



Evaluation results: Modeling & Numerical Techniques (November 1-7, 2018)

Course details

Instructors: Carlos Sierra and Axel Kleidon

More information is provided on the webpage:

www.imprs-gbgc.de/index.php/Courses/Modeling2018

8 out of 15 participants filled in the survey by November 15, 2018.

Survey results

Did the goals and the structure of the course matched well with the course description?

- 8x yes

To which extend has the course improved/clarified your general notion of modeling & numerical techniques?

- a bit
- It gives me a comprehensive introduction of modelling and numerical techniques
- It was interesting as fundamental principals of mathematics and physical background were provided.
- it has contribute a lot in my general notion of modeling
- Generally was good but the explanation of the numerical methods used for solving PDE's could be more detailed.
- The course really helped me to understand more about the conceptualization and translation of the models into a mathematical framework. In a scale from 0 to 10 I would rate 8 in this question.
- The course provided a thorough introduction to the process of conceptualizing a problem in mathematical terms, and then using a modeling technique to evaluate it.
- It helped to get a grasp of how modellers think and build up their systems. And it was made very clear what the strengths and drawbacks of modelling are.

Do you think the workshop was helpful for your skills? Would you recommend this course to others?

- 7x yes
 - it is and I recommend such a course to others who are interested to be involved in modelling techniques.
 - the workshop was extremely helpful, I could completely recommend it.
 - specially for the ones interested in to have a general notion of the concepts of modeling.
 - It was good to start modelling by ourselves. Even if we were overwhelmed in the beginning, it was nice to go through the whole process
- just to those who have very little mathematical and physical background

Did the trainers take sufficient time / opportunities for questions and discussions?

- 7x yes
 - all of the instructors were open to questions and discussion, and they seemed committed to making sure every student understood the material.
 - I believe more time may be taken to the resolution of the excersices proposed. It would be better to reduce the number of excersices but expend more time in their resolution.
- Both Carlos and Axel explained in detail, further they encouraged participants to open discussion and working groups.

Which parts of the workshop were especially good (and why)?

- the excersises (in which we started from scratch) the parts were we in general discussed, 'what do we need to solve the task'.
- The part when carols refresh the basic of math and also give hands-on practises
- I liked both sections, the one was given by Carlos paid our attention to mathematical principle that are intensively used in modelling with some interesting applications on R; and the other that was given by Axel focused more on scientific applications of differential equations, particularly in climate systems feedback.
- the mathematical framework clarified a lot of ideas and the coding of some models helped a lot to understand the models and the possible ways to use them.
- inversion methods using Bayesian probability
- For me the first two day and the part about vegetation modeling, because I work with forest ecology and do not have an advanced background in modelling and coding.
- Carlos did a great job introducing modeling as a technique, and I thought his practical excersices were particularly well-designed. Both Axle and Carlos did a great good of showing how to select and apply mathematical relationships to ecological variables---the conceptualization process that is at the core of ecological modeling.

- I liked Axel's modelling exercises, going through the whole process of asking a question, setting up a model for that and then implementing it into code.

Which parts of the workshop were not so good / not so fitting / not well enough presented?

- 4x none
- We went through many examples/topics and equations. It might have been better to reduce that amount and more focus on: what do we need for modeling, how do I approach a modeling task, How do I solve differential equations numerically. - Maybe that was thought but I missed it.
- I think the part about dynamic vegetation modeling could be more explored in the course, using more examples and exercises.
- While Maik presented very interesting material, I found the hydrology section a bit too dense (complex) for someone with a limited background in hydrology. The practical exercises for this section were much too complicated to follow.
- It would be good to clarify more what forces are that vary with time, what parameters are and how to choose them (it appeared a bit random), and what is the model output.

Do you have other suggestions for a future course?

- Might be good have more hands-on session so we can understand the concept better
- practical exercises time could have been taken for a bit longer as differences in pre-knowledge of participants vary.
- The main suggestion is to decrease the number of exercises per topic of information (e.g. water balance model, etc) and expend up more time on them, making them in groups. This can really facilitate for students with less background in modeling and coding.
- Like many of the BGC courses, I found that the instructors overlapped quite a bit in the material presented. It would be more efficient if the instructors designed their lecture material to be more complimentary and with less overlap. I also think the hydrology section could be made more conceptual and less complex.
- One exercise going through the complete process together would be nice, and then implementing them.