to 10, please rate how strongly you think the keyword is related to each subcharacteristic listed below. 0 indicates there is no relationship and 10 indicates there is a strong relationship.

Note: The scores are independent of each other and collectively do not need to add to 10. **Important: Assign a different score to each subcharacteristic (i.e., no two subcharacteristic scores can be the same).**



You have selected multiple subcharacteristics for "[I am simulating the] efficiency [of different soil cover materials]". On a scale of 0 to 10, please rate how strongly you think the keyword is related to each subcharacteristic listed below. 0 indicates there is no relationship and 10 indicates there is a strong relationship.

Note: The scores are independent of each other and collectively do not need to add to 10. **Important: Assign a different score to each subcharacteristic (i.e., no two subcharacteristic scores can be the same).**



You have selected multiple subcharacteristics for "[I would like to know if the installation problem is related to my] operating system". On a scale of 0 to 10, please rate how strongly you think the keyword is related to each subcharacteristic listed below. 0 indicates there is no relationship and 10 indicates there is a strong relationship.

Note: The scores are independent of each other and collectively do not need to add to 10. **Important: Assign a different score to each subcharacteristic (i.e., no two subcharacteristic scores can be the same).**



You have selected multiple subcharacteristics for "[Floating point error] invalid [directory]". On a scale of 0 to 10, please rate how strongly you think the keyword is related to each

subcharacteristic listed below. 0 indicates there is no relationship and 10 indicates there is a strong relationship.

Note: The scores are independent of each other and collectively do not need to add to 10. **Important: Assign a different score to each subcharacteristic (i.e., no two subcharacteristic scores can be the same).**



You have selected multiple subcharacteristics for "[I'm not sure if there is a bug in the program or it is the way I am setting up my parameters...it would be one less thing to check in my analysis and] validation [routines]". On a scale of 0 to 10, please rate how strongly you think the keyword is related to each subcharacteristic listed below. 0 indicates there is no relationship and 10 indicates there is a strong relationship.

Note: The scores are independent of each other and collectively do not need to add to 10. **Important: Assign a different score to each subcharacteristic (i.e., no two subcharacteristic scores can be the same).**



You have selected multiple subcharacteristics for "[data is sensitive to the increase/decrease of water but] fail [in the magnitude]". On a scale of 0 to 10, please rate how strongly you think the keyword is related to each subcharacteristic listed below. 0 indicates there is no relationship and 10 indicates there is a strong relationship.

Note: The scores are independent of each other and collectively do not need to add to 10. **Important: Assign a different score to each subcharacteristic (i.e., no two subcharacteristic scores can be the same).**



Now that you are familiar with the definitions for the QIU subcharacteristics of Usability, Trustworthiness, Compliance, Experience, Acceptability, and Suitability, select **one** category you think the keyword/phrase relates to. Categories are:

QIU Definition - The keyword/phrase is in the QIU subcharacteristic definition or is strongly related to a word(s) in the definition.

Domain Specific - The keyword/phrase is related to questions you might ask based on your RTM domain expertise or questions you might ask to determine if the RTM will fulfill your research needs.

Hybrid - This is a combination of keywords/phrase from the QIU definition and your domain expertise.

If you would like to review the definitions for the QIU characteristics and subcharacteristics again, click on "Show More +" in the box below.

QIU Characteristic and Subcharacteristic Definitions

Show More +

	QIU Definition	Domain Specific	Hybrid
I want to [change my account because...]	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
am trying to run [simulations of water mixing and reactions]	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I would like [to try a simple speciation model]	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I need to [set up a reaction transport model]	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
[I get this error] non definito (not defined) [and don't understand what is wrong]	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
how can I [fix this error]	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I tried to [create a 24h accumulated 2m, but it didn't work]	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am not sure [what the value of parameters should be]	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	QIU Definition	Domain Specific	Hybrid
[I encounter an error] no such file [however, the file is in the folder]	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
[I encounter an error] netcdf invalid dimension ID	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
[I receive] the following error [when I port the model]	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
[to estimate the] root water uptake [parameters instead of hydraulic parameters]	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	QIU Definition	Domain Specific	Hybrid
I have to [model a column experiment consisting of two phases]	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
[I tried to set up boundary conditions [in the van Genuchten-Mualem model]]	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
[I am trying] to simulate the [water flow and the heat transport]	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
is there any [practical prevention against the non-convergent loop]	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	QIU Definition	Domain Specific	Hybrid
i am simulating [the water, heat and CO2 transport]	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
is it possible to [make the Solute Transport conditions time dependent]	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
[i need to fill out the] solute transport [parameters]	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
[is it appropriate to choose] variable pressure head [as the lower boundary condition]	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
how do I [specify the geometry of the soil profile]	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am trying to model [an unsaturated clay sample]	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
[i would like] to calculate the [saturated hydraulic conductivity]	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I was wondering [if someone could help me troubleshoot an issue]	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	QIU Definition	Domain Specific	Hybrid

	QIU Definition	Domain Specific	Hybrid
[I'm attempting to use a] custom rate law [for a redox reaction]	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
[there is an] error [message that appears]	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
[is it possible to get an] output [file]	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
[We have a] doubt [about the saturation index calculation]	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
[I've adjusted several] parameters	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
[I plan to do some modification of source] code [and the development requires adding more parameters]	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
[I am trying to] plot [a stability diagram]	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
[I am simulating the] efficiency [of different soil cover materials]	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	QIU Definition	Domain Specific	Hybrid
[I would like to know if the installation problem is related to my] operating system	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
[Floating point error] invalid [directory]	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
[I'm not sure if there is a bug in the program or it is the way I am setting up my parameters...it would be one less thing to check in my analysis and] validation [routines]	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
[data is sensitive to the increase/decrease of water but] fail [in the magnitude]	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

End

Are there any other keywords or phrases you would like me to consider adding? If so, please provide the QIU subcharacteristic you think it is most related to (Usability, Accessibility, Suitability, Experience, Trustworthiness, or Compliance). Also provide the category (QIU Definition, Domain Specific, or Hybrid) the keyword belongs to.

Example: keyword/phrase - subcharacteristic - category; keyword/phrase - subcharacteristic - category; etc.

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