

Continental Scale hydro model inter-comparison for SWOT Teleconference summary 2017 03 28

by Cédric H. David

In attendance

Rodrigo Paiva
Dai Yamazaki,
Ed Beighley,
Guy Schumann,
Tamlin Pavelsky,
Etienne Gaborit,
Vincent Fortin,
Christine Lion
George Allen,
Cedric David.

Meeting minutes

Guy: presented flow depth estimates from GRWL width, SRTM slope, and WBM flows.

Tamlin: How dependent are your results on your choice of a universal Manning's n for rivers at 0.03? Would using a slightly different value help match the cumulative distribution curve comparing USGS site observations and your estimates?

Guy: I was thinking about trying to map n from these comparisons. But perhaps using a different universal n is also a good idea.

Ed: I usually use 0.02 or 0.025 for Manning's n , perhaps this would help? Actually, a lower Manning's n would further decrease your depth estimates which are already low.

Cedric: is the alpha value you report for the two-sample KS test like a p-value?

Guy: yes it is.

Cedric: What's the hit rate?

Guy: I separate the dataset into bins and I count how many times my estimates are within the expected bin. 0.85 hit rate means 85% are within the correct bins.

Rodrigo: You're using estimates of discharge from the WBM model for North America. Is this going to stand in the way of doing this for the entire globe?

Guy: Actually, there are WBM model results available globally. The validation might be more challenging elsewhere, but we can do it, I've already started.

Ed: Have you considered changing the geometry of your channel to help match the shape of your cumulative distribution curve? It seems like a trapezoidal channel might help you keep good estimates for large flows but might also better capture depths at low flows.

Guy: That's a great suggestion. Let me look into that.

Cedric: This is really exciting because we can start to see some great potential for using this dataset as part of the modeling effort.

Tamlin: We are happy to share the dataset for other SWOT-related efforts particularly because it was developed with funding from the SWOT Science Team. We ask that researchers take into account the fact that we're still working on publishing a couple of associated papers and we appreciate people's patience in publishing their own results after these two papers.

Cedric: How long would it take to get this dataset ready for the Niger River Basin, which is our next target?

Guy: It's basically ready as of right now. Just hoping to validate a bit more and try alternative approaches before I can fully stand by it.

Dai: We can also measure bank top elevation from SRTM. Have you considered doing that?

Guy: That's a great suggestion. And actually, that's one of the parameters needed by LISFLOOD. It's worth thinking about.

Ed: Has anyone looked at relating a DEM-derived river network with an observed river network? We have some tools to do that.

Tamlin: That's basically exactly what Christine did.

Christine: Yes indeed. Though there are challenges in ensuring that drainage areas are consistent at the confluence of two rivers or at the onset of an observed river.

Cedric: Where do we stand on the Japan meeting? Dai and Hyungjun are already on site. Aaron is going. I got my plane tickets. What about you Ed?

Ed: Still looking into this, it's more expensive than I thought and we're still waiting on sub-contract from JPL.

Action items

Add analysis tools to GitHub site (Cedric)

Discuss potential for other assessment metrics. For example, show variability of streamflow for river reaches captured by SWOT (sample shown as 10% largest rivers).

Next presentation by Dai's student on their global data assimilation work in the context of SWOT. Likely mid April.

Perhaps Colby's presentation on VIC simulations in May?