Updates on Bay Model Tech Transfer Workshop

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for
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Modeling Quarterly Review
04/02/2019
Annapolis

Plan

Session 1: March 12-14
UMCES-IAN Office
Annapolis

Session 2: July 23-25
National Conservation Training Center
West Virginia

Big thanks go to:

Carl Cerco
Dom DiToro
John Massey
Gary Shenk
So-called TAs
UMCES IAN Office

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Schedule

- **Doors open 08:30**
- **Morning session I 08:45-10:15**
- **Break 10:15-10:30**
- **Morning session II 10:30-12:00**
- **Lunch 12:00-13:00**
- **Afternoon session I 13:00-14:30**
- **Break 14:30-14:45**
- **Afternoon session II 14:45-16:30**

Lectures

Day 1, morning session 1 – CFC lectures on model
Day 1, morning session 2 – CFC lectures on model
Day 1, afternoon session 1 – Dominic DiToro lectures on diagenesis model
Day 1, afternoon session 2 – John Massey introduces cloud computing, 30 box model

Day 2, morning session 1 – CFC lectures on model
Day 2, morning session 2 – CFC lectures on model
Day 2, afternoon session 1 – Richard and others lead class exercises on 30-box model
Day 2, afternoon session 2 – Richard and others lead class exercises on 30-box model

Day 3, morning session 1 – CFC lectures and demonstrates specific processors for 50,000 box model.
Day 3, morning session 2 – Richard demonstrates 50,000-cell model run in the cloud
Day 3, afternoon session 1 – optional additional time for 50,000-cell model

EXCERCISES

Exercise 1 "How long to steady state" – Start from uniform initial conditions and examine how long for water and sediments to reach steady state. This involves looping the model for several ten-year runs (control file wqm_con.npt, change TEND from 365 to 3650 in line 16)

Exercise 2 "Fall-line N control. Reduce by 40%" – Examine effects of N control. Also involves looping. (wqm_con.mpt line 124 column 5)

Exercise 3 "Fall-line P control. Reduce by 40%" – Examine effects of P control. Also involves looping. (wqm_con.mpy line 124 column 6)

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Exercise 4: Reduce/increase settling through water column – Here we would examine concentrations in water and sediments. This will take several ten-year runs to come to steady state. (wqm_stl.run214, double the number in line 8, run 10 years)

Exercise 5: Reduce/increase net settling to sediments - Here we would examine concentrations in water and sediments. This will take several ten-year runs to come to steady state. (wqm_bfi.run214, double numbers in line 65, resuspension expressed in velocity)

Exercise 6: Change N or P at open boundary – This can be accomplished easily via the REDCBN and REDCBP parameters in the control file. These are multipliers of boundary concentrations. To halve boundary concentration of N, set REDCBN to 0.5 (wqm_con.npt line 127, double the number run 10 years)

Exercise 7: Reduce/increase DOC mineralization rate – Change KDC in mineralization file. Possibly doesn't need to be looped. (KLDC, wqm_mrl.run199, line 29, double/reduce by half)

Exercise 8: Reduce/increase DON mineralization rate – Change KDN in mineralization file. (KLDN, wqm_mrl.run199, line 59, double or reduce by half)

Exercise 9: Phytoplankton growth rate (wqm_agr.run223, lines 111 & 117, increase/decrease the first number by 100)

Exercise 10: Grazing pressure to top-down control (wqm_agr.run223, lines double the third numbers or reduce by half)

Exercise 11: T control on remineralization (wqm_mrl.run199, lines 11 and 14, double the second numbers on line 14)

Exercise 12: T control on diagenesis (wqm_bfi.run214, line 20-22 for P, N and C, increase/decrease 0.1 the second numbers)

Exercise 13: Light attenuation coefficient (wqm_kei.run115, line 11, increase/decrease the first numbers)

Barometer of success, or failure (?)

On a scale from 1 to 5:

How would you evaluate the overall workshop?
Average 4.8

How well did the workshop fit your training/information needs?
Average 4.7

How would you evaluate the lectures?
Average 4.8

How would you evaluate the workshop exercises?
Average 4.3

How much of the information that you needed to get started?
Average 4.4

Recommendation in the feedback

- **Exercises on the same platform (cloud).**
- **Make full model package available.**
- **Multiple levels of lectures in future workshops.**
- **Clear distinction between general concepts and model setup exercises versus more advance key concepts and calibration/ sensitivity exercises.**
- **Discussion on common model problems (e.g. blow up, forcing preparation) would be great. Senior modeler can introduce some of their experience in model calibration and validation, the problems they met and how they solve that, some detailed model projects.**
- **It might be helpful to have a half day in future workshops for holding a small conference that students may present their work and communicate with fellow students and lecturers.**
- **It would be great if there were the slides distributed from Dom‘s seminar.**
- **A general overview of the model, i.e. input/output files.**
- **Better diagrams and maps that describe bay geometry and segmentation.**
- **I think a short survey from students before the workshop may help in determining the length and depth of lectures covered in the workshop.**
- **Guidance for exploring Annapolis would be appreciated.**

See you in Shepherdtown

Bring your family and relatives

They have 3-star-hotel dorms

They have a 5-star-restaurant cafeteria